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Innovation & Skills

**FUNDING FOR EU RESEARCH AND
INNOVATION FROM 2014:**

A UK PERSPECTIVE

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Executive Summary

The UK considers it timely to revisit the role and future shape of EU research and innovation instruments within the context of a Common Strategic Framework. The UK believes that research and innovation must play an increasingly vital role in promoting green growth in Europe in line with Europe 2020 and should continue to receive a high – and ideally increased – proportion of a future EU budget which is reprioritised to focus on sustainable growth and is smaller overall.

We consider that future funding should be focussed on funding actual research and innovation programmes of various scales which demonstrate excellence and EU added-value - with an increased focus on impact, evaluation, dissemination and knowledge transfer. The interests of business, education and wider society should be considered from the outset as appropriate.

We also consider there is scope for additional mainstreaming of some areas eg researcher mobility & skills, and engagement with countries outside the Framework Programme.

The twin objectives of delivering sustainable growth and addressing global challenges could benefit from funding projects which address either a challenge “pull” or a technology/knowledge “push”. This should be considered in the wider context of market frameworks, standards and access to finance.

Research into the social sciences, arts and humanities should be embedded in all aspects of future programmes with a higher profile and increased share of funding.

Europe needs to agree a small number of well-defined challenges – with flexibility to re-consider and re-prioritise over time. These challenges should include: climate change; energy, water and food security; protection of natural resources and the ageing population.

Technologies such as ICT, nanotechnology, biotechnology and specific technologies for space, aerospace, the environment, energy and transport should continue to be supported at a high level, together with underpinning areas of research such as metrology, e-infrastructures and supercomputing.

For both of the above top-down and bottom-up response mechanisms (including through the European Research Council) have a role to play.

Excellence should remain at the heart of funding programmes but more could be done to support the aspirations of EU12 countries without compromising this fundamental principle.

Research and innovation funding should be supported by access to finance for innovative businesses and follow-on activities as appropriate.

There needs to be a step-change in simplification and time-to-grant periods with auditing and reporting kept to the absolute minimum level required to protect public funds.

The bulk of research and innovation funding should be awarded in the forms of grants where reimbursement is on the basis of the actual costs, but other mechanisms eg Public-Private Partnerships can be of value.

The UK believes there is a requirement for a stronger evidence base to support the development of the Common Strategic Framework.

Funding for EU research and innovation from 2014: a UK perspective

The context for EU research and innovation funding

1. It is clear that European research and innovation funding should reinforce our attempts to address our current economic situation; the shift to the low-carbon, resource-efficient and climate-resilient economy; and the wider global challenges that are already shaping our future. The UK believes that research and innovation must play an increasingly vital role in promoting green growth in Europe in line with Europe 2020 and should continue to receive a high – and ideally increased – proportion of a future EU budget which is reprioritised to focus on sustainable growth and is smaller overall.
2. The UK welcomes the publication of the European Commission's Green Paper *From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation Funding*¹ published in February 2011. This proposes that all EU instruments for research and innovation should work together to improve efficiency of funding at national and EU levels. The UK considers that greater alignment of EU funding instruments could be beneficial, whilst respecting their specific objectives, as it could reduce administrative complexity and potentially increase participation from under-represented groups such as SMEs. However the UK would welcome early clarification of the Commission's legislative ambitions in this area.
3. The UK's formal response to the questions posed by the Commission in the Green Paper is attached as an annex. These responses are informed by the UK's own national Call for Evidence² on the next Framework Programme which was launched in October 2010 and reported back in April 2011.
4. This paper presents the UK high-level position on future research and innovation funding, focussing on the areas covered by the current Framework Programme – but also considering the Competitiveness and Innovation Programme and the European Institute for Innovation and Technology as outlined in the Green Paper; and potential new instruments in venture capital funding and a European Small Business Research Initiative.

¹ http://ec.europa.eu/research/csfr/index_en.cfm?pg=documents

² <http://www.bis.gov.uk/Consultations/fp8-call-for-evidence?cat=closedwithresponse>

A time for reflection?

5. The EU's programme for funding research, technological development and demonstration is the multiannual Framework Programme. Since its inception in the early 1980s the Framework Programmes have steadily increased in size and scope³ and spending under FP7 (2007-2013) is now in the order of €6 billion per year, and is rising steadily towards an indicated €10+ bn by 2013.
6. The Framework Programme is one of the main implementing tools of the European Research Area and delivers the goals set out in Article 179 (ex article 163) of the Treaty with respect to competitiveness and in "promoting all the research activities deemed necessary by virtue of the other chapters of the Treaty".
7. The Framework Programme has traditionally focused on supporting trans-national research collaborations in industrially relevant areas and underpinning EU policy-making - although support for researcher mobility, trans-national access to research infrastructures and coordination of national programmes have been added over the years. The 7th Framework Programme (2007-13), "FP7", introduced a number of novelties, including the establishment of a European Research Council (ERC) focused on frontier research, Joint Technology Initiatives (JTIs) and support from the EIB for a Risk Sharing Finance Facility (RSFF).
8. The Framework Programmes have served Europe well over almost 30 years. FP7 currently funds around 5% of overall EU civil investment in research and innovation (the rest coming from national governments and the private and charitable sectors). The EU budget should only ever be funding those activities that cannot be sufficiently achieved through action at national level within Member States or cooperation between Member States and must demonstrate clear EU added-value.
9. **The UK considers that the time has come to revisit the role and shape of future EU research and innovation instruments within a streamlined portfolio of instruments: the Commission's Green Paper represents a timely opportunity to reassess what is needed in the current environment.** However we should not forget recent successes. The ex-post evaluation of FP6 concluded that FP6 had contributed to increased industrial competitiveness; generated extended networks; and strengthened the knowledge infrastructure in Europe. FP6 included world-class projects with the best researchers, contributing to improved researcher mobility, internationalisation of research teams, and to Europe performing internationally-competitive research at the frontiers of science and technology in areas of social and industrial importance.

³ EG FP1 1984-1988 had a budget of €3.75b; FP5 1998-2002 €14.96bn; FP6 2002-2006 €17.88 bn and FP7 2007-2013 a budget of €50.5 bn

10. The interim evaluation of FP7 has demonstrated that funding is going to leading researchers engaged in high-quality projects – and that the new European Research Council has succeeded in funding world-class research and is playing an important role in attracting and retaining research talent within Europe.
11. However impact data on funded projects is currently limited. This is especially true for certain aspects of the Framework Programmes e.g. aspects of the Capacities and People specific programmes. **The UK considers that future research and innovation funding should wherever possible aim to deliver clear impact: economic and/or societal in line with the Treaty. This should be informed by meaningful and reliable metrics at all stages where appropriate.**
12. The Framework Programme currently funds a broad range of activities. **The UK would like to see future funding concentrated on funding actual research programmes of varying scales. These should support evidence-based policy and demonstrate: an increased emphasis on dissemination and knowledge transfer (including across projects); a move towards open information and access to results as appropriate; a greater focus on innovation and the application of research outcomes; and links with business, education and wider society considered from the outset. Where appropriate, funded projects should have to indicate from the outset how they could deliver EU added-value and this could be factored into the assessment process.**
13. **The UK considers that more thought should be given to coordination across projects, to ensure effective synthesis and knowledge transfer of results as a whole.**
14. **We consider that there is scope for increased mainstreaming of some areas** for example researcher mobility and skills, and many areas currently funded under the Capacities specific programme. These include certain science & society activities and engagement with “third countries” outside the EU and which are not associated with the Framework Programme. **The UK invites the Commission to assess the potential for more mainstreaming as part of the development of the Common Strategic Framework.**
15. Also – in line with the Green Paper – the UK considers that research and innovation funding should work alongside other EU funding sources including Structural and Cohesion funds and the Common Agricultural Policy. And, importantly, research and innovation funding must be seen in the context of a wider innovation ecosystem which includes market frameworks e.g. access to finance and also areas such as standards, Intellectual Property (IP) protection and the wider skills agenda.

A research funding model for the future

16. The largest proportion of the current Framework Programme is allocated to the *Cooperation* specific programme which funds a number of thematic areas relating to challenges, technologies and sectors mostly awarded on a “top-down” basis to cross-border consortia of researchers from academia, research institutes and industry. This is complemented by the *Ideas* specific programme which funds individual researchers to carry out genuinely cutting-edge frontier research in a range of disciplines on a “bottom-up” basis.

17. The UK has supported this approach for FP7. We consider this has yielded genuinely world-class research **thanks largely to a commitment to supporting demonstrable excellence in research**. However **the twin objectives of sustainable growth and addressing global challenges call for a rethink**. Funding to date has tended to follow a narrow “linear” model of innovation which pre-supposes a clear link between the generation of new knowledge and commercial or policy-related outcomes. This approach has proved of value for certain enabling technologies and should inform much of our future activity. However the UK believes we need to reconsider.

18. Innovation is novelty: it involves doing new things in new ways. That said, views of innovation have changed significantly in recent times. The UK considers innovation to be a complex interactive process between opportunities and capabilities, which is cyclical and systemic rather than linear – and builds up over time. For this reason **the UK proposes that the bulk of future funding is based on two broad pillars addressing: a key technology/knowledge “push” and a challenge “pull”**. This should be supported as appropriate by funding for enabling activities such as support for: Member-State driven coordinating activities such as Joint Programming Initiatives; research infrastructures; and mobility/skills initiatives. And **this should be viewed in the wider context of market frameworks, standards and wider access to finance**. The UK supports the concept of European Innovation Partnerships to address this aspiration and welcomes early clarification of their role.

19. The UK considers that **both top-down programmes and bottom-up activities (where researchers themselves define the research projects) should have a place within this structure**. This is more than a consideration of *basic* versus *applied* research which we consider to be unhelpful descriptors. For example our experience in the UK has told us that ERC-funded projects are not just tackling genuinely-new areas of research; many also have the potential to address aspects of societal challenges or drive technological development in related areas. For this reason **the UK supports the introduction of the additional proof of concept scheme for ERC grant holders**. Furthermore we hope that, subject to evaluation of the pilot, the scheme can be enhanced to ensure capture of the wider benefits of this frontier research for the EU.

20. In addition there should be scope for both large programmes with broad objectives and smaller niche projects that address aspects of genuine cross-EU interest. And **research into social sciences, arts and humanities should additionally be embedded in all aspects of future programmes, with a significantly higher profile and increased share of funding from a smaller overall EU budget.** Research into these areas addresses what it is to be European through illuminating our shared culture and history. Furthermore these areas of research can provide the deep insight into motivations and behaviours that will help Europe address the challenges of the future such as reducing energy consumption and reducing unemployment. Such research can also support technology developments in areas such as ICT where “usability” is crucial.

The Grand Challenge ‘pull’

21. The UK broadly supports Innovation Union’s ambitions to focus more research effort on socio-economic challenges; not just the pressing issue of climate change but also other areas such as food security, the ageing population, environmental protection, security and migration. However currently the UK currently considers that Europe would benefit from **identifying and agreeing a small number of well-defined challenges which can be addressed sensibly at a European level.** There should also be the flexibility to increase, decrease or terminate support for particular challenges – and indeed identify new challenges - as circumstances change over time.
22. **The UK considers that the bulk of challenge-orientated funding under the Common Strategic Framework should focus on addressing the following challenges and creating associated growth opportunities: climate change, energy security, water security, food security, protection of natural resources and the ageing population. The approach to all challenges should be genuinely multidisciplinary from the outset.**
23. Experience with the Strategic Energy Technology (SET) Plan, the Joint Programming Initiatives and the pilot EIP indicates there is a genuine appetite for collaboration at an EU level – as well as clear added-value through economies of scale, the avoidance of fragmentation and the creation of EU-wide public goods, new products, treatments, policy interventions and technologies. In particular the SET plan shows how an EU initiative can address the major challenge of energy security whilst building competitiveness and sustainable economic growth – demonstrating genuine EU added-value. To succeed, the SET plan will need to receive an increased share of a smaller EU budget.
24. **The UK would like to highlight the excellent work by Member States in developing a number of Joint Programming Initiative themes.** In some instances these have taken a refreshing approach, for example considering food security, agriculture and climate change synergistically and addressing European cultural

heritage in the context of climate change. Such interdisciplinary and multidisciplinary approaches should be built on in the future, informed by rigorous like-for-like evaluations where possible. However any future JPIs should focus on genuinely large-scale challenges; other instruments are better able to address those research challenges that do not necessarily fit into the JPI approach. **The UK considers that JPIs should be driven by Member States with the Commission playing a facilitating role. The UK would welcome clarification of how the Commission views this relationship.**

25. The UK would also like to encourage a genuinely EU-wide approach to foresight and horizon-scanning to complement national activities in these areas. We are keen to share expertise with others including through the newly-established European Forum on Forward Looking Activities launched following the publication of Innovation Union.

The technology ‘push’: knowledge for the future

26. The current *Cooperation* specific programme has shown the benefits of investing in key technologies such as ICT, nanotechnology, biotechnology and specific technologies for space, aerospace, the environment, energy and future transport needs. **The UK considers that such technologies should continue to receive significant funding as they provide the technological push that can potentially address future challenges and build the research capability of key industry sectors. In addition, genuinely under-pinning areas of research should continue to be supported at a high level. This should include metrology and e-infrastructures; most importantly supercomputing for complex applications such as climate change modelling.** Both top-down and bottom-up funding mechanisms have a role to play in this: the ERC is currently funding research into novel nanotechnologies and computer science that should be seen in this context.
27. Additionally Public-Private Partnerships can provide a mechanism for the development of industry-led strategies and programmes addressing “platform” technologies such as the future internet. These can be developed in collaboration whilst allowing businesses to provide competing products and services that run on the standard platform.

Making it happen

28. The current Framework Programme supports a number of enabling activities through the Capacities and People specific programmes. The UK considers there is demonstrable EU added-value in many of these, for example support to: encourage the coordination of Member States’ national research programmes; develop pan-European infrastructures; training and mobility actions for researchers; and some science in society actions. However there are some areas which the UK does not consider demonstrate sufficient impact e.g. some regional actions. **The UK calls on**

the Commission to urgently assess the value of such schemes through detailed evaluations and consider whether these objectives could be addressed as appropriate within other programmes.

29. Thought should also be given to **more mainstreaming of such enabling activities within collaborative programmes and ERC projects.** This is especially relevant for researcher training and mobility and certain science in society actions – as well as for the regional support schemes. The UK is interested in the pilot actions under the ICT programme to engage researchers from the EU12 in existing collaborations and considers that, once rigorously evaluated; this could be extended as appropriate.
30. **The UK also considers that that the potential involvement of “third countries” should be considered as appropriate within technology or challenge-driven research projects from the outset** – though we recognise the progress to date in INCO-NETs and other internationally-focussed dedicated projects. In any case the engagement of third countries needs to be in line with the objectives of the funded project. Projects in technology areas close to market are different to those addressing a societal need, for example.
31. **EU funding for the preparatory phase of major EU-wide research infrastructures has clear EU added value and should be continued.** This funding allows several countries to develop a common proposal for their sector. Enhanced mechanisms should be developed which address some of the complexities of establishing infrastructures of all kinds from large data-sets to major facilities e.g. cost-effective construction and the timescales required.
32. **The UK endorses the Innovation Union objective of opening up Member State-operated research infrastructures to the full European user community. There is clear EU added-value in exploiting past investment in research infrastructures which can support not just frontier research but also challenge-driven and close-to-market research.**

An approach based on excellence

33. The Framework Programme is currently based on principles of excellence through competition at a European scale. **Excellence should remain at the heart of future programmes: it remains the most efficient way of delivering wider EU growth and addressing societal issues, and drives capability across the EU.** The UK does acknowledge the aspirations of those Member States who would like to develop their research capacity. However we are not yet completely convinced of the success of the Regions of Knowledge and Research Potential actions within the Framework Programme and consider that Structural and Cohesion Funds could potentially fund these if they continue after 2013. The UK would welcome early evaluation of these schemes.

34. Between 2007 -2013, EU Cohesion Policy instruments will provide some **€6.4 bn** (almost 25% of the total) for R&D and innovation, including the mainstreaming of innovative actions and experimentation. This figure is the result of the process of agreement for Member States' operational programmes, rather than being a ring-fenced or pre-allocated figure. Out of this total, Commission data suggests that €50.5bn will go to R&D and innovation in the narrow sense including research facilities, support for R&D-intensive SMEs and technology transfer. We should, whenever possible, encourage the sort of activity in the next financial perspective **without the imposition of top-down targets, objectives or ring-fencing of funds. We support Member States that choose to use cohesion instruments to build research infrastructures as the underpinning research and technological capability should help develop the research base in the EU12 over time. However the UK considers that the availability of funding should not drive site selection decisions which compromise scientific excellence.**
35. **The UK is in favour of alignment between EU funding streams.** However, although we recognise the scope for rationalisation of instruments, the distinctive value and objective of each instrument needs to be considered. The Structural and Cohesion Funds are economic development instruments with the focus on tackling disparities in development.
36. **The UK also considers more could be done to support those countries which are currently less successful in securing support from the Framework Programme.** However there is a limit as to what an excellence-based funding mechanism can achieve. There are a number of barriers which many of the EU-12 face in relation to R&D: many of these will need to be addressed at a national level. These are set out in the regular ERAWATCH country reports. **The UK also considers there is merit in strengthening links between centres of excellence in the EU15 with those in the EU12 to stimulate networking and foster long-term collaboration.**
37. The UK would also like to see a rapid evaluation of the existing initiative within the ICT programme to encourage greater engagement with the EU12. This should assess whether such actions are likely to increase engagement of the EU12 in mainstream collaborative research projects. There should also be a widening of the scope of the ERAWATCH programme to **actively identify and promote areas of strength in the EU12 i.e. to encourage "smart specialisation", for example a focus on certain technologies.** This should include detailed technology audits. Presently the focus is on economic drivers of R&D, perhaps making the programme of more interest to policy-makers and academics rather than potential collaborators. There is also potentially more scope to increase participation in mobility actions which should contribute to building the research base in the EU-12 over time.

Exploiting new ideas

38. **The UK considers that research and innovation funding should be seen in a wider context of market frameworks** – including access to finance for innovative businesses. We are pleased that this is reflected in the Green Paper, following significant discussions at Council in the context of Europe 2020 and Innovation Union.
39. Following the February 2011 European Council, the UK supports the **Commission’s proposal to work with the EIB, EIF and Member State expert bodies to take forward work on developing pan-European venture capital instruments. The UK is clear that any funding for this proposal will need to come from a reprioritisation of the existing EU budget, as well as ensuring that current budgets are used more effectively and aligned with Member States’ priorities.** The UK will work with the Commission and other Member States to help achieve this.
40. Additionally **the UK welcomes the reference to EU Small Business Innovation Research (SBIR) in the Green Paper and would like to see rapid progress on developing this programme. A share of the EU budget should be made available in the next financial perspective to complement Member State spend.** *Innovation Union* states: “Public procurement accounts for some 17% of the EU's GDP. It represents an important market, particularly in areas such as health, transport and energy. Therefore, Europe has an enormous and overlooked opportunity to spur innovation using procurement.” An SBIR could create the best conditions for private sector growth, calling on business and industry to challenge Governments on the measures being taken to tackle barriers to growth.
41. **The UK considers that the Competitiveness and Innovation Programme is wide-ranging and complex and believes that restructuring could lead to significant improvement in both the efficiency of the programme and its contribution to EU growth objectives.** Given the vital importance of enterprise and innovation to economic growth, employment and meeting common challenges in the EU it is particularly important that any successor to CIP learns the lessons of the current programme. Primarily, we believe that this should involve establishing more narrowly-defined and meaningful objectives – perhaps focussing on SMEs - which are clearly aligned to Europe's strategic priorities and focussing on fewer activities where there is demonstrable EU added value. **The UK accepts that CIP has the potential to provide agile network support mechanisms for emerging areas, including services which have not emerged directly from the research base. However we strongly believe that the activities of a future CIP should have an important role in building on funding for research and would welcome early consideration of how this could be achieved.**

42. The UK considers that the ICT Policy Support Programme and the Intelligent Energy Europe 2 (IEE2) programme could be taken out of any future CIP so it can focus on cross-cutting enterprise and innovation activities. Both of these activities remain important and should receive a share of a reduced EU budget. The IEE2, for example, is a valuable programme and has allowed non R&D-focussed organisations to become engaged in this important agenda. However, it should be better aligned with the SET Plan and the wider EU energy strategy with funding coming from those parts of the EU budget that are more closely linked to these areas.
43. The two current financial instruments in CIP (an SME loan guarantee facility for national lending bodies and a venture capital instrument for investment in high-growth, innovative start-ups and SMEs) are administered by the EIF on behalf of the Commission. The UK considers that the venture capital instrument should be seen in the wider context of the proposed pan-European venture capital instruments.
44. The UK considers that the Risk Sharing Finance Facility is of value and should continue in the future – though it has low visibility and is not suitable for every sector. **The UK urges the EIB and the European Commission to progress the recommendation of the interim evaluation to develop this instrument to improve its relevance for research infrastructures, universities and SMEs. Alternative funding mechanisms for research infrastructures could be considered if RSFF proves unsuitable for this sector.**

A simplified future for EU research and innovation funding

45. **The UK believes that adopting a Common Strategic Framework offers a unique opportunity to make a step-change in simplification of research and innovation funding across the board.** Programmes should become more trust-based and tolerant of risk and accept beneficiaries' usual accounting practices whenever possible, without compromising sound financial management. **Auditing and reporting should be kept to the absolute minimum necessary to protect public funds – in line with national requirements to minimise burdens – and the Commission should not continuously review its decisions without clear rationale.** We consider that the Commission should actively follow through its stated determination to simplify the rules for participants which remain a burden – and indeed a disincentive for some potential applicants, particularly SMEs. The proposed reform of the Financial Regulations will make an important contribution to this process.
46. **The UK considers that lump sum or flat rate funding should only be used if there is a clear justification and as options to a default reimbursement based on actual costs.** Additionally, any rates should be an adequate reflection of real costs, allowing for the fact that some countries are more expensive than others.

Lump sums or flat rates – in their current form – would not necessarily be a simplification for most UK academic participants.

47. **The UK urges the Commission to address the issue of excessively long time-to-grant periods as a matter of priority.** The average period is now just less than a year, which is a deterrent to many private sector applicants, especially SMEs, who may find that competitors have taken up commercial opportunities in the meantime. Speeding up this process also has the significant advantage of faster generation of research outcomes. In a fast-moving age this could significantly increase the impact and competitiveness of EU-funded research.

Funding in partnership

48. **The UK believes that the bulk of research and innovation funding should take the form of grants where reimbursement is on the basis of a clearly-articulated proportion of the estimated actual costs of research.** We consider that the current reimbursement rates are too low, especially for the academic sector. Any potential output-based funding should not link funding to the achievement of scientific results (which cannot be guaranteed); rather it should be based on the delivery of project objectives.
49. The UK supports the principle of shared-cost programmes but believes the proportion of project costs funded must be sufficiently attractive to encourage participation from all sectors, especially universities which must become increasingly self-sustaining.
50. **Public-Private Partnerships can play a role as part of a suite of measures aimed at leveraging business investment in key strategic sectors of the EU knowledge economy, including the service sector** as appropriate. The private sector – and indeed other players such as the third sector and cultural institutions amongst others – should participate fully in the selection of topics and steering of the programme strategy in a process overseen by Member States, with the Commission playing a role which is proportionate to their financial contribution.
51. **It is also important that third parties should be involved as appropriate in projects funded by the Common Strategic Framework, e.g. as sub-contractors. SMEs, for example, can bring great flexibility and dynamism to EU research and innovation projects, even if they are not full consortium members. Additionally other players such as the third sector, NGOs, public broadcasters and cultural institutions amongst others can play an important role in exploiting the results of research and innovation programmes.**

The knowledge triangle

52. The UK supports the concept of the Knowledge Triangle, where synergies are developed between research, education and innovation policies and programmes. Indeed the Department for Business, Innovation and Skills (which leads on policy in these three areas) is set up to reflect this. **The UK considers that the interests of business and education should be taken into account from the outset when appropriate.**
53. **The UK is pleased that the European Institute for Innovation and Technology (EIT) is included within the broad remit of the Common Strategic Framework but considers that greater autonomy could be beneficial.** The UK views EIT as a way of complementing Member States' own efforts to enhance the role of innovation in driving Europe's future competitiveness: the European Innovation Scoreboard indicates that despite the EU's world class research, Europe lags behind countries such as US and Japan in its capacity to convert outputs from research into high-value products and services.
54. The operational arms of the EIT, Knowledge and Innovation Communities (KICs) are effectively European test beds to explore ways in which to reduce the barriers between the partners in the knowledge triangle (research, education and innovation). A key objective of the KICs is to develop programmes of education and training which combine the elements of the knowledge triangle and provide courses with a strong theme of innovation and entrepreneurship. The UK is largely supportive of this aspiration which closely mirrors some of our national policies. **We consider that EIT should have the autonomy and flexibility to organise itself in the most appropriate way, but within the broad framework of the future Common Strategic Framework.** The UK is looking forward to evaluation of the KIC model to inform its future role in the Common Strategic Framework as the potential impact of EIT is still unclear.

An informed future

55. **The UK strongly believes that there needs to be a heightened focus on the analytical evidence which informs the development of the Common Strategic Framework.** There are a number of issues in policy analysis relating to: the understanding and measurement of impacts; the development of indicators; understanding added-value in multicentre collaboration; country specificities; monitoring of activities; understanding coordination mechanisms; and the identification of future scientific and technological opportunities. **The Common Strategic Framework will be of such scale and complexity that it would benefit from an explicit analysis function – potentially building on the existing ERAWATCH programme.**

Annex: UK response to questions posed in Green Paper on Common Strategic Framework for EU Research and Innovation Funding

4.1 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 UK considers that the Commission has identified a number of improvements in the above question. However for funding to be attractive it must, above all, address areas of genuine interest to potential academic and business participants and provide a sufficiently large proportion of overall costs. We also need to ensure that the funding instruments incentivise both business and academia to encourage further business engagement and stimulate commercialisation and knowledge transfer within the context of greater administrative simplification (see question 6).

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

The UK considers that as a share of a smaller EU budget, EU funding should support a number of areas from initial foresight studies to market uptake. The bulk of the funding should continue to fund actual research projects (up to demonstration and commercialisation phase as appropriate) – both collaborative and investigator-driven. Education, business and policymakers amongst others should be engaged from the outset. There should be more emphasis on exploitation and the economic impact of research results (e.g. by supporting knowledge transfer- including across projects - and commercialisation activity) and support for market frameworks, including standards, as well as support for venture capital funding and activities to stimulate demand. Other supporting actions such as the researcher skills base and support for access to research infrastructures should also be funded as appropriate at EU level.

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?

The UK is clear that all EU funding should deliver demonstrable EU added-value; be proportionate; and address clear market opportunities i.e. areas where Member State and/or business funding is not readily available. The Framework Programme to date has largely achieved these objectives e.g. through funding highly-competitive cross-EU projects which deliver economies of scale, create networks and deliver innovative products or services and “public goods” such as low-carbon technologies. The European Research Council maximises benefits by funding genuinely frontier research that one Member State alone cannot fund. The UK considers that there is a leverage effect to EU funding but the nature of this is not completely understood and is dependent on national circumstances. For this reason the UK would like to see a high proportion of future research and innovation project costs funded within the Common Strategic Framework.

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?

The UK considers that the greatest benefits lie in aligning and coordinating Member States’ national programmes on a voluntary basis rather than pooling resources under a “common pot” principle. This approach can lead to economies of scale, enhanced networks, reduced fragmentation and, importantly, reduced timescales. There should also be a role, as appropriate, for countries outside Europe to take part in joint programmes addressing global challenges. EU funding can play an instrumental role in facilitating this through support for coordination costs for programme management, conferences and governance structures and activities. This is very important in relation to Joint Programming Initiatives and the ERA-NET mechanism that could play an important role in supporting these. It is also crucial that the Commission notes the excellent work of JPIs in identifying the nature and scale of pan-European challenges and the current state-of-play of EU research in these areas. The UK considers that this should directly inform EU-level future research funding in appropriate areas.

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

The UK believes there is a role for both large strategic programmes and smaller projects. Large EU programmes can deliver broad objectives but UK experience has shown us they can be inefficient and unhelpfully bureaucratic – and as such are less appealing to small businesses and research groups. In contrast small projects can often tackle targeted research challenges with genuine EU-wide value; some of the ERA-NETs are a case in point, as is the Eurostars programme for SMEs. These projects can often attract participants from a large number of countries.

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?

Simplification is a key issue to be addressed with the Framework Programme. The bureaucratic and complex nature of participation in FP7, specifically application and interpretation of the rules and procedures, the obligation to open interest bearing bank accounts for pre-financing, time-to-grant, and inadequate acceptance of beneficiaries accounting practices are all important issues the UK has sought to influence in FP7 and its successor. Progress to date has seen the adoption of measures to increase flexibility in the acceptance of average personnel cost methodologies, the establishment of a Research Clearing Committee to address inconsistencies in the application on rules on research funding, and flat rate financing of SME owners, but more is needed. In particular greater acceptance of usual account practices would have a significant impact on the FP7 auditing and reporting requirements of beneficiaries, which currently include the requirement to open interest bearing accounts. Whilst common rules for all instruments might be beyond what is reasonably possible, there should at least be a default set of guiding principles. The UK is interested in the results of the output-based funding study and whether this could achieve simplification.

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

The UK supports a broad range of success measures in line with the UK Research Excellence Framework currently under development (see <http://www.hefce.ac.uk/news/hefce/2011/refimpact.htm>). These could include both output and impact measures. The former category should include: registration of IP such as patents and licences; dissemination of results through refereed publications and conferences; adoption within standards; technology prototypes; and further research collaborations with the same partners. Indicators of research success further down the line could include: cross-EU placements of post-grads in business; active European networks of businesses and academics following up FP themes; research funding attracted for follow-on projects, start-up firms and commercial exploitation; and impacts on EU and international policy development and implementation. Additionally the opening-up of further related strands of research and innovation over a longer time frame should be measured. The challenge is usually in tracking and capturing these indicators after projects are complete; attributing them to FP-funded projects; and maintaining a consistent record of them for ongoing analysis of impact – without creating additional bureaucracy.

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 UK is in favour of alignment between EU funding streams for improved coordination and synergies with domestic funding. However, although we recognise the scope for the rationalisation of instruments, the distinctive value

and objective of each instrument needs to be recognised. The UK believes that funding under the Common Strategic Framework should focus on delivering excellent research outcomes. The Structural and Cohesion Funds are economic development instruments with the focus on tackling disparities in development.

Between 2007 -2013, EU Cohesion Policy instruments will provide some €6.4 bn. Out of this total, Commission data suggests that €5.5bn will go to R&D and innovation in the narrow sense including research facilities, supporting for R&D-intensive SMEs and technology transfer. The UK believes that, wherever possible, encourage this sort of activity in the next financial perspective, without the imposition of top-down targets or objectives.

4.2 Tackling societal changes

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

The UK considers that both curiosity-driven research and agenda-driven activities are valid approaches to research that will ultimately support tackling societal challenges. Curiosity-driven research may lead to discoveries that eventually address societal challenges, both present and future. The future programme needs a balance of both and, in this context and the context of a smaller EU budget, the UK would like to see an increased share of funding for ERC grant holders to exploit their research, subject to a satisfactory evaluation of the proof of concept pilot.

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

The UK believes there is a place for both “top-down” and “bottom-up” approaches to funding EU research and innovation activities. The European Research Council plays an important role in this – as do ERA NETS. The UK believes that the current Joint Programming Initiatives are an excellent example of how “bottom-up” activities can shape European research agendas to address socio-economic challenges. We urge the Commission to consider their scientific research agendas, when published, carefully with the view of using these to inform future funding priorities. Bottom-up activities with a focus on commercialisation and knowledge transfer can also be attractive to business participants.

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

The UK considers that EU policy should be informed by the best possible scientific evidence, including foresight studies and other forward-looking activities. EU funding plays a vital role in this. It is crucial that future funding is aligned closely with the developing EU policy agenda – including industrial policy as well as policy relating to global challenges such as climate change, the protection of natural resources, employment, energy security and food

security amongst others. It should also be structured to deliver evidence more quickly and have the flexibility to respond to new and emerging evidence needs. This will involve significant cross-DG working within the Commission and engagement across the different Councils. However it is important that Member States' expertise in foresight activities is fully taken on board by the European Forum on Forward Looking activities established following Innovation Union. Consideration should be given to further expansion of the current Future and Emerging Technologies (FET) pilot in the ICT programme to other technology areas such as biotechnology.

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

The UK supports the role of the Joint Research Centre in providing scientific and technical advice to inform EU policy and legislation. However we believe that the JRC should provide proactive advice when appropriate, including supporting the EU Chief Scientific Adviser when appointed; and establish closer links with Member State Governments' own research bodies with the aim of becoming more closely aligned with their priorities. The UK is currently building stronger links with JRC in this regard. JRC must deliver demonstrable EU added-value. In this context the UK would welcome a review of its activities to inform its role from 2014.

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

The UK believes that citizens and civil society should be involved as appropriate in setting the research and innovation agenda, mainly through representative stakeholder organisations. Such organisations should have an active role in relevant consultation meetings and committees. Individual programmes should consider establishing stakeholder advisory boards where appropriate. The outputs from EU research and innovation activities can often be of great interest to citizens. More consideration should be given to appropriate information and access to results. Although the current Commission research website contains many excellent case studies, the UK considers more could be done to publicise the successes of EU-funded projects using low-cost communications channels.

4.3. 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?

The UK takes a broad approach to innovation, including social and cultural innovation, and considers that these areas should be taken into account in future EU funding programmes, especially in the context of addressing global challenges. Multidisciplinary approaches will be especially relevant and social sciences and humanities should play an instrumental – and in some cases leading - role in addressing issues relating to societal change.

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 UK recognises the importance of enhancing business engagement and believes that there are a number of actions that could facilitate this. These could include: an improved marketing and information strategy to improve participation; and measures to promote networking between businesses and academics across the EU. Simplification could also play an important role – particularly a move towards a two-stage application process which could reduce wasted effort, providing this does not increase the time-to-grant.

Public-Private Partnerships, including JTIs, play an important part in assisting key strategic sectors and challenges as part of a wider suite of measures. However they must not be held back by excessive bureaucracy and must be carried out in a spirit of true partnership between the Commission, Member States and business. There also needs to be greater consistency in the rules adopted by JTIs e.g. for IP and reimbursement of indirect costs.

The UK considers that ETPs must be seen as part of the overall framework of instruments and should be aligned with others including EIPs, JPIs etc – in the context of a reduction in the number of instruments overall.

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?

The UK believes that many SMEs – and indeed other small players in the third sector – prefer national funding schemes as their first choice. Nevertheless, support for SMEs should continue to be a feature of future EU funding schemes. However it should be recognised that the benefits of direct participation may be greater for those operating in novel areas: the involvement of SMEs active in advanced materials and nanotechnologies as part of NMP is a case in point. Many SMEs are also attracted to “close to market” support. Other SMEs may find it more beneficial to operate as sub-contractors to consortia: the Commission should consider how to support SMEs who choose to operate in this way.

The Commission could helpfully consider how, in the context of a reduced EU budget, a greater share of funding to SMEs could be achieved and look closely at the relative benefits of specific instruments and different membership models aimed at SMEs, in the context of a more streamlined suite of instruments overall. Simplified funding programmes will also be more attractive to SMEs. Additionally the Commission, together with national and regional funders, should look at ways to encourage greater links between SMEs, larger companies and universities and research centres. The UK

strongly supports the continuation of the Eurostars article 185 aimed at research-performing SMEs.

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 UK considers that the FET mechanism (a speedy outline stage as a gateway to a full proposal) could lend itself to an SME-friendly approach. There is a difference between the FET two-stage approach and ordinary two-stage approaches. The latter involves a call being open for a number of months, then closing, evaluating, and re-opening for another number of months: the FET approach is much lighter / faster and so should attract more SMEs, if they are able to build consortia. However more evidence is needed to support this point.

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

We welcome efforts to improve cross-border access to finance by SMEs supported by venture capital funds. We will engage with the Commission on this issue and any proposals it brings forward.

The UK is keen to support venture capital funding for innovative SMEs and supports the Commission's proposal to develop pan-European venture capital instruments, funded through a reprioritisation of existing spending.

The UK considers that the Risk Sharing Finance Facility is of value and should continue in the future – though it has low visibility and is not suitable for every sector. Thought should also be given to making it more appropriate both for SMEs and also to make it more suitable for funding research infrastructures.

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 UK believes that an EU Small Business Innovation Research initiative would play a key role delivering the EU's growth agenda - by creating the best conditions for private sector growth and calling on business and industry to challenge Governments on the measures being taken to tackle barriers to growth. *Innovation Union* states: "Public procurement accounts for some 17% of the EU's GDP. It represents an important market, particularly in areas such as health, transport and energy. Therefore, Europe has an enormous and overlooked opportunity to spur innovation using procurement." The UK supports the concept of inducement prizes and calls on the Commission to speed up their development.

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?

Intellectual property rules governing EU funding are a vital incentive to research and innovation. The UK considers that the rules on intellectual property should not be changed – though there is a view that the rules may not suit some academic/industrial collaborations. The introduction of standard, yet flexible, model agreements in FP7 has been helpful.

4.4. 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?

The UK strongly supports the role of the European Research Council in developing world-class excellence across Europe through supporting the very best researchers via a highly-competitive process. The UK also recognises the value of this programme in attracting world class researchers to the EU and in raising standards of excellence of research across Europe. The UK considers that ERC should continue to focus on frontier research through a principal investigator (permitting portability of funding) on a “bottom-up” basis. Funding frontier research is inherently risky – which is why funding at an EU-level is so appropriate. In addition the UK will be interested to see the initial evaluation of the proposed new innovative scheme (ERC plus) for funding multidisciplinary research where this is necessary for the achievement of scientific aims. However in the expectation that a significant proportion of research funded by the ERC should eventually yield commercial and/or societal value, we strongly support the introduction of mechanisms to capture and exploit this research through additional proof of concept or other follow-on funding. This should enable and encourage ERC grant holders to better share knowledge with industry, policy-makers and society.

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

The UK acknowledges the aspirations of all Member States in building up excellence in research and innovation and considers that Structural and Cohesion Funds should play an instrumental role in this, e.g. by supporting the development of research facilities and infrastructures and assisting knowledge transfer. However there are a number of challenges which many of the EU-12 face in relation to R&D. These are set out in the regular ERAWATCH country reports and include issues which fall under the competence of the Member States concerned. The UK considers that excellence should remain as the main criteria used for allocating research and innovation funds but more could be done in the following areas: the specific expertise of EU12 Member States could be promoted to prospective partners; and the involvement of EU12 partners in existing projects in line with the current trial in the ICT programme should be facilitated. Additionally the Commission should provide additional

information and assistance to prospective EU12 applicants, and encourage the EU12 to make more use of mobility actions.

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

The UK supports measures to promote researcher mobility and career development as a way of developing the European Research Area. Although the Marie Curie programmes are popular and well-respected, the UK would like to see increased robust evidence on their impact and calls on the Commission to address this before the Common Strategic Framework comes into force. We consider that future mobility programmes should better address industry/academia and inter-sectoral mobility – and ensure that balance of funding between individuals and host institutions is equitable. The UK also considers that more could be done to promote mobility and skills development as part of pan-European collaborative research projects and would welcome more evidence of how this works currently.

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

The UK agrees that women should play an increased role in the science and innovation agenda at all stages – from school to advanced research. However much of the responsibility for this lies with Member States, their institutions and society as a whole. The UK does not support legislation in this area but considers the EU could do more to develop the evidence base, especially in the area of working practices and career development.

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

Pan-European research infrastructures – from large facilities and computer systems to databases and museum research collections – form the backbone of the European Research Area. They provide clear EU added-value by providing economies of scale and facilitating Europe-wide networks. The UK considers that the funding the construction of pan-European research infrastructures is a matter for the Member States concerned. However there is significant EU added value in EU-support for feasibility studies and other associated coordination measures. These actions help to establish networks and provide the evidence needed to make decisions on establishing and developing infrastructures.

The funding of transnational access to existing national research infrastructures to the full European user community also delivers EU added value. The Integrated Infrastructure Initiative has proved an effective tool to achieve this and should be continued, including giving support for challenge-driven requirements.

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?

The UK recognises that global challenges often call for global solutions – and that research often does not recognise geographical boundaries. The UK recognises the progress to date with INCO-NETs and would like to build on this in the future in the context of simplification of programmes and a reduction in the number of instruments. The UK believes that international collaboration should not be treated as a separate activity but rather as part of a delivery mechanism of existing initiatives. More could be done to mainstream international collaboration within other EU programmes where there is clear added value in EU-level involvement, including Joint Programming Initiatives where appropriate. But we do believe that the nature of international collaboration should depend on the type of project: it may be more appropriate for collaborative research involving non-EU countries to address global challenges rather than close-to-market demonstration. We also recognise that each Member State will have its own valuable historical and cultural links with different parts of the world that should be respected when considering international cooperation. We call on the Commission to conduct an in-depth review of the international dimension of the Framework Programme as recommended by the FP7 interim review.

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 UK supports the concept of the European Research Area and considers that EU funding can play a pivotal role in some aspects of this e.g. researcher mobility; support for, and access to, research infrastructures; support for Joint programming Initiatives etc. However many aspects of ERA fall within national or even sub-national competence. Examples include social security provision for researchers and the content of doctoral training programmes. Member States themselves are best placed to address these areas, sharing best practice as appropriate.

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