

# European Technology Platform on Smart Systems Integration

## EPoSS Position on the Green Paper

**“From Challenges to Opportunities:  
Towards a Common Strategic Framework  
for EU Research and Innovation funding”**



## **Questionnaire for the Green Paper on a common strategic framework for EU research and innovation funding.**

### **Information about the respondent**

- I am answering as: **Other (European Technology Platform)**
- Country of location: **EU level organisation**
- Organisation's main activity: **Other (European Technology Platform)**
- The name of my organisation is **EPoSS - European Technology Platform on Smart Systems Integration**
- Received funding: **The ETP has not received any funding; however the members of the ETP have received funding from FP7, CIP, JTI, research/innovation support programmes in respective Member States.**
- Have you or do you intend to submit a separate written response to this consultation?  
**No**

## **Working together to deliver on Europe 2020**

The questions in this section correspond to Section 4.1 of the Green Paper.

**1. How should the Common Strategic Framework make EU research and innovation funding more attractive and easy to access for participants? What is needed in addition to a single entry point with common IT tools, a one stop shop for support, a streamlined set of funding instruments covering the full innovation chain and further steps towards administrative simplification?**

**1a. How should the Common Strategic Framework make EU research and innovation funding more attractive and easy to access for participants?**

Reduced complexity along with transparently defined priorities, faster decision procedures and a trust based approach in the interaction between the COM and beneficiaries of EU research and innovation funding would raise attractiveness of the CSFRI even further.

The variety of instruments to be defined for the CSFRI has to be binding across all the DGs in the Framework Programme. The same Rules for Participation should be implemented in an identical manner across the entire CSFRI. There has to be one and only one interpretation of regulatory details across all DGs, Directorates and Units. A separate Agency for the operational management of all programmes and control of projects might provide a mechanism to achieve this. However, there is a huge risk of “detachment” through officers not being directly in touch with the reality of R&D projects.

The Simplification Measures as approved by the Council and EP are an important step, but debate has to be advanced and existing proposals have to be assessed according to their real benefits for users. The acceptance of national rules for cost calculation and the acceptance of non-recoverable VAT as eligible costs will help to reduce uncertainties for project partners. In general a more risk-tolerant and trust-based approach to administration is required.

Wherever appropriate a 2-stage application process should be implemented with a maximum of 10- 20-page application for the 1st stage; and - only after evaluation and selection - a detailed project plan for the second stage. (the FET-Open model could serve as an example in this regard). In addition, in order to avoid wasting resources for proposal writing for a probable success rate of only 15 % or less, priorities of Calls for Proposals should be more focused.

A radical alternative for easing FP micromanagement and lowering the entry barrier to newcomers is that local research ecosystems could act as partners represented by a co-ordinator (regulated by an internal ad-hoc contractual agreement – without subcontracts and third parties).

**1b. What is needed in addition to a single entry point with common IT tools, a one stop shop for support, a streamlined set of funding instruments covering the full innovation chain and further steps towards administrative simplification?**

Information access is already very good today. Beyond the policy of a single entry point, decentralized networks of entities for information and advice should be maintained. Especially SMEs, in their strive to develop an innovation culture, are particularly dependent on these

local information and contact points for capacity building through engagement in cooperation on a European scale.

Whilst acknowledging the attempts to shorten “time to contract”, the proven track-record for the EPSS (Electronic Proposal Submission System) tool for the submission of proposals and the Participants Portal (PP) with its various valuable functionalities, however, a substantial breakthrough in reducing red tape will only be achieved by a more trust-based and risk-tolerant approach leading to an economically sound relationship between administrative costs versus the value of grants.

The CSFRI should offer a set of financial instruments focussing on the various types of research, development and innovation activities within a streamlined set of funding instruments covering the full innovation chain. In this context the CSFRI should provide the principles and concepts of a broader coherent approach involving further instruments as e.g. the successor of the CIP, structural funds, regulatory initiatives, etc.. An alternative could also consist in applying whenever appropriate a lump sum funding to avoid the microeconomical justification of costs.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

## **2 How should EU funding best cover the full innovation cycle from research to market uptake?**

The CSFRI should be designed to integrate, politically and conceptually, the full innovation cycle: from fundamental research („blue sky”), through to applied R&D, to demonstration, validation, and the testing of prototypes allowing for pilot deployment guided by market strategies.

The innovation cycle is an integrative process including also issues of non-technological innovation, including for instance the generation of new business models, and does not always follow consecutive patterns. In its various phases the innovation cycle requires appropriate instruments of support to maximise impact and relevance from every perspective of industrialisation.

However, the CSFRI should not fund the full innovation cycle: it should fund R&D which is risky and inherently prone to “losses”: The enormous costs which steadily increase from basic research up to product development present a major problem for any kind of public policy in fostering innovation consists in: The costs for post-research activities, i.e. testing, validation, field trials, pre-development, are between 10 to 20 times higher than those of stand-alone research. Achieving an impact by public instruments becomes increasingly difficult as the innovation cycle approaches applications and product development. Direct financial instruments such as project funding can also become problematic when they touch the sphere of competition.

Consequently the instrument of project funding for activities beyond research requires a multiplicity of resources in order to produce an impact comparable to those currently available in the Framework Programme. One solution might be to limit market-facing support to very specific cases - e.g. field trials with a particular importance for addressing societal challenges.

Consequently, the core of the CSFRI should be applied research using known instruments. However, the CSFRI should be more in line with industrial strategies as it is industry who implements innovations, and its needs have to be taken into account more thoroughly. The

evaluation criteria often lead to the approval of R&D projects driven by universities and research centres representing a high level of innovation, however producing results with low possibilities to be manufactured at large scale by industries in the medium term. Financial resources should be focused clearly on "industrial research and development" and take into account industrial exploitation in terms of manufacturability and manufacturing infrastructures.

In order to boost innovation the CSFRI offers an excellent tool: the European Innovation Partnerships which should address primarily frame conditions including regulatory and legal aspects. As many examples demonstrate – from the Californian legal act on Zero-Emission vehicles, and the US FDA fast track procedure, to environmental regulations in the EU – legal/regulatory interventions are often even more effective in boosting innovation.

An innovation policy approach could consist of an integrated model with interlinking elements consisting of ERC-like research, FET, applied and strategic industrial research, trials (co-financed by other sources). These activities should - whenever appropriate - also be co-ordinated and combined with activities outside the CSFRI, with EIPs as the governance mechanism for overall co-ordination.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

### **3 a. What are the characteristics of EU funding that maximise the benefit of acting at the EU level?**

Added European value needs to remain the decisive criterion for intervention in innovation cycles. EU funding should strictly follow the principle of subsidiarity and help to combine dispersed capacities in Europe in a better way taking advantage of complementary strengths. The major objective of ambitious R&D projects should be to gain competitive advantage by opening transnational R&D co-operation, technology resources and networks, partnering, and by offering possibilities to influence (pre-) standardisation.

The definition of thematic priorities has to be the result of a continuous and transparent process following a set of criteria, the most important of which should be the existence of a critical mass of R&D capacity in Europe in a given technology sector, a realistic expectation of medium-term returns of R&D investments (production, business opportunities, employment) in Europe, the consequent global competitive advantages for European industry and reasonable cost/benefit performance for public expenditure. Covering identified gaps between application requirements and the availability of technological solutions should be also an acceptable criterion even if the associated R&D capacity is not yet well established.

Involvement of young researchers in these collaborative networks should receive special attention, since skilled researchers are indispensable for maintaining our high level R&D&I quality both now, and into the future.

### **b. Should there be a strong emphasis on leveraging other sources of funding?**

Leveraging of other sources of funding can be made mandatory, but can be considered beneficial if a project is suitable for additional *private* investments. In basic research there is hardly any attraction for risk-averse private financing sources e.g. venture capital.

The combination of *public* sources might collide with the inadmissibility of cumulating public funding.

There is also the risk of diluting public policy objectives if project partners have to serve multiple interests.

How important are the aspects covered in this question? [Very important, **Important**, Of some importance, Unimportant, Don't know]

#### **4 How should EU research and innovation funding be used to pool Member States' research and innovation resources? Should Joint Programming Initiatives between groups of Member States be supported?**

At the very start, the conclusion of the Treaties of Rome in 1957 recognised that great economic challenges affecting the involved Member States could effectively be faced only by an appropriate entity at supranational level. The new-established European institutions appeared to be an acceptable compromise between ceding national sovereignty and gaining joint advantages. The delegation of policy issues to European entities up to now proved to be the appropriate model when common European interest is tackled and when advantages can be shared by the Member States. Vice versa, most of the structures with an all-embracing European ambition set-up outside the European institutions are less advantageous and have proved less efficient.

Consequently, whenever challenges of pan-European interest are tackled they should first and foremost be addressed by European institutions. "Separate" initiatives carried out at Member State level which involve European budgets should be an exception. This applies also to EU research and innovation funding to be used to pool Member States' research and innovation resources. However, a more co-ordinated approach in research and innovation policy is needed particularly concerning the division of labour among the various administrative levels (European, national and regional). In that sense a leading role has to be attributed to the European Commission and in particular to the CSFRI.

Joint Programming Initiatives should be logistically supported by the Commission, but not by financial means. They should complement – and not replace – the CSFRI activities. JPIs should offer a model to allow Member States to address issues of research and innovation and align their policies also at sub-EU-27 level in flexible configurations focused around a common denominator of national interests.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

#### **5 What should be the balance between smaller, targeted projects and larger, strategic ones?**

Pre-defined quotas of certain categories of projects tend to be counter-productive. Projects - by nature being set up to achieve specific objectives - need to vary substantially in size, composition and in their response to tactical or strategic requirements. Companies and institutes, in order to reach specific objectives, need to be free to find the appropriate approach in the innovation cycle of a technology, and in identifying the number and the complementary profile of partners to be involved in the solution. Therefore, consortia should have the freedom to decide on the type of instrument for the specific purpose.

Ample room in the CSFRI is required to accommodate this variety in size and composition to fulfil the goals set. Short term results as well as responses to the “Grand Challenges” encompassing the overall strategic direction are necessary to gain tangible European added value.

A number of research topics driven by strategic agendas, however, are in need of a flexibility of scale to evolve in. This is not just a matter of size or critical mass, but of the needs for changes in emphasis to be recognised in the journey towards an overall target.

Strategic projects are necessary to develop ground breaking technologies or to pave the way for extending cross-cutting technologies to still unaware industrial sectors or critical applications. The difference between large and small projects should not be the size or the budget but the degree of strategy of their objectives.

How important are the aspects covered in this question? [Very important, **Important**, Of some importance, Unimportant, Don't know]

## **6 How could the Commission ensure the balance between a unique set of rules allowing for radical simplification and the necessity to keep a certain degree of flexibility and diversity to achieve objectives of different instruments, and respond to the needs of different beneficiaries, in particular SMEs?**

The rules of the Framework Programme are considered complex and cumbersome not only by beneficiaries of all kinds, but particularly by SMEs, and often also by the Commission's staff. Establishing a unique set of rules and at the same time maintaining a high degree of tailor-made flexibility, are important factors. Co-ordination between the DGs is required in order to implement a consistent and unique interpretation.

Within the dynamic framing conditions required by changing policy objectives, a set of principles has to be developed to serve the differing purposes.

As innovation by its very nature implies risk-taking to a certain degree, this set of principles has to include clear, simple, transparent, trust-based and risk tolerant rules and guidelines applicable to all - not designed to serve a particular type of beneficiary. The less the number of rules, the better in terms of simplification and flexibility; the less the number of instruments with different rules, the better, that is to say, less rules and greater commonality of rules for different instruments will be highly beneficial.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

## **7. What should be the measures of success for EU research and innovation funding? Which performance indicators could be used?**

Success is measured against objectives. A set of clear objectives – without being exhaustive and certainly depending on moving targets as well as attributable to a multitude of factors - could comprise:

- raising public and private investments in R&D;
- fostering the ERA;
- enhancing the output and impact of Europe's entire innovation system.



Performance indicators in a macro-economic scale could comprise

- progress towards an R&D investment target of 3% of GDP;
- the share of national/regional R&D&I (Research & Development Innovation) programmes coordinated at European level.

These individual indicators – inter alia – need to be consolidated within the new single integrated innovation indicator requested by the European Council to better monitor progress in innovation.

Criteria of success at *project level* need to take into account that also a failure might lead to progress and to an increase of the knowledge base. Nevertheless result-based rather than cost-based funding would not only create a new bureaucratic monster, but call entirely into question the rationale of public R&D support.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

**8. How should EU research and innovation funding relate to regional and national funding? How should this funding complement funds from the future Cohesion policy, designed to help the less developed regions of the EU, and the rural development funds?**

The objectives of the European programmes of Research (FP7), Regional Development (Structural Funds, Cohesion Funds), Education (Lifelong Learning) and Inclusion (Social Funds) are not suitably aligned for being complementary or synergetic. Significant gains could be expected by accepting the importance of proximity within a regional dimension in research, development and innovation value chains. It has to be considered that the knowledge triangle of research, innovation and education follows different spatial characteristics. Also here, appropriate integrated approaches to serve the cross-cutting issues need to be pursued to complement various sources of funding, of regional, national or European origin.

Structural Funds should not be used to compete among MS and regions, but to proceed in a coordinated and most cost effective way, particularly when they are used for supporting the creation of research and technology support infrastructures. The ETPs in this regard could play an important conceptual role.

Cohesion funds may also be used to support the participation of innovative stakeholders in the European research and innovation system and to support the initial activities of innovative companies and start-ups.

How important are the aspects covered in this question? [Very important, **Important**, Of some importance, Unimportant, Don't know]



## **Tackling Societal Challenges**

The questions in this section correspond to Section 4.2 of the Green Paper.

### **9. How should a stronger focus on societal challenges affect the balance between curiosity-driven research and agenda-driven activities?**

Research taking into account the needs arising from societal challenges will create benefits for society, politics and the economy as a whole. Most of the research and technology development activities currently supported within the Framework Programme already - implicitly or explicitly - do address societal challenges. However, giving a clear orientation by defining the societal objectives to be followed would provide a better basis for integrating activities along the innovation chain. The core of the CSFRI should be industry driven research.

Therefore, the issue is less the balance between curiosity-driven research and agenda-driven activities - which should not be seen as a dichotomy – it is rather the better recognition and management of their symbiosis. Higher priority should be attributed to the integration of activities consisting on the one hand of the systematic use of scientific methodologies in order to obtain new basic findings, and on the other hand of research activities with an economic perspective (commonly distinguished as fundamental and applied research). Both of course should be at the same time “curiosity-driven” and “agenda-driven”. Europe needs a fully primed “innovation pipeline”.

Politically defined societal challenges determine a corridor for industrial strategies strategies related to research, pre-development, product development and business models. The work programmes of the CSFRI should therefore support industry, including SMEs, to proceed in a systematic manner and to follow their own strategies within this corridor. An approach is required which supports strategic industry research and downstream take up. Building-up a technology pool in order to serve societal challenges includes:

- the concentration of resources by setting technology priorities in view of societal challenges by defining a clear controlled technology focus of achievable industrial research objectives, as well as
- setting the conditions for implementing strategic industrial research by allowing industry to suggest requirements for instruments and to define the content.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

### **10. Should there be more room for bottom-up activities?**

Given the need of future and emerging technologies as a basis/origin for subsequent research and development activities, the FET scheme of the ICT Programme - which appeared to be a successful instrument - should be extended also to other areas of the CSFRI.

Successfully finished FET and ERC projects showing a clear societal interest should benefit from a second phase financing.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

### **11. How should EU research and innovation funding best support policy-making and forward-looking activities?**

A condition for supporting “policy-making and forward-looking activities” consists of the systematic evaluation of the achievements of projects and programmes over longer periods.

Foresight and perspective studies supported within the CSFRI should form the basis for improving policy decision processes.

The definition and verification of societal challenges and policy priorities should undergo a continuous update through regular peer reviews and studies and by establishing expert networks. In that sense CSAs should be more widely and frequently used as an instrument for strategic purposes. This can only become truly effective if distortions of participation possibilities among the target groups are eliminated by funding 100% of the indirect costs.

Further investments are needed into valuable instruments such as the European Innovation Scoreboard (EIS) and the Innobarometer.

How important are the aspects covered in this question? [Very important, **Important**, Of some importance, Unimportant, Don't know]

### **12. How should the role of the Commission's Joint Research Centre be improved in supporting policy-making and forward-looking activities?**

For “Supporting policy-making and forward-looking activities” the Joint Research Centre could use its relative autonomy in order to address entirely new topics and to test-drive new methodologies. An important role can be attributed to the JRC particularly in the field of social and economic research, as an integrator of European knowledge and methodologies. A conflict of interest could arise when “using” the JRC too much for legitimising the Commission's own policy approaches.

Measures should be taken in order to improve the visibility and acceptance of the JRC at national level.

How important are the aspects covered in this question? [Very important, **Important**, Of some importance, Unimportant, Don't know]

### **13. How could EU research and innovation activities attract greater interest and involvement of citizens and civil society?**

EU research and innovation activities already attract a great interest which is demonstrated by the attractiveness of the Framework Programme to its participants and would-be participants.

The definition and promulgation of the societal challenges that EU research and innovation activities are focussing on will increase the support and confidence of the European public.

The objectives and results of projects affecting the daily life of citizens should be communicated through mass media; roadshows and other forms of face-to-face engagement

within for example schools and workplaces will undoubtedly be supportive. Communication should avoid any bureaucratic jargon.

How important are the aspects covered in this question? [Very important, Important, **Of some importance**, Unimportant, Don't know]

## **Strengthening competitiveness**

The questions in this section correspond to Section 4.3 of the Green Paper.

### **14. How should EU funding best take account of the broad nature of innovation, including non-technological innovation, eco-innovation and social innovation?**

For addressing the “broad nature of innovation” EU funding is only one instrument whose major impact can be realised in the field of research. Achieving an impact by public instruments becomes increasingly difficult as the innovation cycle approaches applications and product development. Direct financial instruments such as project funding can also become problematic when they touch the sphere of competition. Therefore the instrument of direct funding should be limited to very specific cases - e.g. field trials otherwise not feasible (but not limited to certain technology areas). EU funding, of course, could help to foster the integration of disciplines, actors and activities across various steps of the value chain (cfr. also Pt. 2).

An important role in addressing the broad nature of innovation should be assumed by the Innovation Partnerships. They should take care of the coordination of the various R&D&I activities and in addition concentrate on legislative and regulatory conditions, on Intellectual Property, e.g. the European Patent, on public procurement rules favourable for innovations, and the use of Structural Funds for generating „best practice“ in manufacturing (e.g. by pilot lines). In order to support SMEs the debate on the RSFF as a financing tool for SMEs' R&D should be re-launched. Instruments of start-up support (e.g. fiscal incentives, coaching...) and SME support following the Small Business Act (SBA) model used in the US should be addressed. Issues of interoperability will have to be addressed as they play a different, but always important role in the various Innovation Partnerships.

Last, but not least: overcoming institutional barriers between Directorates and DGs would also be helpful, particularly for favouring more interdisciplinary projects (taking the EGCI PPP as a very positive example).

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

### **15. How should industrial participation in EU research and innovation programmes be strengthened? How should Joint Technology Initiatives (such as those launched in the current Framework Programmes) or different forms of 'public private partnership' be supported? What should be the role of European Technology Platforms?**

#### **1) Industrial participation in EU research and innovation programmes:**

- The current set of instruments within the FP (STREP, IP, PPP, etc...) has sufficient breadth to address the differing challenges of industrial research. However, it should preferably be the “customer/user” to decide upon which instrument to use on a case-by-case basis.
- In order to identify “research of excellence” the expertise of the evaluators has to be increased. The conflict of interest rules should be redefined and be applied on a case-by-case basis rather than for an entire Call.
- Proposal evaluation: The regulations concerning conflict of interest have to be modified in order to enlarge the pool of high qualified evaluators from public research and,

particularly, of industry. Furthermore remote evaluation facilitates the participation of industry experts

- Excessive over-subscription has to be avoided. There is an obvious mismatch between the desires of the Commission (a maximum of applications) and the needs of the beneficiaries (an optimal success rate).
- Applicants and project partners need to have competent interlocutors from the side of the Commission. Cutbacks in staff in the Commission and/or externalisation of project officer tasks will have counterproductive effects on the relation with the Framework Programme's customers, impede on-hands experience and reduce strategic competencies. Therefore the present practice should remain unchanged.

## **2) Joint Technology Initiatives:**

Against the background of a continuous decrease of industry participation in the Framework Programme ARTEMIS and ENIAC are a significant step forward in terms of industry involvement as these JTIs provided a PPP model largely driven by industry. However, there are also a series of disadvantages:

- Protracted procedures of implementation
- Additional bureaucracy and management costs (mainly caused by the necessity to set-up a Community Body)
- Multiplicity of often divergent interests
- Imbalances of the countries' budgets allocations and problems in the selection/evaluation process due to budget asymmetries.
- Hardly any additional budgets mobilised, but crowding-out effects on akin programmes

We therefore share the recommendations of the First Interim Evaluation of the ARTEMIS and ENIAC Joint Technology Initiatives ([http://ec.europa.eu/dgs/information\\_society/evaluation/rtd/jti/artemis\\_and\\_eniac\\_evaluation\\_report\\_final.pdf](http://ec.europa.eu/dgs/information_society/evaluation/rtd/jti/artemis_and_eniac_evaluation_report_final.pdf)). Future PPPs should take into consideration the experience gained by setting-up initiatives such as the EGCI (European Green Car Initiative) which has proved to be very successful. Well co-ordinated calls were published by the involved services of the European Commission within FP7. There was no dissipation of resources on behalf of applicants and reduced management efforts at the COM's side due to clearly defined priorities which led to a reasonable number of proposals. The PPP process from the first idea for the PPP to the first contract was faster than that of any other comparable initiative. Following this model a division of labour within which the private side represented by a legal entity (association) provides the technology content and the public side takes care of implementation and management. The public side would be represented by the European Commission. To strengthen the PPP, this division of labour should preferably be formalised by means of a contractual agreement, in line with one of the options explored by the JTI Sherpas Group (see p. 19 of [ftp://ftp.cordis.europa.eu/pub/fp7/docs/jti/jti-sherpas-report-2010\\_en.pdf](ftp://ftp.cordis.europa.eu/pub/fp7/docs/jti/jti-sherpas-report-2010_en.pdf)).

## **3) European Technology Platforms:**

The European Technology Platforms (ETPs) fulfil an important role in policy development, in formulating joint R&D strategies and also in community building. They give a voice to the various technology communities they are representing, provide strategic information, roadmaps and Strategic Research Agendas. They help the research communities to better address policy objectives and societal challenges. Some of them have focused particularly

on implementing PPP models. By all these activities they contribute to competitiveness of European industry.

However, the situation of individual ETPs varies in terms of operational and financial resources. In the CSFRI more emphasis should be put on a common framework setting requirements for and defining the role of ETPs in the future CSFRI. At the same time ETPs should have the possibility to apply for financial support, if they provide a catalogue of networking/infrastructural activities and a work programme, e.g. in the framework of CSA Calls.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

**16. How and what types of Small and Medium-sized Enterprises (SME) should be supported at EU level; how should this complement national and regional level schemes? What kind of measures should be taken to decisively facilitate the participation of SMEs in EU research and innovation programmes?**

SMEs as part of any innovation ecosystem are increasingly becoming vital elements in larger, even global value chains and play a decisive role complementary to that of larger companies in their ability to perform Open Innovation. EU policies should primarily address R&D performing SMEs. National and regional authorities should primarily focus on increasing the innovation capacities of SMEs (such as the German ZIM Programme) and qualify SMEs and strengthen their ability to co-operate with international partners.

Resource consuming proposal preparation and uncertainty of approval are the main reasons for the lack of participation of SMEs and should be addressed with highest priority.

A preferred option for SMEs to participate in research projects is by subcontract. Therefore the barriers of assigning subcontracts to SMEs have to be lowered and the financial volume has to be increased. Vice versa, subcontracting specific R&D activities by SMEs to universities and research centres should be encouraged.

Last but not least, particular actions should be taken in order to involve more SMEs in JTIs and other forms of PPPs.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

**17. How should open, light and fast implementation schemes (e.g. building on the current FET actions and CIP eco-innovation market replication projects) be designed to allow flexible exploration and commercialisation of novel ideas, in particular by SMEs?**

The flexible exploration and commercialisation of novel ideas, in particular by SMEs, should be addressed at national and regional level. EU funding should first of all promote excellence and impact of pre-competitive R&D in a European context. Mechanisms have to be defined and interaction with national and regional authorities has to be put in place in order to facilitate the exploitation of results.

How important are the aspects covered in this question? [Very important, **Important**, Of some importance, Unimportant, Don't know]

**18. How should EU-level financial instruments (equity and debt based) be used more extensively?**

A European seed and venture capital fund should be established, because the RSFF is currently not well suited to create a risk minimisation for SMEs due to its specific characteristics (no grant, minimum loan amount, involvement of the bank).

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

**19. Should new approaches to supporting research and innovation be introduced, in particular through public procurement, including through rules on pre-commercial procurement, and/or inducement prizes?**

Stimulating innovation by an “intelligent” public procurement concept focussing particularly on early stage technology adoption and test-driving beta-versions are considered a powerful instrument to create both accelerated technological progress as well as to set the conditions for market breakthroughs. The Commission should act as a pacemaker in designing procurement rules favourable for innovation, particularly in respect of pre-commercial procurement, which will allow public authorities to commission R&D and new technological solutions from the private sector.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

**20. How should intellectual property rules governing EU funding strike the right balance between competitiveness aspects and the need for access to and dissemination of scientific results?**

Any future set of IP rules governing EU funding should

- allow for different IPR strategies in companies and support consortium partners independent of their IPR strategies, whereby collaboration between consortium partners is promoted, by encouraging the use of each other's project results to the extent needed for the use of one's own project result, without requiring further compensation for such use.
- allow for flexibility in consortium building and for different partner constellations within project consortia (e.g. combinations of SMEs, large companies, universities and public research),
- provide hands-on support to beneficiaries in the negotiation phase of their consortium agreement, i.e. in the form of interactive templates or counselling
- set some basic principles regarding access to research results, exploitation of results and knowledge transfer, e.g. by making an implementation plan mandatory, but otherwise leave it to the consortium to decide to which research results public access shall be provided (no blanket obligation to provide public access or to publish, no restriction of IP protection) and how exploitation and knowledge transfer shall take place



- consider not only the benefits of providing open access to publicly funded research, but also take into account potential drawbacks in terms of compromising Europe's competitive edge or the economic impact of EU research
- support consortia in the fight against international IP violations
- be combined with incentives for complementary strategies that provide access to research and translate research into practice, e.g. standardization

In addition, in order to achieve a level playing field with other major regions in the world, the EU patent should be introduced. Today's fragmented patent system in the EU should be replaced by an EU-wide patent system, thereby facilitating a more (cost) efficient and effective protection of intellectual property.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

## **Strengthening Europe's science base and the European Research Area**

The questions in this section correspond to Section 4.4 of the Green Paper.

### **21 How should the role of the European Research Council be strengthened in supporting world class excellence ?**

Investigator-driven frontier research as supported by the ERC is vital to the EU's innovation capacity and research excellence and essential for its future. Through the ERC, scientific excellence is at the same time stimulated, recognized and rewarded thereby further guaranteeing sustainable excellence.

Both the position and the profile of the ERC should therefore be kept in the future CSFRI.

To adapt to today's research principles, and since a large part of frontier research in Europe is supported through national funding systems, and in order to further increase performance and excellence of frontier research in EU, it should further be considered to establish a mechanism for complementary or balancing support from Member States, i.e. in the form of funding for national ERC applicants that passed the ERC quality threshold, but were not retained for ERC funding.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

### **22 How should EU support assist Member States in building up excellence?**

Member States certainly need to constantly revise, optimise and modernise their public research base and there is a need for the EU to assist Member States in building up excellence. However, the EU should in addition become more proactive and pursue an integration of EU and Member States' approach to research and innovation support and policy measures, instead of merely seeing its role in "assisting" Member States.

In general, it will likely be advantageous for excellence both on regional, Member States and EU level to work jointly on coherent policy approaches, to pursue complementary, interlinked and coordinated activities at Member States and EU level, to make synergetic use of available national and EU funding and to improve connections and complementarity between Structural Funds (developing and supporting regional R&D capacity) and the future CSFRI (providing funding for specific research projects and programmes). In doing so, duplication of effort should be avoided. See also the suggestion in Question 21.

Measures and initiatives should build on and make use of the three levers of the knowledge triangle (education, research and innovation). Member States should thus focus on

- providing attractive framework conditions to attract and keep leading academics, researchers and innovators,
- further qualifying and training experts according to national, EU and international benchmarks in R&D&I and at the same time matching industry needs in terms of required skills
- making use of their excellence in research and innovation to translate research into innovative and successful products and services, and to boost Europe's innovation capacity, global competitiveness and economic growth

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

**23. How should the role of Marie Curie Actions be strengthened in promoting researcher mobility and developing attractive careers?**

The exchange of researchers between academia and industry through Marie Curie actions should not only be continued in the future CSFRI, but should even be further expanded to accommodate for more cross-sectoral, interdisciplinary and pan-European exchanges, and also allowing for exchanges of older researchers.

In view of building-up excellence at the national and regional level (see previous question), the possibility to provide complementary funding for national or regional staff exchange programmes through Marie Curie actions should be continued. Also, exchange programmes should be made more attractive to researchers and industry by making the administrative procedures for application, selection and funding easier. In addition to industry hosting researchers from academia, academic sabbaticals for industrial researchers should also be stimulated.

European Technology Platforms could well play a role in this context in the future CSFRI, since they bring together excellence in industrial, public and academic research.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

**24. What actions should be taken at EU level to further strengthen the role of women in science and innovation?**

Concerted actions at EU and Member States' levels are required to strengthen the role of women in research and innovation. The gender dimension should be seen as horizontal in all areas of R&D&I and throughout all support and policy measures of the future CSFRI.

Actions should target the whole research life cycle and should cover

- raising awareness and enthusiasm for (scientific) research as early as possible, even in (high) school
- stimulating the participation of women in scientific classes / courses at school and university
- promoting women careers in academic, public and industrial research
- promoting more inter- and trans-disciplinary research in order to fully benefit from the innovation potential in terms of gender dimension
- linking gender research more closely to gender equality policies
- increasing the share of women within boards and committees, e.g. in evaluation panels for EU research projects (but, in order to guarantee excellence and competitiveness, they should not replace the standard of best fit with a simple quota)
- making use of further promotion activities and support measures, such as Girl's Days, special PhD programmes for women, women-in-science networks and social media, etc.

NB: Not only the focus to "strengthen the role of women" is important: There is the common problem in Europe consisting of a lack of young people's interest in scientific and technical

studies and in careers as scientists or engineers (not only women). Thus related awareness has to be raised and attractiveness of technical studies and R&T/D work has to be shown.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

**25. How should research infrastructures (including EU-wide e-Infrastructures) be supported at EU level?**

In general, funding for research infrastructures through Structural Funds and national financing should be complementary.

Decisions on research infrastructures including e-infrastructures shall be based on the topics defined within CSFRI and should take into account the roadmap of the ESFRI. They should also follow the overall principle of complementary and coherent support measures, and that of coordinated and synergetic activities on Member States and EU level (see also Question 22).

In addition to the funding of the international access to European level infrastructures EU funding should also partially cover the purchase of the equipment of those infrastructures, which provide no direct economical benefit to the hosting country. (This is of particular relevance when decisions on allocating new infrastructures are taken for supporting the take-off of less developed European countries or regions).

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

**26. How should international cooperation with non-EU countries be supported e.g. in terms of priority areas of strategic interest, instruments, reciprocity (including on IPR aspects) or cooperation with Member States?**

Even though in general we see the openness of the EU funding programmes as positive, and welcome the strategic approach foreseen for the future CSFRI that targets the grand challenges, we are at the same time concerned about Europe's openness not being fully reciprocated globally, about potential knowledge drain, and about potential disadvantages in terms of Europe's competitiveness. To address these concerns we suggest:

- having a close look at IPR issues and defining clear rules for the protection of individual IP and joint exploitation on a global scale
- seeking reciprocity, e.g. in terms of access for EU research and industry to national support programmes and funding opportunities in non-EU partner countries or in terms of requesting co-financing from partner countries
- encouraging the development of academic sites in non-EU countries, training and recruiting excellent researchers
- avoiding fragmentation of international cooperation activities through focussing thematically and financially on clear targets thereby tackling the grand challenges
- devising a specific mix of support and policy measures for international cooperation that efficiently links bilateral and European initiatives and also makes better use of synergies in a coordinated Member States' and EU approach.

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

**27 Which key issues and obstacles concerning the ERA should EU funding instruments seek to overcome, and which should be addressed by other (e.g. legislative) measures?**

The question should not be where to draw the line between EU funding instruments and other measures or to divide responsibilities among public bodies, but rather

- to define a mix of funding and policy measures and
- to achieve a smart interplay of these measures as well as
- a very close cooperation between the responsible bodies at EU and Member States' levels and
- better coordination, complementarity, interplay and synergies between EU programmes and national initiatives

in order to achieve the goal of “smart, sustainable and inclusive growth” as defined in the Europe 2020 strategy.

Examples of such policy measures to be interlinked with funding instruments are

- smart incentives to generate local activities and develop local strengths, such as market incentive programmes, governmental initiatives, tax reductions, public procurement policies, measures protecting European companies, a policy of structural subsidies
- legislation supporting Europe's competitiveness, growth and sustainability
- the completion of the single market as an area of free movement for goods, people, services and capital
- the introduction of the EU patent (see also Question 20)

The Innovation Partnerships should play a pacemaking role in defining measures for improving the basic framework for innovation.

(See also answers to Questions 3 and 4)

How important are the aspects covered in this question? [**Very important**, Important, Of some importance, Unimportant, Don't know]

**Closing questions**

**Are there any other ideas of comments which you believe are important for future EU research and innovation funding and are not covered in the Green Paper?**