Ministeren for videnskab, teknologi og udvikling

Folketingets Europaudvalg
Folketingets Udvalg for Videnskab og Teknologi

Til orientering fremsendes det danske svar på den høring, Kommissionen lancerede med grønbogen 'Fra udfordringer til muligheder: Mod en fælles strategisk ramme for EU-finansiering af forskning og innovation', KOM(2011) 48 af 9. februar 2011.

Med venlig hilsen

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MINISTRY OF ECONOMIC AND BUSINESS AFFAIRS
DENMARK

Ministry of Science
Technology and Innovation

Danish answer to the Green Paper "From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation funding"

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1) Introduction and main priorities

The Danish government supports the European Commission's plans to integrate instruments from the Competitiveness and Innovation Framework Programme (CIP), the Framework Programme for research and development (FP7) and the European Institute of Innovation and Technology (EIT) within a Common Strategic Framework (CSF). A future Common Strategic Framework should be coherent, streamlined and fulfil the ambition of significant simplification. Programmes under the framework must have clear European added value and their effectiveness and impact should be closely monitored with valid output and outcome measures.

In the green paper the Commission outlines three main challenges for Europe: Tackling societal challenges, strengthening competitiveness and strengthening Europe's science base and the European research area. These are fundamental challenges the common strategic framework should address and therefore a valuable starting point for discussing the common strategic framework. Denmark is favourable to a structure of the common strategic framework mirroring these three overall challenges. The fourth challenge outlined in the green paper - working together to deliver on Europe 2020 - is also a key political focus point.

Fundamental questions to discuss include priority setting in terms of relative budget for the various pillars and priority setting in terms of which challenges and key enabling technologies that should be in focus. In general Denmark is particularly favourable to increasing the relative budget for the European Research Council, research infrastructure and commercialisation and demonstration of technologies within the common strategic framework for research and innovation.

This mirrors the fact that it is a key Danish priority that any future programme structure for research and innovation funding should contribute positively and targeted to promote productivity, growth and competitiveness of European companies. In this respect the instruments supporting SME access to financing innovation and growth play an important role and should be prioritised which should also be reflected in the design of future governance structures to handle innovation measures in the EU.

The link to other programmes such as educational programmes and structural funds is also a key question to consider. Denmark strongly favours ensuring links to the educational programmes. With a common strategic framework for research and innovation and a common strategic framework for cohesion policy under the heading of EU2020 it will also be possible to discuss synergies and complementarities at a strategic level across initiatives.

Apart from these general considerations regarding structure and budgetary priorities, Denmark answers the questions posed by the Commission in the green paper in the following.

2) Working together to deliver on Europe 2020

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?

The European Commission's continuing efforts to streamline and simplify the framework programmes are crucial to ensuring the greatest possible benefit from the EU's research funding as well as attracting applications from excellent researchers and innovative businesses. Easing the application and executive burden for users has to be a core focus for the future common strategic framework. The users should spend their time on their core business, not on administration. Therefore the abovementioned instruments – a single entry point, a one stop shop for support, a streamlined set of funding instruments and further steps towards administrative simplification – are important steps in order to make the EU research and innovation funding more easy to access for participants.

The European Commission has taken an important step towards simplification under FP7, but additional initiatives are needed. Consequently, the next framework programme should first of all be based on less administration. At the same time, Denmark supports the suggestion in the midterm evaluation of the seventh framework programme of a moratorium on new instruments and that the framework programme is made more userfriendly.

Less administration
Reporting requirements should be simplified by reducing the number and size of reports and their scope. In particular, Denmark recommends reducing the number of so-called periodic reports which contain both financial and scientific parts.

Another heavy administrative burden for participants is the time recording system. The European Commission must accept the various time recording systems and methods of calculating cost of effort in projects in the institutions of grant holders. A simplification of the time recording system would contribute to a significant simplification of the reporting requirements.

Time-to-grant should be significantly reduced. In relation to SMEs, time-to-grant can be reduced via SME certification schemes in Member States. If national SME certification schemes are introduced in Member States the Commission does not have to verify the status of the SMEs and the negotiation stage is thereby shortened. When relevant it should be possible to start up the project during the negotiation phase with the European Commission with the applicants bearing the financial risk until negotiations are finalized.

More trust
The next framework programme should shift from a control based approach to a more trust based approach, which would also be enabled through simplification of the framework programme. The Commission's proposal of increasing the tolerable risk of error should be considered so as to achieve the right balance between trust and control.

More flexibility in project management
More flexibility is needed in order to raise the degree of freedom for participants in the management of projects when creating, building and adjusting consortia. The involvement of new beneficiaries must be made easier in particular the ones ensuring capitalisation of innovative results. Simplifying administration in order to ease affiliation of new beneficiaries and ensure flexibility is a key objective.

The principle of allowing grant beneficiaries to choose between having their overhead calculated based on the actual costs or based on a fixed percentage rate of 60% should be upheld. It is also important that the applicants clearly understand whether this choice is available to them or whether they need to establish systems for calculating the actual costs in case the fixed percentage rate option is eliminated.

Fewer and more coherent instruments
As has been pointed out in the Innovation Union Flagship Initiative and the mid-term evaluation of the framework programme, the high number of uncoordinated instruments is problematic. Duplication of instruments should be avoided. The aim should be fewer overlaps and no new instruments should be established without clarifying the area covered by existing instruments. The ERAC reports on synergies and ERA-related instruments should be taken into consideration.

Fewer special rules
The number of special rules applicable to the individual research programmes and project types is too large. It is important not to introduce additional special rules and exceptions, but rather to reduce them to make the framework programme significantly more user friendly. The same set of rules and the same procedures should, to the greatest extent possible, be used in the framework programme as well as in the implementation of programmes such as ERA-NET plus, Article 185 and the JTIs.

Ensure stability of rules
The Commission should avoid as much as possible changes in the rules of participation during the framework programme. Stability of rules is a measure of simplification itself.

More uniform interpretation of the rules within the programmes and across the programmes
It appears to be relatively common for the same set of rules to be interpreted differently throughout the Commission. For instance rules regarding the calculation of working hours and determination of exchange rates are interpreted differently by different units in the Commission under the People programme. A uniform internal interpretation and administration of the rules must be ensured.

The rules for intellectual property rights should be made more understandable and uniform for all research programmes and project types
The rules for intellectual property rights are extremely complex. The users of the framework programme are therefore often forced to seek expert help to interpret the rules and to ensure that their interests are taken into consideration. Furthermore, the provisions for intellectual property rights differ depending on the rules for participation that govern the programmes as well as on the grant agreements upon which they rest. The rules for intellectual property rights should therefore

be made simpler, more understandable and uniform for all research programmes and project types with the aim of reaching generally accepted IPR rules in all research programmes and project types.

More user friendly communication and guidance for applicants
The access to EU research and innovation funding should be approved through better and more user friendly guidance for applicants. The differing rules and requirements for applicants in different programmes cause confusion and resignation especially for novel participants.

Ways to improve access could for example be to provide a concrete overview of the process and requirements within an EU project. The one stop shop and single entry point already proposed by the Commission could also contribute to a better overview of the possibilities and requirements in the EU research and innovation funding programmes.

Furthermore better guidance supporting applicants during the application phase is required e.g. through user oriented step-by-step guides or templates and case descriptions for drafting applications. The use of a user friendly language that takes into consideration that the terminology in the funding programmes is unfamiliar for many participants is another important measure to improve access to EU research and innovation funding.

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

A key challenge for Europe is to transform its high quality research into innovation. Denmark supports the idea of increasing the focus on the whole value chain from basic research to the market. When research results are available, the next step towards the market is often testing or demonstrating the results. However, this is often very costly and therefore difficult for businesses, especially for SMEs, to execute. Future projects should be able to address this challenge by receiving funding for this stage in the development of new innovative solutions. The scope of the support for demonstrations and testing should be adjusted to accommodate the fact that the activities take place relatively close to the market so significant private co-financing should be required, as is also the case in the current framework programme.

The major share of EU funding for research and innovation is currently allocated to the early stages of the innovation cycle (research), while only relatively few resources are allocated to late-stage innovation activities. The Common Strategic Framework should aim at achieving a better balance between funding available for early and late stages of the innovation cycle by increasing the share of EU funding available to late stage innovation activities such as demonstration, testing, commercialisation and non-technological innovation.

Global competitors such as the United States are already funding demonstration and commercialisation activities in strategic industries and technology domains. To match its global competitors, the EU needs to ensure that enterprises in Europe, in particular SMEs, have access to funding for demonstration and commercialisation activities.

In addressing the full innovation cycle the synergies and complementarities with the cohesion policy should be addressed in accordance with the place based approach, cf. remarks on question 8.

3) What are the characteristics of EU funding that maximise the benefit of acting at the EU level? Should there be a strong emphasis on leveraging other sources of funding?

We live in a time of serious strain on public sector budgets and increasing global competition. Europe's competitiveness and the future standard of living depend on our ability to support and develop innovation in products, services and trade as well as in societal processes and models. The EU Framework Programme is one of the largest research and innovation investment platforms in the world, and it is therefore vital that the programme is rethought and planned in accordance with a growth-oriented agenda.

Europe must work together in areas where individual Member States lack the sufficient capacities and the critical mass to solve a given challenge by themselves. This especially applies to solving grand societal challenges.

Other key characteristics of EU funding that maximise the benefit of acting at EU level includes cross border cooperation, lesser duplication of national research and innovation investments and increased excellence through increased competition.

Incentives for increasing private investments in EU research and innovation programmes should be considered in the design of the Common Strategic Framework. Also, the synergies between the Common Strategic Framework and cohesion policy funds should be explored.

Denmark stresses the importance of continuing to monitor impacts of programmes and initiatives to ensure that public funding is directed towards programmes and initiatives that provide most value for money.

4) How should EU research and innovation funding best be used to pool Member States resources? How should Joint Programming Initiatives between groups of Member States be supported?

Denmark supports EU financing of research and innovation through the instruments ERA Net, ERA NET+ and Article 185 initiatives. This support is based on the assumption that it is ensured, that these instruments are supplementary to the strategic focus areas decided upon in the future Common Strategic Framework and to other initiatives like e.g. the Joint Programming Initiatives.

EU-topping-up as a bonus for using the common pot model in transnational cooperation
EU resources (co-funding and topping-up) could function as an incentive for Member States to engage in transnational and regional research programmes. Co-funding and topping-up could be a bonus that would be activated when countries coordinate their research activities and open up their national funding schemes to other countries. If there was to be a bonus activated when transnational cooperation and common pot is realised, then a model could in some cases be a mixed-mode common pot, which gradually could evolve into a real common pot.

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

Denmark favours a flexible approach to the number of partners and duration of the projects, leaving as much freedom as possible for the consortia to construct the strongest possible projects. The small-medium scale and large scale instruments have their respective strengths and appeal to different type of participants as well as targeting different research needs. Thus projects aimed at SMEs should in general be smaller in size and shorter in duration whereas projects targeting large scale industrial partners and research institutions often are large in size and long in duration.

Having this in mind, it is important to secure a well balanced proportion of both types of projects. Denmark is in favour of an increase in the number of projects targeting SME's which will de facto entail an increase in the number of small scale projects compared to the current framework programme.

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?

See answer to question 1

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

Demark generally supports the use of valid output and outcome indicators as the relevant measure of the effects of European research and innovation funding. Regarding the selection of more specific indicators to measure the success of the long-term goal Denmark would suggest the following:

The Commission should develop the indicators on FP-funded projects further
The existing system containing updated E-CORDA data thrice a year should be continued thus allowing Member States and other to monitor success-rates and patterns of participation etcetera. Compared to the situation during previous framework programmes the present situation provides far better data. Nevertheless, there is still a need to develop the basic statistics that are available. Today it is easy to monitor a country's success-rate in e.g. the Health programme but nearly impossible to get hold of a list of successful applicants to IMI calls. Thus application and funding data from ERANETs, ERA-NET+, Article 169/185 initiatives, JTIs and EIT-initiatives need to be an integrated part of the statistical packaged provided by the Commission to Member States when the FP8-monitoring system is set up.

Current Danish studies highlight international networks, cutting-edge knowledge, and access to new international markets as additional outcomes of explicitly international EU programmes such as FP7. It appears less clear, however, how these measures are to be converted into performance indicators, and how these indicators could be compared and qualified by e.g. national measures. Nevertheless, international networks, knowledge and access to new markets are among the foremost reasons why e.g. Danish SMEs choose to engage in international science and research collaborations. It would be extremely useful to highlight these potential benefits by means of hard data rather than just surveys and interviews.

Measurement of long term effects of FP-participation should be developed
Using the Unique Registration Facility the Commission should keep track on those companies that have participated in an FP-funded project in order to monitor the medium and long term effects of participation. The innovation performance of EU funded research and Innovation could be measured by looking at the number of patent applications generated by projects co-funded by EU funding. To what extent do companies contribute to greater economic growth? Do companies that have participated in an FP-funded project generate more trade and exports? Do they increase their employment of highly skilled and/or non-nationals? Preferably the monitoring could be carried out in countries that have nationwide central business registers thus avoiding the costly use of questionnaires.

A pilot study could be conducted within the Nordic countries using the differences in methods (a control group and a group exposed to treatment (FP-participation) compared before and after).

European Integration should be regularly monitored using available information about EU-funding acknowledgements from within the scientific publications
The number of publications in scientific journals which contains "funding acknowledgements" has increased rapidly within the last few years - thus allowing for improved monitoring without long and painful collections of lists of FP-funded publications from previous lists. Presently Web of Science contains more than 2800 publications published in 2010 that enlists either "ERC" or "European Research Council" as funding agency.

Co-publication patterns between Member States, FP-associated countries and others should be monitored regularly using such bibliometric data.

Monitoring of interplay between national and EU funding for R&D and innovation
Interplay between funding from national research councils and universities on one hand and European funding on the other hand should be monitored more systematically. Presently a total of 22 EU Member States are partly or fully providing data to EUROSTAT regarding the proportion of the nationally performed R&D that was funding by EU-funding. A number of national statistical agencies within the Member States also hold information at the level of individual university departments and companies regarding *other* R&D– funding sources. Thus it would be possible to monitor the interplay between different sources of funding. Using data on micro-level within some (or all) of the national statistical agencies studies should be done on the additionality of EU-funding. To what extend was it the same university departments and companies that participated in both various national funding schemes and in FP-funded projects? How many and which type of research active SMEs are participating in national funding schemes and in FP-funded projects etcetera?

Monitoring of European Research excellence
The ERC is a key instrument in fostering and supporting research excellence. The further scientific careers of ERC grant holders should be monitored on a regularly basis using register data, surveys and bibliometric sources.

EUROSTAT should conduct a common Public Research Commercialisation Survey
Harmonized common European statistical information on 1) the number of university spin-out companies, 2) number of university patent applications and 3) university income from licences should be collected regularly. Presently there is only a limited and scattered statistical evidence of the innovative effects of Europe's universities. Comparative data is only available for around a third of the Member States. Thus there is room for a much needed statistical improvement here.

Development of joint/coordinated ex post program evaluations between national/regional research funding institutions (e.g. research councils) and Commission Services
National and/or regional research councils should work together with Commission services on a joint or parallel ex post evaluation of e.g. EU and national funding schemes, research areas, or funding instruments within a specific program area such as ICT, biotech or social science and humanities. Presently there are very few European examples of joint research evaluations conducted across borders. Evaluations like the 2009 evaluation of clinical medical research carried out in parallel in both Finland and Sweden by the same panel should be used increasingly, and relevant parts of the European Framework programmes should be included together with a selection of those Member States and associated countries that choose to participate. Such a set up could be modelled using the Open Method of Coordination (OMC) – employed with success in ERAC.

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 programmes?

The research and innovation policy and the cohesion policy use different tools when addressing growth based on research and innovation. Where the research and innovation policy focus on projects at the European level and often with the participation of transnational actors and with a focus on research excellence, the cohesion policy focus on growth, based on the region's strengths and opportunities (a place based approach) and projects often involve many regional actors, which creates a partnership and a broad commitment. Both tools have advantages and are needed to reach the goals of EU2020.

In implementing the cohesion policy, the priorities of other European policies should be taken into account where relevant. Wherever possible, synergies have to be pursued. Ideally, European policies should be mutually reinforcing.

Regarding research activities, the cohesion funds could, with complementary investment, support research and innovation infrastructures and ICT infrastructure especially in the less developed regions.

In addressing the full innovation cycle from research to market uptake, the two policy-areas address some of the same issues and synergies are possible. The cohesion policy could – if it is consistent with the place based strategies – support activities that involve SME more (for instance through match-making SME with research and innovation projects) and can help spread new knowledge, establish demonstration facilities or create local networks.

From a cohesion policy perspective it is however important that these effort builds on regional strengths and opportunities. In order to take the priorities of the research and innovation policy into account on the ground, Member States must coordinate the place based elements of the policy with existing regional partnerships.

Administrative burdens must also be reduced to increase the effectiveness of future EU projects, for instance trough a standardisation of project management requirements across the various EU-programmes. It is however important to remember, that the place based approach have to be respected. Furthermore it is important that a strategic discussion on synergies and complementarities should not result in obligations to fence cohesion funding for specific actions.

3) Tackling Societal Challenges

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

European research cooperation ought to focus on the common grand challenges in European society.

To secure cohesion between the different initiatives launched to address grand challenges should be a central objective in the framework programme. A central aspect in this regard is to establish a strong link between the joint programmes and European innovation partnerships and the strategic focus areas of the framework programme.

Denmark agrees with the assessment set forth in the mid-term evaluation of the framework programme that the many strategic partnerships under the Cooperation Programme represent an important and valuable contribution to realising the European Research Area. However, the current thematic structure lacks the flexibility needed to target the strategic research projects to a limited number of grand societal challenges. As it stands, the current thematic structure faces a challenge in implementing the interdisciplinary approach needed to address grand challenges. Social sciences and humanities - and their link to natural sciences for instance - play an important role in this process.

The increased focus on grand challenges and thereby agenda-driven activities should be complemented by an increased budget for curiosity-driven research through an increased budget for the European Research Council to ensure the right balance between the two.

10) Should there be more room for bottom-up activities?

The short timeframes in which businesses operate make it crucial that short-term instruments are in place that can accept applications more often, such as twice a year. This is difficult for SMEs under the thematic programmes as they are forced to wait for a call that is appropriate for their project. In order to address this issue, the number of non-thematic, bottom-up driven funding opportunities aimed at SMEs should be increased significantly.

One point of criticism concerning the calls for application under the Cooperation Programme is the fact that these calls have been too narrowly defined. This can make it difficult for businesses to participate. At the same time, the narrowly defined calls for applications make it more difficult to execute interdisciplinary projects and leave less room for researchers to define their projects. Therefore, an effort to broaden calls for application is needed in future strategic research programmes. Broader calls would most likely require a new composition of evaluation committees where interdisciplinary competences play a bigger role.

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

European research cooperation ought to focus on the common grand challenges in European society. This implies focusing on relevant policy issues related to grand challenges. However, as stated in the answer to question 10 call for proposals should not be too narrowly defined. This entails that call for proposals should address grand challenges on a general level not specifying every detail that might be relevant for a particular policy initiative.

The next framework programme should comprise a strong strategic programme with a primary focus on a limited number of grand societal challenges. The main societal challenges to be tackled by the EU are already outlined in the Europe 2020 strategy and in Innovation Union. Denmark proposes that a coming strategic programme focuses on at least the following grand societal challenges: Climate change; Reduction on the dependence on fossil energy sources; Improvement of ressource efficiency including raw materials such as minerals and metals but also soil, water, air, biomass and eco-systems; Improvement of the state of health of the European population and thereby decreasing health sector costs; Sufficient and healthy food in Europe and globally; Improvement of European competiveness through the development of effective production systems; Enhancing cultural understanding and social coherence; And the ageing society.

12) How should the role of the Commission's Joint Research Centre be improved in supporting policy making and addressing societal challenges?

Member States and other stakeholders should be involved at an early stage in the process of selecting which grand societal challenges to focus on. Denmark supports the European Commission’s proposal in the Innovation Union flagship initiative that a European Forum on Forward Looking Activities is actively used in this process. It is vital that this forum bases its analyses on the comprehensive material that is regularly prepared by Member States

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

To ensure a broad understanding of research and innovation it is important to work towards strengthening the public interest in these areas and to spread the knowledge of the positive effects on society that research and innovation have.

A number of measures can contribute to this development. First of all, an increased focus on science's ability to contribute to the solution of grand challenges will in all probability contribute to heightening the public interest, since these challenges are seen as relevant and topical. In this context Denmark encourages that communication of the fact that research and innovation contribute to economic growth is given political priority. The European Parliament with its popular legitimacy can play a role in this task.

Denmark furthermore recommends the involvement of citizens in a number of other areas. For example citizens and interest groups should be involved in defining strategic research areas to ensure the rooting of research in society. Denmark also recommends that summits between researchers and citizens are held where ethical dilemmas concerning new technologies are brought up for discussion so that citizens' concerns are taken seriously and researchers get an insight in the public's position on new research.

To stimulate dialogue, research projects that actively involve interest groups, businesses etc. in the research process itself should be encouraged. Likewise, researchers should be encouraged to look at science communication as more than merely an appendix to a research project. Denmark is of the opinion that the earmarking of funding for research in science communication and involvement of citizens should be considered.

Initiatives that can contribute to bringing science to the public in tangible ways should be prioritized. Among these, science festivals and websites dedicated to communicating the interesting discoveries from the world of research deserve a mention. In connection with this, Denmark

recommends that researchers are urged to communicate their knowledge to the public – either through incentives or through obligations regulated by law as is the case in Denmark.

In order to involve citizens, civil society, businesses etc. the existing regional partnership established under the cohesion policy, may be used for greater involvement of these partners to EU research and innovation activities relevant to EU2020. By involving the regional partnership, Member States could use this as a place to coordinate priorities of research and innovation policy with the place based element of the cohesion policy.

4) Strengthening Competitiveness

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

In the Green Paper, the Commission points out that innovation requires many competencies and activities beyond research, which by its nature are not directly linked to research initiatives. It covers for instance design, creativity and combination of existing technologies, new business practices, user involvement, etc. This is a view that Denmark fully supports as long as these sources deliver on the overall growth targets in EU2020. Statistical evidence from Denmark shows that 47 percent of innovative enterprises neither perform nor purchase research. A Common Strategic Framework should therefore take this large segment of innovative activities – for example employee driven innovation – into consideration in order to maximise the impact of funding for innovation.

As regards eco-innovation global resources will be increasingly scarce as a result of growing population and living standards. Eco-innovation should be in the form of developing new resource-efficient and green technologies which contributes to global sustainability and European competitiveness.

Experience from the Danish User Driven Innovation programme suggests that user-driven innovation is most successful when it is integrated into other types of innovation. Therefore non-research based innovation should also be made possible within the research based programmes.

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 Programme) or different forms of 'public-private partnerships' be supported? What should be the role of European Technology Platforms?

The path from research to innovation is not a linear process, but a dynamic one that involves many different paths and detours. Research needs also arise in the business community and should be partnered with relevant research at research institutions. A prerequisite for dynamic cooperation between research institutions and businesses is getting businesses involved in defining the research projects from the beginning in partnerships. Design of future partnership models should be based on the extensive experience with partnerships in the form of Joint Technology Initiatives, Public-Private Partnerships, Knowledge and Innovation Communities and the positive experience under the Cooperation Programme with SME-oriented instruments with high requirements for industry and SME participation combined with close contact to end-users. An increased use of partnerships will contribute to increasing the level of industrial participation. A new spirit of cooperation between research institutions and business life is needed. Research institutions and businesses should consider each other as natural partners of cooperation in research and innovation projects.

Concerning the Joint Technology Initiatives, Denmark supports the continuation of the instruments on the premise that these instruments are supplementary to other initiatives in the future Common Strategic Framework, and to other initiatives e.g. the Joint Programming Initiatives and the European Innovation Partnerships. Future Joint Technology Initiatives should build upon the experiences from the existing ones. They should make use of the same rules as in the rest of the Common Strategic Framework and information about JTI participation should be available at the same level as of the rest of the future Common Strategic Framework and equally easy accessible. To ensure synergy between the instruments European Innovation Partnerships could function as a bridge-builder.

The European Technology platforms have functioned as an important platform for primarily the industrial actors, and they have been an important driving force to implement the Joint Technology initiatives. In the future Common Strategic Framework the focus on involvement of industry and SME's will be rightly intensified and these platforms could help this development on the way.

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?

As part of a growth-oriented agenda, both the Member States and the EU should focus on the output of the research and innovation funding. The new framework programme should ensure a stronger link between research and innovation, with growth as the ultimate objective and greater business involvement. Research findings should be applied quickly within companies and public sector institutions. In this quest both research producing and research acquiring SMEs are important participants when it comes to securing innovation, better knowledge transfer between science and industry and commercialisation of the output.

As SMEs operate within a short time frame it is often difficult for SMEs under the thematic programmes as they are forced to wait for a call that is appropriate for their project. In order to address this issue, the number of non-thematic, bottom-up driven funding opportunities aimed at SMEs should be increased significantly. Denmark therefore supports greater business involvement through more non-thematic funding and broader calls for applications.

In the current Capacities Programme funding is granted to non-thematic, bottom-up driven project proposals from SMEs through the Research for the Benefit of SMEs and Eurostars programmes. Denmark supports an increase in the amount of funding earmarked for these two programmes.

Businesses, including SMEs in particular, generally operate with tight timeframes within narrowly defined fields and in close proximity to the market. Participation in joint European research and innovation projects should reflect this reality to a greater extent in order to increase the involvement of businesses in the framework programme. As a result instruments, rules and procedures of the framework programme need to be simplified significantly and instead of viewing control as the starting point, the coming framework programme should have a more trust based approach.

In order to attract more SMEs to participate in the framework programme there is a need for a thorough reduction of the administrative burdens imposed on applicants and participants in the framework programme. Ways to reduce the administrative burdens on applicants and participants

could be a step-by-step guides, templates and case descriptions for drafting applications as well as providing a concrete overview of the process and requirements for all stages of an EU project[1].

Applied to the Framework Programme this type of information would make it easier for businesses to weigh costs and opportunities against each other leaving them with a clearer picture of their role in a FP project. This will in turn encourage more SME to apply for the programmes making it easier to attract high quality applications to the Framework Programme. See also the answer to question 1 for further details.

Further steps should be taken to strengthen dissemination of research and innovation results from EU funded projects. Research and innovation results could benefit many more companies – especially SMEs – than is the case today, primarily by accelerating the pace to which it is brought to market. This could be done by integrating project partners with special responsibility to and expertise in knowledge dissemination. The role as knowledge dissemination partner could be taken for instance by the many European Research and Technology Organisations (RTOs) or by relevant cluster organisations.

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?

Administrative burdens associated with the management and implementation of research and innovation projects may keep European enterprises and in particular SMEs from applying for funding. Denmark welcomes the Commission's ambition of reducing administrative burdens for participants in research and innovation projects. It is of particular interest to speed-up the process to make the CSF relevant in a globalised world with a still shorter time-to-market.

Denmark considers eco-innovation to be an inspiring example of how the EU can best support late stage innovation activities to strengthen global competitiveness and meet grand societal challenges. Future EU funding for late stage innovation activities should consider the experiences gained with late stage innovation funding in the field of eco-innovation as well as international experiences with late stage innovation funding.

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

The financial instruments administered by the EIF are an important tool to improve access to finance for growth and innovation in Europe. However at the same time it should be underlined that well-functioning markets for SME financing are the key to ensuring sustainable access to finance. Therefore all measures should be targeting market failures and aim at creating a self-sustainable market in the long run.

[1] A similar approach to user friendly information is currently being in used Denmark for guiding the complex process of drafting new legislation. The guide makes it possible to get a quick and precise picture of the process and requirements involved in drafting legislation. The guide can serve as a best practise example of providing need-to know information in a short and user friendly way whilst linking to in-depth explanations and relevant contact points where these are available. A general overview of the guide can be seen at: http://www.lovprocesguide.dk/ . Currently the web page does not exist in English translation.

It is important to strengthen the effects of the existing instruments. Therefore it could be recommended to conduct a review of their effectiveness with a particular focus on simplification of administrative procedures and optimising value for money.

In the next programming period both loan guarantees and equity investments should be prioritised. Furthermore proposals for a new European Venture scheme as envisioned by the European Council conclusions of February 2011 should be considered carefully. Furthermore, potential future instruments should be anchored within the European Investment Fund to avoid institutional overlap. They should be based on a general market-based approach for the benefit of innovative and high-growth SMEs and without selecting specific sector interests. This means that funds should be invested through a market-based investor principle. EU financial instruments should increase the cost-effectiveness, simplify application procedures and focus on increasing growth and productivity by targeting SME's with a growth potential. The long term goal of a self-sustaining market means that all financial measures should be temporary.

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?

The modernization and simplification of the existing EU public procurement framework should provide better, more efficient and cost effective procurement outcomes with more flexibility, less possible transaction costs and administrative burdens. This should be achieved through simple, flexible and efficient procedures that ensure a high degree of competition among suppliers and at the same time allows for procurement of innovative goods and services where relevant.

Denmark therefore generally supports increasing and improving the use of innovative public (pre-commercial) procurement and *on a voluntary basis* to use procurement budgets for pre-commercial procurement which under the right circumstances can ensure that better, more cost-efficient and more innovative products and services are procured.

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?

Access to and dissemination of scientific results should be pursued to the largest possible extent when drawing up intellectual property rules governing EU funding. However, this should be done without preventing the possibility of patenting scientific results and provided that the legitimate interests of all partners in the consortia are not adversely affected and in full respect of Member States' national rules regarding intellectual property rights.

See also the answer to question 1, underling that a reduction of the complexity of the existing rules on intellectual property rights is necessary.

5) Strengthening Europe's science base and the European research area

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

Denmark places great importance on maintaining a strong and independent ERC in the future Common Strategic Framework. The ERC has proven to be a strong contribution to the promotion and stimulation of world class excellence within the European research communities. It is therefore vital that the role of the ERC is strengthened in the future CSF, which inevitably will enable Europe to further reinforce its science base. This can be done by increasing the ERC's proportion of the Common Strategic Framework's total budget. This would allow the ERC to increase the success rates of the current Advance Grant and Starting Grant schemes to a level more equal to other comparable funding organisations. A larger budget for the ERC would also give the ERC enough funds to initiate new innovative support schemes, e.g. the Proof of Concept scheme introduced in the ERC's 2011 work programme.

The status of excellence as the only ERC selection criterion must be maintained. This is vital to ensuring that Europe continues to have researchers who are among the best in the world and that Europe is able to retain the most talented researchers.

Denmark supports the new ERC+ Grant scheme, which will be introduced in the 2012 work programme, giving small groups of Principal Investigators and their teams the possibility to bring together complementary skills, knowledge and resources in new ways, in order to jointly address research problems. Denmark looks forward to seeing the demand and results of this new scheme, and if it is deemed a success, Denmark would strongly recommend that it becomes a permanent grant scheme within the ERC portfolio.

Finally, a strengthening of the ERC could be done by looking into ways and means of further consolidating the independence of the ERC. This will have to depend on an evaluation of the effects of the measures already implemented as a follow-up on the review of the ERC structures and mechanisms published 23 July 2009.

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

Denmark is of the opinion that excellence is a fundamental prerequisite for enabling Europe to face the grand societal challenges and to reinforce Europe's competitiveness. It is important that EU support underpins holistic approaches to both research and innovation food chains, i.e. "from primary school to Nobel prize winners" and "from ideas to market". It is essential that the EU assists in building up excellent educational systems in order to educate the next generations of researchers and entrepreneurs. This could for instance be done through the Initial Training Networks (ITN), which is one of the most important Marie Curie actions as it supports research careers at an early stage. The ITNs support young researchers' access to established research teams, thereby improving their career options. The training of young researchers within transnational environments is a key to boosting the level of excellence in Europe (EU12) and should therefore be strengthened in the next framework programme. Additionally, new initiatives to support talent development and enhance the attractiveness of research careers in Europe could be explored.

Moreover, a holistic approach to stimulate the food chain "from ideas to market" could be supported through better links between researchers and access to capital in order to ensure that ideas generated in course of research projects to a greater extent can be commercialised. At the

same time, the EU should create incentives via EU financing instruments to integrate research, innovation and education.

EU support should also be more directed at funding high-risk research projects. By doing so, Europe can stimulate frontier research, which can bring fundamental shifts to existing paradigms.

Finally, in Europe we have few excellent universities, which are ranked as the top-20 in the world. However, Europe has a very strong university sector ranked just below the top-level. This implies that there exist strong research environments within these universities. The EU could therefore support peer-learning activities between institutions and develop best practises in how EU funding can support institutional development.

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

Researcher mobility and training are crucial for creating world-class European research environments. Researcher mobility within Europe must be strengthened and Europe needs to attract more researchers from countries outside Europe. Many different employment structures and career paths across Europe pose significant barriers to researcher mobility in Europe. Strong European mobility programmes are therefore vital.

The status of the People Programme as a specific research programme in the next framework programme should be maintained to ensure continued focus on mobility. Furthermore, the freedom of research within the actions should be maintained to make them independent of various themes in a future framework programme.

More funding for Initial Training Networks
The Initial Training Networks (ITN) initiative is one of the most important Marie Curie Actions as it supports research careers at an early stage. The ITNs support young researcher's access to established research teams, thereby improving their career options. The training of young researchers within transnational environments is key to boosting the level of excellence in Europe (EU12) and should therefore be strengthened in the next framework programme.

The Marie Curie Actions should focus more on cooperation between the business community and public-sector research institutions
Cooperation between the business community and the public sector research institutions should be further increased via the Marie Curie Actions. The Marie Curie Actions should therefore be made more visible to industry, which should be actively involved in the training of researchers, also with a view to improving career paths within and across sectors. This is a good example of how the knowledge triangle (research, education and innovation) can be further specified.

Consideration should be given to making the European Industrial PhD pilot project permanent
There must be focus on all aspects of the knowledge triangle, especially education, in order to strengthen entrepreneurship. The business community should be involved in defining the need for education and supporting researcher training. Denmark has many years of success with a national Industrial PhD scheme in which businesses and universities join forces to plan and finance PhD programmes.

It is vital for a European Industrial PhD scheme to maintain knowledge transfer from research institutions to businesses as the main objective. Furthermore, it is important to ensure that a European Industrial PhD scheme is complementary to existing national schemes. The current pilot

being initiated under the People Programme must be evaluated in depth and if the evaluation is positive consideration should be given to making it permanent.

More funding to attract non-European researchers
The next framework programme should support efforts to attract third country researchers to Europe to help establish even more excellent research environments in Europe. The share of the Marie Curie programmes which accept applications for releasing non-European researchers from their obligations so that they can come to Europe for specified periods of time should therefore be increased.

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

The latest statistics from the European Commission indicate that approximately 45 percent of newly educated PhD's are women. This development will most likely have a significant spill over effect to the level of female participation in the future framework programme. Nonetheless, it is important to continue the work on raising awareness of the possibilities in the framework programme to female researchers. Furthermore, the continuation of encouraging female researcher to be leaders should also continue. It is important that the full research and innovation potential of Europe are mobilised in facing and solving the future grand challenges.

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

In order for the EU to continue to be able to attract and retain the most talented and the best researchers in the face of intensifying global competition, it is vital that the framework and facilities offered are attractive. Investment in research infrastructures is therefore a central part of the effort to reinforce the future position of European research and strengthen the capacity building of the European research environments.

Experience from previous framework programmes and current collaborations in the area of research infrastructures in Europe demonstrates that a joint effort in this particular area can boost European research and create genuine European added value.

The financial crisis has presented a challenge in recent years to existing collaborations on European research infrastructures and the ambitious targets for realising the European research infrastructures that have been prioritised by the European Strategy Forum on Research Infrastructures (ESFRI). This places high demands for a focused and prioritised effort in areas where the need and benefit are greatest from a European perspective.

The financial framework for research infrastructure should be expanded
In recognition of the importance of research infrastructures to the EU's competitiveness, the development of the ERA and increased European cohesion, it is vital to expand the financial framework for the research infrastructures programme. The utilisation and development of research infrastructures must be given a higher priority in the framework programme than previously.

Based on a general requirement for scientific excellence, better cohesion should be established between the framework programme and other sources of funding, such as the EU's structural and cohesion funds. The development of distributed research infrastructures organised with nodes located in different countries as well as the enhanced use of e-Infrastructure within all scientific fields and IT-based remote accessing should be explored

The framework programme should finance research infrastructure construction, access and operations

European researchers across Member States should continue to have access to the best existing research infrastructures through an ambitious access programme. At the same time, an effort should be made to ensure increased and stable financing of excellent European research infrastructures through support for construction and operations. The selection of new research infrastructures should be based on the roadmap prepared by ESFRI.

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?

Denmark emphasises the importance of a strong international dimension of the European R&I funding programmes. Europe is dependent on strong links to the most advanced research and innovation regions of the world and it also becomes more and more important to develop the relationships with emerging economies. The future Common Strategic Framework should therefore be kept as open as possible for third country participation – keeping the EU funding programmes the most open in the world.

Furthermore, Europe should put more efforts into utilising S&T collaboration with third countries. A strong focus on scale and scope should encompass these efforts. By doing so, Europe will gain a stronger position in negotiating S&T collaboration agreements with countries outside the EU, including IPR issues, aspects of reciprocity and access to markets. This can be achieved in several ways. First, Europe should develop better methods of coordinating Member States and EU actions with and in third countries. Secondly, there should be stronger agreement between the EU and its Member States on which areas of common strategic interest focus should be given vis-à-vis third countries – reflecting what areas of and with whom S&T collaboration should be prioritized. Thirdly, the instruments that are applied should be supporting the identified focus areas. Fourthly, funds at EU and national level for international cooperation should be coordinated better in order to reach critical mass.

The above suggestions could be developed within the Strategic Forum on International S&T Cooperation (SFIC) and could all be incorporated into an overall European strategy on international S&T cooperation.

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?

Successful coordination and integration of research funding in the EU is closely linked to the facilitation of cooperation and operation of research actors across Member State borders. Despite a clear need for cooperation and cross-border operation of research actors, hurdles exist at three levels; Firstly, *the political level*, hereunder the need for political will to pool national resources into joint European initiatives; Secondly, *the structural level,* hereunder the incompatibility between national research and innovation systems, and resistance of Member States to commit to teaming up resources into "joint" schemes; thirdly *The managerial/organisational level*, hereunder an absence of a set of common definitions and principles between the EU and Member States, which would allow better cooperation among the various national actors for the design, selection and implementation of cross-border projects and programmes.

The above mentioned issues need to be addressed within the development of the future Common Strategic Framework as well as in the reflections on the future ERA framework.

Concerning the other remaining obstacles not related to cross-border research funding future actions at EU-level and the proper means (legislatives or other) need to be based on a thorough analysis and discussion. Many steps have already been taken within the ERA-groups (human resources and mobility, knowledge transfer etc.), and the European common future efforts must build on the current experience and actions.