



European Union Internal Market, Infrastructure and Employment Sub-Committee

The Effectiveness of EU Research and Innovation Proposals

Oral and written evidence

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Aberystwyth University (AU)—Written evidence

Comments from Aberystwyth University (AU) on the proposals for Horizon 2020

1 Introduction

Aberystwyth University (AU) broadly welcomes the proposals for Horizon 2020 proposals as they offer an excellent opportunity to streamline the ‘innovation cycle’, and so increase Europe and Wales’ competitiveness.

Being based within a convergence area, AU welcomes the proposals in that research and innovation funding remain separate, but complementary with cohesion policies and instruments.

2.0 Potentially positive aspects of proposals for Horizon 2020 that AU recommends should be retained

2.1 EU support, particularly to Marie Curie Actions and European Research Centre grants, are likely to continue in Horizon 2020. These are helpful in drawing-in exceptional researchers from across the world into Wales, creating new highly skilled jobs, and generating research that can then be utilised in wealth creation. The proposed budget increase of 77% to support the European Research Council is welcomed.

2.2 The involvement with the FP7 Collaboration projects in particular benefits AU in many ways including raising the organisation’s profile as a world-class research institution, allowing research peers from Europe and beyond to address together those grand societal challenges that are beyond the scope of individual Member States, nations and regions. This is likely to continue with Horizon 2020. A move towards more mutli-disciplinary working in addressing grand challenges, is to be welcomed, as it enables collaborative teams to be drawn from across the University’s departments. The capacity building undertaken through the Aberystwyth/Bangor partnership is likely to be exploited further under Horizon2020.

2.3 AU supports the commitment of Horizon 2020 to the use of excellence as the prime criterion for determining receipt of research funding in Europe.

2.4 AU welcomes also the commitment to increase funding for €80 billion, and calls on the European Commission and Parliament to support this figure as a minimum level of funding for Horizon 2020.

2.5 AU supports proposed measures to reimburse up to 100% of eligible direct costs. While the proposal for a single flat rate of 20% for reimbursement of indirect costs has received mixed reactions, there is broad consensus across the organisation that a higher rate of reimbursement for indirect costs should be considered.

2.5 AU supports the development of a clearer division of labour between Horizon 2020 and Structural Funds. However, much work needs to be done to ensure alignment of the Structural Funds with research and innovation priorities, and to clarify and facilitate synergies between Horizon 2020 and the Structural Funds.

2.6 AU would welcome the Commission liaising with stakeholders to develop details regarding how the societal challenges will be managed, and what they will look like at work programme level.

2.7 AU would encourage the European Commission and the Parliament to ensure that the impetus to include social science research structurally in Horizon 2020 is carried through to the programme's execution.

2.8 AU supports the three central programme objectives identified to underpin Horizon 2020, and considers the relative balance of funding budgets proposed to be broadly appropriate.

3.0 Aspects of the proposals for Horizon 2020 that AU recommends should be considered further

3.1 AU is disappointed at plans to remove the option for institutions to use full economic costing methodology to claim real costs. The University strongly urges the Commission to develop a simpler certification system for declaration of real indirect costs, and to include it in Horizon 2020 as an option for those institutions that choose to use it.

3.2 Flat rate and lump sum options can be useful in particular circumstances, but should be retained on an optional basis.

3.3 AU welcomes the continued commitment to the Marie Curie Actions (MCA). However, there is significant concern that in real terms the current proposals would see a drop in budget. AU calls on the Commission to increase the proportion of the budget allocated to the flagship MCAs, and to avoid the dilution of the flagship MCAs in favour of the Cofund Scheme which requires high levels of match-funding.

3.4 On the basis of what is in the proposal, the 'Inclusive, Innovative and Secure Societies' strand lacks coherence. AU would welcome articulation of how this challenge would operate. It is also important that it does not operate as a repository for strands that do not fit elsewhere in the structure, such as the intergovernmental European Cooperation in Science and Technology (COST) framework.

3.5 It is important that there is a clear justification for the ten-fold increase in funding for EIT activities proposed under Horizon 2020. AU also strongly supports plans to streamline the EIT's administration and governance structures.

3.6 AU supports the aspirations to adopt a more focused approach towards cooperation with countries outside the EU. However, there is a lack of clarity surrounding new plans for international collaboration. AU calls on the Commission to develop a transparent mechanism for translating high-level policy objectives into concrete and transparent opportunities, and to clarify how new solutions will be developed under Horizon 2020.

3.7 It is significant to realise that major industries, of which there are proportionally few in Wales, are likely to benefit far more in future under the proposals. Given that economic growth and increases in employment are best achieved when support is targetted at SMEs, AU would welcome a re-evaluation of structures proposed for Horizon 2020 to ensure that

SMEs maintain the variation in advantage they currently have over larger companies under FP7.

3.8 Looking ahead to the discussions relating to the governance of Horizon 2020, Aberystwyth University (AU) is likely to welcome, in the interests of transparency and accountability, the development of a top-level committee with strategic oversight over the programme, and suggests that this could be modelled along the same lines as the ERC's governing group which successfully takes into account the interests of both Member State representation and research groupings. Were such a committee to be considered achievable and practicable, AU would welcome a re-examination of the terms of reference of other decision making groups with a view to clarifying accountability and decision-making, and minimising the risks of duplication.

3.9 Relating to the matter of the future management of the programme, AU has had good experiences with outsourced programme administrators, such as the Research Executive Agency, and would tentatively welcome further outsourcing to entities providing a consistently applied service is maintained across all EU states. AU particularly values direct contact with staff members with the Commission. AU would be opposed to the introduction of a nationally or regionally fragmented programme administration, fearing that too many inconsistencies in interpretation of guidelines could occur, thus disadvantaging a significant proportion of regions. The direct link that exists between AU (and other HEIs') grant beneficiaries and the European Commission on FP7 projects is appreciated and should be retained under Horizon 2020.

8 February 2013

ADS (Aerospace, Defence, Security and Space)—Written evidence

About ADS

ADS is the trade organisation advancing the UK Aerospace, Defence, Security and Space industries. Farnborough International Limited (FIL), which runs the Farnborough International Airshow, is a wholly-owned subsidiary. ADS comprises over 900 member companies, of which over 850 are small and medium enterprises (SMEs). With its regional partners, ADS represents over 2,600 companies across the UK supply chain. ADS has offices in England, Scotland and Northern Ireland and, internationally, in France and India.

The sectors that ADS represents are innovative and research intensive. They contribute to the UK's economic growth and create high-value engineering jobs.

- UK Aerospace is the second largest in the world (17 per cent market share), is worth over £23 bn. to the UK, of which 70 per cent is exported world-wide. Aerospace has a Research and Development (R&D) intensity of 8 per cent - well above the manufacturing average of 3 per cent. The sector directly employs over 100,000 people in the UK, and supports a workforce of around 360,000.
- UK Defence employs 314,000 people in the UK – directly and through the supply chain. Export orders were £5.4bn in 2011 and UK held 15 per cent of the world defence market. The sector has more SMEs than France, Germany, Italy, Spain and Norway combined.
- The global Security market was worth £348bn in 2011 and will experience a compound annual growth rate of 5.3 per cent per annum until 2015. In 2011 there were more than 11,000 UK companies in the sector with sales accounting for around £11.8bn.
- UK Space expects to grow 10 per cent each year. It is strong in areas such as satellite communications and satellite navigation and well placed to capitalise on new emerging services derived from Earth Observation, Cyber Security, Cubesats and Broadband Services.

Introduction

Our industries self-finance approximately two thirds of R&D, with the remaining third coming from mostly national, but also the EU government. The largest companies within ADS's membership are highly international and have a choice where to locate. Attracting high-value industrial activity, such as R&D, brings to the EU substantial benefits to the wider supply chain and economy through subsequent manufacturing and services.

At a time when budgets are under pressure, resources must be prioritised to allow competitive industries like Aerospace, Security and Space which provide the economic growth the EU needs. A properly funded Horizon 2020 sends a message to member states, industrial partners and investors that the EU welcomes Research and Development. Any prospect of a reduction to Horizon 2020 as part of the Multiannual Financial Framework negotiations will reduce EU leadership of key technologies and leave the region trailing behind. ADS believes that seeking a suitable level of funding for Horizon 2020 (as initially

proposed by the EC) is commensurate with the Government's desire to reduce the overall budget – R&D must be prioritised.

ADS welcomes the opportunity to contribute to the House of Lords Internal Market, Infrastructure and Employment EU Sub-Committee Inquiry into Effectiveness of EU research and innovation proposals.

I. What are the essential elements of an effective proposal relating to research and innovation?

I.1 ADS views that a successful research and innovation programme must combine:

- I.1.1 Prioritisation for sectors where there is existing strength, market share and global leadership, coupled with significant market opportunities. In keeping with the wider EU agenda, such sectors should yield societal and financial returns.
- I.1.2 Funding levels that will enable the delivery of collaboratively developed and agreed strategic research and innovation agendas.
- I.1.3 Funding rates, rules for participation and public-private-partnership models that incentivise companies of all sizes to participate, and reflect the full innovation life-cycle from early stage Research and Technology (R&T) through to technology demonstration.

I.2 R&D is a long term game for ADS's members and characterised by the need for heavy up-front investment and exceptionally long programme lifecycles. This classic market failure makes these sectors less attractive to traditional sources of funding. Public-private partnerships are indispensable to bring forward the research efforts needed to deliver step-changes in product competitiveness and environmental performance.

- I.2.1 The European Parliament's ITRE (Industry, Research and Technology Committee) has proposed to reduce the Transport research budget (encompassing Aerospace) by some 20 per cent compared to the proposals of the European Commission. This compromises the European Aerospace industry's ability to deliver the EC-endorsed Strategic Research and Innovation Agenda (SRIA) published by the Advisory Council for Aviation Research and Innovation in Europe (ACARE). Likewise, based on FP7 experience, the broadened Security research programme would take some €3 billion, or 3.45 per cent of the overall Horizon 2020 budget, to deliver. ADS is therefore concerned with Parliament's proposal is to reduce the total Security budget to 2.1 per cent.

I.3 Research and innovation support is needed throughout the Technology Readiness Levels (TRL) in order to identify, de-risk, mature, validate and demonstrate technologies before they are adopted by Industry.

- I.3.1 In its 2012 Partial General Approach, the Council proposed changes to the funding rules for Horizon 2020 projects that will broadly translate into funding levels close to that of FP7, which ADS supports. Unfortunately, ITRE is proposing to lower the funding rates such that large companies will receive significantly diminished contributions to their total real costs compared to FP7 – a reduction of up to 35 per cent for R&T projects and 75 per cent for

1.3.2 A further concern relates to ITRE's recommendation that common funding rules be applied across all Horizon 2020 programmes. One reason for strong SME-engagement in Clean Sky (Joint Technology Initiative - JTI) has been the "mono-beneficiary" funding option, which allows Clean Sky to award Calls for funding to a single company. This removes from SMEs the onerous task of forming a multinational consortium before bidding. ITRE has proposed to remove such flexibility in Horizon 2020 which will be a considerable disincentive to participate, even for large companies.

1.4 Finally, sectors where public procurement is strong e.g. Security, the EU should seek to generate closer alignment between the EU's security research projects, industrial capabilities and Member States' national security priorities. This brings us to another factor for success, which is that demand must be end-user driven otherwise there is a risk that the technology developed will not be utilised.

2. Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

2.1. ADS sectors believes that the EU does a good job in consulting industry. The challenge is the extent to which these concerns are taken into account when policy is formulated.

2.1.1. Industry lobbied for the simplification of the rules for participation in future research and innovation programme, which has largely been heeded by the Commission.

2.1.2. At the same time, industry set out to the EC what funding rates would best incentivise industrial participation, which again is reflected in the EC position in this area. However, recent Parliament positions on funding rates (see point 1.3.1) are not reflective of this thinking.

3. The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?

3.1. The EU's Cooperation Programme provides a great deal of added value. Such collaborations reduce cost and risk of certain technology development, and also achieve critical mass. Working with higher education institutions allows the UK to maximise the pull through of academic research and showcases its capability.

3.2. The formation of ACARE (Advisory Council for Aeronautics Research in Europe) brought together senior figures from the industry, member states, regulatory authorities and the Commission. ACARE went on to define the Strategic Research Agenda (SRA), which has essentially defined the content of EC funded aerospace research & technology in FP6/7.

3.2.1. More recently industry and the Commission published the SRIA which sets out the strategy to take Vision 2020 out to 2050 and satisfy the goals of Flightpath 2050. It will help define the Aerospace research programme for Horizon 2020 and provide a framework for national programmes too. This and 3.2. reflect the EU's success at bringing groups together to map out future research.

3.3. The Clean Sky JTI is an instrument to mature and de-risk promising Aviation greening technology. It efficiently delivers technology demonstrators for a step change in improving environmental performance.

4. Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

4.1 More can be done to engage private sector support. Using inputs and outputs as a comparison mechanism, ADS notes that the UK's funding returns from FP7 were below their level of input, having improved from FP6 levels but falling far short of earlier FP levels.

4.2 As noted in 1.3.1, ITRE proposals to change the funding rate will not incentive participation by large companies and may be counterproductive in engaging more SMEs.

4.3 Industry has been heavily involved in developing industrial technology strategies in areas such as Aviation, including through the ACARE SRIA. Such SRIAs layout the route map for technology development from base research through to market exploitation in products, and are a reflection of what industry is ready to co-invest in. By ensuring that research calls reflect such industrial strategy, and ensuring that funding is available to deliver the *entire* SRIA, industry will see the "route to market" and more readily invest and participate. If only a partial commitment to SRIAs are reflected in Horizon 2020, industry will be discouraged from participating. Industry and the Group of Six have called for a more structured approach based on roadmaps. Each roadmap should synthesise and co-ordinate individual projects to lead to the achievement of large scale overarching initiatives.

4.3.1 It is worth noting that in the Security sphere there have been extensive roadmapping exercises but they need to be taken into account.

4.4 A familiar barrier to private sector participation is an overly bureaucratic process, which is a particular hindrance to SMEs. It can also result in a waste of resources as companies feel the need to engage consultancies to assist with their proposals.

5. Do EU proposals clearly state their desired outputs, outcomes, impacts, and 'European added-value'? Do you think the European Commission's Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

ADS has had a broadly positive response from member companies on this matter.

6. Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

For Horizon 2020, the Commission has indicated that monitoring and evaluation will be more frequent hence demanding more of the resources of companies.

7. In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore etc?

There is significant room to improve the results of EU R&D research projects in informing public policy. Industry and the Group of Six share this view and have proposed the following:

7.1. There needs to be more effective dissemination and exploitation of results.

Government Departments and agencies find it difficult to identify what projects have been funded. During H2020 negotiations, the Group of Six said that there is a need for setting up means and processes to capitalise and use project results. This includes setting aside up to 2 per cent of the programme budget to the compilation of reports and the organisation of workshops summarising the results on specific topics to the benefit of the programme committee and end-users. Efforts should also include adequate means to reach and inform a broader non-expert public.

7.2. Need-output gap analysis should be performed to improve the programming capability of the European Commission and the member states and achieve coherence between FP7 and H2020. This analysis will identify sub domains of needs left uncovered by the results of R&D activities and where necessary reassign them.

7.3. Improving the linkages between the themes within and European projects outside of H2020 would assist in generating economic growth. Specifically for Aerospace, there should be coherence and continuity between Horizon 2020 ambitions, the EC's Flightpath 2050 vision and ACARE's SRIA. For security, coordination and articulation of research contents with relevant existing budgets outside of Horizon 2020 including the Internal Security Fund will ensure the effective utilisation of research results.

7.4. Finally a note of caution on a public policy issue of concern, namely Cyber Security. The instrument types and timescales for Horizon 2020 mean that the only meaningful way in which this threat can be addressed is by very long range low TRL activities. To this end, there must be an acceptance that there may be more "failures" of such projects or that the results will not be relevant as the broader technology/threat base moves on.

8. How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

8.1. The economic crisis has to date had a detrimental impact on research and innovation funding. The impacts of such cuts are most severely felt within the deep supply chains of these industries, with SMEs finding it increasingly difficult to raise risk finance (typically through bank loans) that would be a source of research investment. More broadly, R&D

in the UK Defence industry fell 8 per cent over 2010 although the picture is brighter in civil Aerospace which rose by 21 per cent in the same period.

8.2. The UK Government has sought to ring-fence its own £4.6bn. science budget. However this is in fact a real cut of 10 per cent over four years. In addition, where there are sector synergies (particularly Aerospace and Security with Defence), the MOD's own R&D budget has declined by 11 per cent over 2009-11, which has a knock on impact.

9. What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?

9.1. ADS has made a number of recommendations throughout this submission including the need for proper funding and fair rules for participation; more use of JTIs (pt. 3.3); developing roadmaps (pt. 4.3) and reducing bureaucracy (pt. 4.4).

9.2. ADS would like also suggest that Intellectual Property Rights (IPR) be strengthened to ensure that whilst that the reasonable needs of member states, industry and other parties are met. There is concern that under Horizon 2020, there is a proposal in particular themes to widen access rights to such an extent that it would not only act as a disincentive for companies to be involved but would result in the dissemination of sensitive technologies.

February 2013

Agricultural Biotechnology Council—Written evidence

The views expressed in this submission are those of abc - the umbrella organisation for the agricultural biotechnology industry in the UK. abc, comprising of six member companies, works with the food chain and research community to invest in a broad range of crop technologies – including conventional and advanced breeding techniques, such as GM. These are designed to promote the sustainable intensification of agriculture by tackling challenges such as pests, diseases and changing climatic conditions, whilst reducing water usage, greenhouse gas emissions and other inputs. The companies are BASF, Bayer, Dow AgroSciences, Monsanto, Pioneer (DuPont) and Syngenta.

Further information is available at www.abcinformation.org

Regarding the committee's inquiry, abc wishes to address the specific area of translating research into agricultural biotechnology into practical application and commercial success in the European Union.

Context

1. Genetically modified crops play a key role in the global food supply chain. They are not a silver bullet, but are a tool for promoting greater food security and the reliability of the agricultural supply chain.
2. The world population is growing and is set to soar to 9 billion by 2050. This increases the amount of food that must be produced on the same area of land. Research is needed now in order to deliver more food from a similar amount of agricultural land by 2025.
3. About 16 million farmers grow over 160 million hectares of GM crops in 29 different countries according to figures published in 2011, and over 90 per cent of these were resource-poor farmers living and working in developing countries. A much smaller number of farmers were able to utilise new technologies in Europe due to the EU's dysfunctional regulatory regime.
4. Research and development in agricultural biotechnologies has the potential to deliver significant returns but only in the right political and regulatory environment. Research is thriving in other parts of the world including the Americas, Africa and Asia.
5. Genetically Modified crops should be part of the mix of technologies available to farmers now and in the future to improve productivity, whilst reducing the carbon footprint and the environmental impact of farming.

The situation in Europe

6. The use of biotechnologies is essential for outputs from agriculture in the EU to remain competitive on world markets. It is also essential if the EU wishes to build a research and development base in the longer term to further develop the techniques needed to maximise the benefits to farmers and consumers.
7. Agricultural biotechnology could play a key role in achieving European public policy aims such as improved agricultural sustainability, CO₂ emissions reduction, higher resource and energy efficiency and increased productivity. The recent [Going for Growth](#) and [Eight Great Technologies](#) reports have laid out how a constructive policy on agricultural technology could also drive economic growth in the UK. The Government's Agricultural Technology strategy encapsulating all of these benefits is keenly anticipated in the spring. Replicating such research and innovation strategies across Europe could thereby help to meet wider policy objectives.
8. The EU must examine its dysfunctional regulatory system for the approval of agricultural biotechnologies for cultivation. The existing set-up is beset by political interference by those ideologically opposed to the use of the technology, and decision making has not been based on scientific evidence. This has led to a moribund approvals process. Only two out of 25 products awaiting cultivation approval have actually been authorised for use in the EU. The total cumulative delay for all of the applications in the EU authorisation system (including import and cultivation) is over 44 years. A [full breakdown](#) can be found on the website of EuropaBio.
9. Research and development supported by abc member companies and by publically funded European institutions would benefit from a science based approvals system for new GM products and traits. Currently, there is a powerful disincentive for companies to invest in future development or enter into meaningful partnerships with Member State governments.
10. With the right approach, European funded research could help meet many of the policy challenges facing other, less privileged parts of the world.
11. Currently some research is undertaken via publicly or privately funded initiatives, including in the UK. However such initiatives tend to be small scale evaluation trials due to the lack of a potential market. The EU risks falling further and further behind other competitive regions – most notably the USA, Brazil and China – in the area of agricultural biotechnology if it continues to drag its heels on approvals for GM products and for the cultivation and research of GM crops.

Required actions

12. For the benefits of GM technologies to be realised by European farmers, consumers and researchers the following issues need to be addressed:

Agricultural Biotechnology Council—Written evidence

- I. Politicians will have to set out clear policy in the area of the use of science and technology in agriculture, giving farmers the confidence to grow such crops without interference where a market exists for their produce
- II. European and country approval for cultivation must be based on scientific understanding of the new product
- III. Field trials must be allowed to take place with a very low risk of disruption

11 February 2013

Airbus, EADS, Rolls-Royce, and Pfizer—Oral evidence (QQ 36–53)

Evidence Session No. 3

Heard in Public

Questions 36–53

MONDAY 25 FEBRUARY 2013

Members present

Baroness O’Cathain (Chairman)
Lord Brooke of Alverthorpe
Baroness Buscombe
Lord Clinton-Davis
Lord Elton
Lord Fearn
Lord Kakkar
Earl of Liverpool
Baroness Valentine

Examination of Witnesses

Colin Sirett, R&D Department, Airbus, **Ian Risk**, Vice President, Head of Innovation Works UK, EADS, **Dr Simon Weeks**, Head of Aerospace, Research & Technology, Rolls-Royce, and **Adam Heathfield**, Senior Director, Worldwide Policy Team, Pfizer.

Q36 The Chairman: Thank you very much for coming, and at relatively short notice, because we have not been doing this that long. Members of the Committee with relevant interests will declare these—please remember to do so when you are asking relevant questions, or even beforehand if you want to. The session is on the record: it is being webcast live and will subsequently be accessible via the parliamentary website. All of you will receive a transcript of the session to check and correct, which will be put on the public record in printed form and on the parliamentary website. This is being taken down by *Hansard*, so can you identify your names and official titles for the record? Then if you could say about three sentences—because we have lots of questions to ask you—about what you do and what you find important about all this.

Ian Risk: I am head of EADS Innovation Works in the UK, which is the EADS corporate research facility providing upstream research services to all of our business units in the UK.

Dr Simon Weeks: I am Simon Weeks, head of aerospace research for Rolls-Royce. I head up Rolls-Royce’s global aerospace research and technology programme, which includes programmes in the UK, Germany and the United States.

Colin Sirett: I am the R&T national representative for Airbus in the UK and head of R&T Business Development and Partnerships. All Airbus activities, both nationally and with the EU, that have got UK content come through my office.

Adam Heathfield: I am Adam Heathfield. I am one of Pfizer's worldwide policy team and have led our European research policy work for the past five years. I also support EFPIA, the European Federation of Pharmaceutical Industries and Associations—the European trade association for the industry—in their work on their Research Directors' Group, which is a key partner in one of the JTI, the Innovative Medicines Initiative.

The Chairman: So, you represent the big companies and are all big hitters. You must feel a bit out on a limb being the only pharma one here among the engineering people.

Adam Heathfield: It is a nice change.

Q37 The Chairman: Can I ask you: what are the essential elements of effective and structured proposals relating to research and innovation? I will start this end this time.

Adam Heathfield: I suppose it depends. There are many different types of research proposals. For us, thinking particularly about our main interaction with EU research funding and research proposals, we focus again on the IMI, which is designed to be industry-relevant. When we look at these kinds of proposals, there is a list of things that look attractive to us or areas where things seem to work well. One is that, if the research is supposed to be relevant to the industry, it is nice to be consulted or to have a chance to influence what that agenda or priority is. Having an opportunity to shape that is a good element. Proposals that are respectful of industry expertise is an important thing for us. We maybe have a history of being seen as a supplier of cash for academic research but looking for genuine collaborations is something that we will all talk about today.

Timelines on proposals have been another issue. Lots of research proposals that we work with are based around a three-year PhD studentship, which makes a lot of sense for a university partner but may not be ideal for our research programmes. So we need flexibility beyond that traditional envelope; particularly projects that have set time deliverables, milestone payments or termination clauses, because otherwise you can get locked into a proposal that is not working or delivering. So we need some chance to break that. Things which allow exchanges of staff between sectors have also been very productive for us. Everyone would say that they want bigger grants, but smaller numbers of large bits of funding would be maybe more helpful for us as it is difficult to map a whole complex territory of different pots of funding. The other element is that things that focus on pre-competitive work have been another big trend for us. Not only can we interact through research with the public sector or small companies, but companies of our size can also share risk and expertise. That has been very effective. Then there are things which looks at free exchange of information, although I am sure we will talk about IP and IPR later.

The Chairman: We have got a question on that, yes.

Adam Heathfield: So I shall park that. But the main thing, in answering that question about what works for an industry-relevant research proposal, is that that is only part of a wider set of research proposals. It is incredibly important for us that there is more forward-thinking blue-skies research, as well as what is relevant to us. So there are things that we like to see for our work, but we want that to be part of a bigger picture and not everything to be focused on that.

The Chairman: You used one acronym, IMI.

Adam Heathfield: Forgive me.

The Chairman: Just for the record?

Adam Heathfield: The Innovative Medicines Initiative. It is one of the EU's joint technology initiatives.

Q38 The Chairman: Thank you very much indeed. Mr Sirett?

Colin Sirett: Really, there are three essential elements for research programmes. The first one is collaboration. We have upwardly of 6 million separate component parts to a civil aircraft, and there is no way that we could produce or master all of those individually, so collaboration is absolutely key with the leaders in each of those fields. The second point would be the derisking of the early stages of the technology, which is where we do look for, particularly, collaborative research. That is collaboration not just with other industrial partners, but also with Government and academia. Then the third point would be very clearly time-bounded research projects that give a very clear and present assessment of the technologies as they are developing, so very much a check and balance.

Dr Simon Weeks: I think again, there are three aspects for me. A good proposal must have business impact, and impact on the social agenda as well of the European Commission. Partnerships and collaboration are again extremely important, and they must be of value. They have got to deliver value to the programme, and we get a special value from working with our supply chain partners, SMEs and universities through those partnerships and collaborations. Then there is flexibility. Again, at times in research you cannot predict the outcome, so there must be flexibility built into those programmes to allow a change in course if you find something you did not expect.

Ian Risk: I think essentially—it has been mentioned previously, but in terms of impact—if you want the proposal to be effective it needs to have a demonstrable impact; it needs to be driven very much by a market need of some sort, be it a real commercial one or a social one. Once you have that established as the basis of the proposal, in essence then the project or proposal flows naturally to tell a good story that really brings together that market need and addresses it via a very strong technical response. Ultimately, it is all about bringing the right people at the right time together. As we have spoken about previously, an element in collaboration is about making sure that the collaborations make sense in what they do and that they are right.

Q39 Lord Fearn: Do you feel that stakeholders at all levels including academic institutions, small and medium-sized enterprises and big business are properly consulted in the development of EU proposals on research and innovation? How could consultation be improved, and to what extent does consultation affect policy formation?

Ian Risk: Lord Chairman, could I address that one? I can only really speak for my industrial sector, but in terms of the aerospace sector I think that the organisation within the EU is very well structured. There is a very high level of engagement between the EU Commissioners and the industry, at whichever level, taken from the major industrial players all the way through research organisations, small and medium enterprises, the universities—they all have their own organisations that gather together the views and requirements from each element of the industry or the supply chain. That system works well under the

governance of the trade associations here within the UK, ADS, or within Brussels, ASD, for the aerospace and defence industry.

The Chairman: Can I just ask a quick one? Is that the feeling of all the remaining three people on this one? That is very good, because at least we feel that we are dealing with a winner.

Q40 Lord Brooke of Alverthorpe: Thank you for your Airbus and EADS papers. At paragraph 41, you say: “Cassidian believe that the mechanisms for effective consultation on security related topics are broadly in place. However, these appear to be employed more successfully with academia and end-user communities more than with industry. The security industry sector is particularly diverse and complex in scope. Earlier engagement with industry bodies on new topics is essential”. Could you develop that a bit further and tell us what you believe ought to be done to put it right?

Ian Risk: I think you would have to address that question directly to Cassidian. I can offer to obtain some information and get back to you in specific detail on that.

The Chairman: That would be very useful; thank you very much indeed. If you could do that, that would be great.

Q41 Lord Elton: Although it is very nice to hear that everything is lovely, actually what we are trying to find out is how to make things better still. If you are going to write to us afterwards, I wonder if you could reflect on your generally sunny approval of everything that is going on and just see if there are a few chinks of darkness in there.

The Chairman: That does not indicate that he is a Eurosceptic.

Lord Brooke of Alverthorpe: The decline in the amount of money that is going into industry?

The Chairman: Yes. Who wants to take that one?

Colin Sirett: What particular question?

The Chairman: From Lord Elton.

Adam Heathfield: I do not think I have many dark corners to reveal, but the timescale of some of the consultations has been quite long. The Innovative Medicines Initiative had quite a slow and lengthy gestation, which absorbed a lot of time and a lot of input from all partners—that is the FP¹ side and the European Commission side. I think, overall, that has been very positive, but it was just a consideration that trying to set up something new—a very new way of working—takes a lot of negotiation and time. I always think that is worth investing, but it is difficult for us always to explain why these discussions have gone on for a long time.

Without wishing to turn your question into another opportunity to be sunny side up, one thing we have seen is that on the first joint technology initiative, the IMI, some of the original teething problems did get ironed out, and you are seeing significant change in approval times and great growth and participation, so that is good. I think there is a

¹ Note from witness: This should read “EFPIA (European Federation of Pharmaceutical Industries and Associations) instead of FP.

willingness to learn lessons from that original IMI, which was funded under Framework Programme 7, and to look at how we might expand it and do something new, bigger and better in Horizon 2020. Lots of the lessons we have learned—very good—are being taken on board into these new discussions, and there are some very good formal groups that the IMI has developed. There is a states' representative group to give the national perspectives, and there is a stakeholder forum, again, which has an institutional role.

In all of that and all the positive developments, the thing that would help us slightly—and I think the Commission has been very good in working with us about what is possible—is that when we have reached an agreement about an issue, whether it is IP or inclusiveness or participation rates, that does not get reopened all the time. I am not trying to be critical of what has happened, but that would help us. If we have got an agreement, it is an agreement until something radically changes—that would be a good way forward.

The Chairman: Can I just make the point that we did not give you foreknowledge of this question—it just came out of the blue? But this is the way sometimes. If either of the remaining two on the panel wanted to write to us about it, or anything, we really would be delighted to have your evidence.

Colin Sirett: Lord Chairman, there is probably one aspect of this which I totally agree with, which is that if you look at Horizon 2020, that journey started in November 2011, which is a not inconsiderable amount of time to make a decision. The one thing we would encourage is a faster decision-making process.

The Chairman: Of course, the real problem is something called the MFF—multi-annual financial framework—where we were not able to get anywhere. It is not settled till it is all settled, with the 27 members. You know what happened a couple of weeks ago. I am not making excuses, but we have been hidebound by that, frankly, but hopefully it will now begin to motor.

Lord Fearn: Where you feel that you have not been properly consulted, do you lobby on a specific subject? How do you do this? How do you get through when your views are not heard at first?

Colin Sirett: It is a situation where we have to participate—and that is active participation, taking leading roles on the various committees and sub-committees within the EU—and invest that time and effort to ensure that the hearing does take place. If there is an element which is more national-centric, then we will take that and lobby that via the trade association.

Q42 The Chairman: That is very interesting. I was just saying that we need to be in there, not only in the area of innovation and research. I have noticed in some other things that we have been doing that the more we get involved with them and they see the colour of our eyes, so to speak, the quicker we can get responses and the more understanding there is, and that is the way to deal with it. Any other points on that, please?

Dr Simon Weeks: Yes. The process is extremely complex. That does actually lend itself to larger institutions to participate in that, because you do need resources to do that. We have inputted not only into the technical debate, but the discussions around the rules for Horizon 2020. There are again numerous routes to put an input in, both directly to the Commission in respect of the requests for comments that are issued, and also through

trade associations, and directly to the Commission² from a company or through national trade associations.

The Chairman: Do you use UKREP?

Dr Simon Weeks: I am sorry?

The Chairman: United Kingdom representation in Brussels? Do you use them as well?

Dr Simon Weeks: Yes, we do.

The Chairman: Actually, can you give us hints on how you do it? We are just amateurs in it. It should be part of the ticking of the boxes for any dealings with the whole of the European Union, particularly with Brussels.

Dr Simon Weeks: Perhaps in a more detailed written response.

The Chairman: That would be great. Thank you very much. Lord Brooke?

Q43 Lord Brooke of Alverthorpe: Could you tell us about your collaboration with SMEs—the extent to which that arises and whether you see benefits from that, whether you see it as a useful direction in which you would wish to travel, and how you might travel better in the future?

Dr Simon Weeks: On SMEs?

Lord Brooke of Alverthorpe: Yes.

Dr Simon Weeks: One of the particularly successful examples of bringing SMEs in has been through the Clean Sky joint undertaking, which has exceeded its targets in terms of SME participation. That has been particularly valuable in getting their contribution into our programme. Again, what has aided that has been the so-called derogation of Commission contracting rules, so that you can have a single entity leading a programme within the portfolio of Clean Sky programmes. For example, Rolls-Royce might be a single lead of a programme within Clean Sky and bring in a number of SMEs as part of that programme. That has proved very effective and has exceeded the target for SME participation in that programme.

Colin Sirett: Just as an add-on to that: we sit here, really not—shall we say?—insignificant industrial egos—but we have to a certain extent reflect that we do not always know everything, and we do rely on the agility of the SME community for some very fast, very quick, ground-breaking technologies which, quite frankly, we could stifle if we tried to take that directly through our own organisations.

The Chairman: Because of your process.

Colin Sirett: Exactly.

The Chairman: Actually, this was suggested to us by Professor Mary Ritter of Climate-KIC—that big business is getting involved in EU projects in order to gain access to students, start-ups and SMEs with bright ideas. So it is a two-way thing, is it not? Lord Clinton-Davis?

² Note from witness This should read “directly to national governments from a company or through national trade associations.

Q44 Lord Clinton-Davis: Do you think there are any better ways that the EU could adopt—

The Chairman: Sorry, can I stop you a moment? I am told that Lord Kakkar wanted to get in on that question.

Lord Kakkar: If I may, Lord Chairman? I should also declare my own interest as professor of surgery at University College, an institution that is entitled to apply for European Union research funding, as indeed am I myself. I would just like to pick up on the point about SMEs and just explore further whether, coming from big industry, if I may put it that way, you have found them enthusiastic partners for these types of programmes, and if you find that their own organisations, trade bodies and so on are sufficiently conversant with the European system to be able to work in partnership with you to achieve the maximum benefit from this type of funding.

Adam Heathfield: I could have a go at answering that. Yes, we have, but the point made earlier about the time invested or the time required to participate and learn about what is going on is quite an onerous thing. The trade associations for smaller companies, as well as the ones for large companies, are incredibly important interlocutors for these programmes, because there is quite a wide array of programmes available. We have seen in the Innovative Medicines Initiative, again, very good participation from small and medium-sized companies, which has been very positive and very helpful in lots of ways. deCODE Genetics in Iceland are involved in one. I think we have got 108 in 40 projects, so those are quite good participation rates, but we know that there are many more out there, and I understand the policy imperative to try to always get more in.

Just one thing about biomedicine, if I may: the smaller companies in biomedicine may be split into two groups, which are those which are trying to develop new therapies, and those which are working to supply services and technologies to the wider biomedical community. The latter group fit very well into our programmes. We as industry would define the project call, and then SMEs and academia would put together a match consortium to deliver that work, and we would all work together on that programme. That has been very good. Where it is a bit more difficult is to get the smaller companies who are working on therapeutics to be involved, if you like, in both sides of that discussion—so shaping what the research priorities are that will form the future calls for proposal, and also participating on the other side.

Lord Kakkar: That is very helpful. I just want to pick up if I may, Lord Chairman, on one further point. Do you sense, from the position that you sit in, that the small and medium-sized enterprise sector is less well supported than academic and university institutions in terms of our national input—our national support in helping them participate?

Adam Heathfield: That is a good question.

Ian Risk: I think many of the academic institutions in the UK are very well geared up to this. They have specific offices set aside to work with funding agencies and suchlike. Clearly the SME community, by their nature, do not have that kind of resource to engage with stakeholder bodies or develop proposals. But, as has been stated before, many of the trade associations can provide that at-elbow support, and even financial support. We have worked with some of the local trade associations in our sector such as the West of England Aerospace Forum or the Midlands Aerospace Alliance, and they have all been able to provide support to SMEs to get them into the community. Certainly I have been able to go

along and support and do presentations on what the industrial sector is, and I know my colleagues have as well. We as, if you like, big business are able to provide some of that education with the co-ordination done through the trade associations.

Q45 Lord Clinton-Davis: The EU's approach towards encouraging research, innovation and the use of these things—do you think it could be improved at all?

Adam Heathfield: I suppose in our world—pharmaceuticals—there are a lot of a different elements of regulation, some of which are dealt with by the European Union, and there are some things which we are in constant discussion about. The clinical trials directive in Europe is operational at the moment, and we are discussing that. The use of animals in research is one thing that is regulated through Brussels. But those kind of things we have not seen be major obstacles to the research that we have tried to do through European R&D funding, so they have not impacted on the operation of the research programmes. I think, overall though, for our industry—I am not sure about the aerospace sector—the key thing that Governments need to do for us is to buy our medicines. That is the thing that drives and provides the revenue and creates the future market that justifies our investment. We need funds to do the research. That comes from the way that medicines are bought and used. That is very much a member state competence issue. There are a number of issues where Brussels has some say that defines that process, but by and large that is an issue that we need to deal with with the countries rather than the EU institutions, if that makes sense.

Dr Simon Weeks: In the aerospace sector, the approach of the European Commission in working with industry to get a robust, joined-up strategy has been really very good. The areas for improvement are around the contracting rules. They could be simplified. Also, the decision-making timescales can be very long. Those are the two things to improve.

Colin Sirett: Also from the civil aerospace side, it is not just the regulation of the legislation itself; it is the consequences of that legislation or regulation. We have got probably examples of good and bad, one being the advent of ACARE, the advisory council for aeronautics research in Europe, who have laid out jointly agreed targets for 2050. That is absolutely cornerstone for research in our emissions goals for the future. Then we have the disconnect with initiatives like the Emissions Trading Scheme, which is looking at taxation on a global scale but assuming that there is a price to pay within Europe.

The Chairman: Dr Heathfield, you wanted to add something again?

Adam Heathfield: Yes, sorry. Something very positive which is a development in the discussions about the next biomedical public-private partnership in Horizon 2020 is that one of the steps and one of the expansions of the work that we are aiming to provide is not just research that focuses on scientific bottlenecks, which was our original proposal, but to work on regulatory and technology assessment processes. One of the things we are seeing is, even where there are recognised to be regulatory barriers to the uptake and use of medicines, even that is being folded into a new source of projects and collaboration, which I think is very positive.

The Chairman: Mr Risk, you look as though you want to have the last word.

Ian Risk: Yes, I shall have the last word. It is really just about the approach again of the European Commission, in that they have been quite flexible to understand the changing needs of the industry. I have been involved in European collaborations for many, many years now, and seeing how the funding schemes have evolved over time has certainly been encouraging, as larger programmes that can act as flagship programmes for industrial sectors

to really stimulate interest in the kinds of research that we need to do have really been developed over the last few years. Particularly with the evolution of the joint technology initiatives, that is something that again is a good and positive move forward for all industries across the various sectors.

Q46 Lord Clinton-Davis: Do you discuss these issues with the Commission?

Ian Risk: Yes. Again, it goes back to the various discussions at the various levels that we have, and certainly the content of the programmes is discussed very clearly with the Commission representatives.

The Chairman: It sounds like just a very happy-clappy sort of place, does it not? Perhaps you ought to give us some tips for the British Government.

Lord Brooke of Alverthorpe: This is confusing me, because there seems to be a general acceptance that the administrative burdens are too high and that the decision-taking is too long.

Colin Sirett: I would not say there is an acceptance. It is a recognition of the limitations.

Lord Brooke of Alverthorpe: But there could be improvements there.

Colin Sirett: Absolutely.

Lord Brooke of Alverthorpe: We are then seeing a happy-clappy atmosphere, yet we see a continuing decline in the amount of money which is going into research for industry since this was first incepted, and there is a marked decline. Is that decline going to continue, or will it be arrested with the changes which are being proposed ahead? Or are there further changes which are needed, and why cannot we get a bigger element of industry getting a bigger share of the R&D?

The Chairman: Piggybacking on that, if I may: is this just country-specific? Is this that the UK experience is good compared to, maybe, Romania, Bulgaria and Greece and all the rest of it? If you take the amalgam of all of those, Lord Brooke, it could be that that is why it is going down, because they are not investing. Or is it?

Ian Risk: With the increased levels of education and awareness right across Europe that these schemes are available, the level of competition for these funds has increased significantly, so the success rates for proposals are in reality quite low. There is a high bidding cost associated with it. There is quite a long period by which the proposal has to be negotiated, and suchlike. But overall the success rate can be as low as 20%. So in one bid in five you might be successful, for the smaller scale programmes. It is quite a challenge to address that in such a highly competitive market—to secure a specific level of activity.

Q47 Baroness Buscombe: Forgive my late arrival. I think I can say as a lawyer that it is terribly rare to see the words “legislation” and “regulation” in the same sentence as “innovation”. I just wonder whether you are all being very polite. In an ideal world, what would you do to improve the balance—bluntly perhaps?

Colin Sirett: Bluntly, the legislation and regulation is welcomed so long as it actually has the same ultimate vision that we have within the industry. We are at a point in time where we have to say—just speaking on behalf of Airbus—that 90% of our R&D budget, which in the UK year-on-year is £480 million, is focused on environmental issues. Legislation and

regulation that is focused on the environment is absolutely important, and we are aligned. The left-of-field issues—as I mentioned earlier, the Emissions Trading Scheme—is where it starts to unravel.

The Chairman: Different objectives.

Colin Sirett: It is different objectives and the net benefit of that taxation coming back in to reinvest in research is not clear at all.

Q48 Lord Elton: You describe yourselves as dealing with upstream and pre-competitive research, which makes the question of intellectual property possibly not of the first order, if you are in the big league. That is the message we have had from some witnesses. On the other hand, from the trade associations who look after the interests of SMEs, we hear there is considerable anxiety about what is now proposed for intellectual property rights and the reducing of the protection available to an extent which some of their members, certainly, seem to think will make engagement in things that they are doing now in the way of research no longer possible. Can you comment on that?

Colin Sirett: Yes, certainly. We would actually agree with that statement wholeheartedly. The introduction of open access to the resulting IPR is a major risk for Europe. If we look to the future and where our future competition will be coming from, it is not hard for a non-European corporation to invest in a takeover, or buy a company or establish a company within the EU bounds, to effectively have access not only to the derived IPR but, as a consequence of the derived IPR through the project, the background IPR also. So it is a very significant concern to us.

Adam Heathfield: It still feels less of a concern to us in biomedicine. Particularly in the Innovative Medicines Initiative, the basic principle has been that the information generated through the project is destined for the public domain, but then any of the partners can go and commercialise that in their own way by doing something else. If, for example, an IMI project identified a new biomarker that was relevant for cancer drug development, we as companies could then go and try and develop a drug against that new piece of information, or an SME or a university could take that biomarker and think, “There is commercial potential here. Let’s set up a diagnostic company to capitalise on that”. That is fine. But the access to the core knowledge generated in that collaborative project is beneficially made more widely available. For us in our sector, in the kind of projects we have been involved in, we may be in a slightly different position vis-à-vis where those projects sit in our product development. Again, you may see differences sector by sector in terms of sensitivities there.

Q49 Lord Elton: Sorry, just a supplementary: on your left are large corporations with very large numbers of SMEs in the supply chain. I am less familiar with your sector. Is that true of you as well?

Adam Heathfield: They are less in the supply chain. It is more like an ecosystem—the rather clichéd term that is often used—so there are lots of people developing ideas and new technologies, and they may become relevant to drug development programmes but then maybe they fail and we move on to other research. The products that we make—medicines—will be related to some very core, central intellectual property and our manufacturing and distribution expertise. We will have developed that and clinical data, but it is not a big integration of lots of different components. It is an integration of lots of different knowledge, if you like, so our supply chain tends to be governed largely by us, but what we work on emerges from a lot of partnerships and interactions with smaller

companies. I am not sure if I have explained that very well. There are lots of collaborations, but it is difficult to say that it is a supply chain in the way that aerospace might be.

Baroness Buscombe: More satellite, sort of.

Adam Heathfield: Yes. A galaxy—a cluster of things, and eventually the products emerge from that. The collaborations are very helpful, but it is less of a funnel process to the end product.

Dr Simon Weeks: I would just add that IPR control in the aerospace industry is absolutely key to the market position. Yes, there would be concern about effective loss of that ability to protect your position in the market through IPR.

Lord Elton: Is “Europe” aware of this collective concern you have?

Adam Heathfield: Yes.

Dr Simon Weeks: Yes.

Colin Sirett: Yes.

Ian Risk: Yes.

The Chairman: So do you actually agree with the UK Government policy on open access? For example, the Minister for Universities and Science, David Willetts, is very pro. What is your view on that?

Colin Sirett: I think that here we have a very fine line between inward investment and exploitation. We would look for—as mentioned through pharma—the collaborators on a research programme to be in the best position to exploit the resulting technology in advance of anyone else around the globe. That has to take precedence as far as we are concerned before anything else. If that means that we have to bring that investment in-house and control it through that manner, that is something that we will do.

Adam Heathfield: I would only say that IP for us remains absolutely pivotal and critical. My industry would be finished without IP, but access to the scientific knowledge and making that broadly available is much more welcome for us. There is often a confused debate about lack of IP, open access, open source—lots of these terminologies get mixed up, so I would just recommend some rigour and the idea that sharing information should not confuse ownership of IP.

Q50 Baroness Valentine: How has the economic crisis and the atmosphere of austerity in many EU member states impacted on the research and innovation environment at the national and EU levels? Are the proposed levels of spending appropriate in the current situation?

Ian Risk: As we discussed earlier, the strategies for each of the industrial sectors have been well established and well documented.

Lord Clinton-Davis: I cannot hear.

The Chairman: Can you speak up a little please?

Ian Risk: Each of the strategies in each of the sectors has been identified and worked up in consultation, so we know the scale of the problem. Basically, the problems have not changed. If the budget changes, we simply have to prioritise. That would be the key activity, in terms of the impact being felt at some point on the level of participation. Clearly, we have

our agenda that each of our industries needs to address. We just have to cut our cloth accordingly.

Colin Sirett: Again, coming back to the ACARE targets for 2050, those are our shared vision. To deliver the product that we need in that timeframe, the research actually has to happen now. If we do not conduct the research within the next three or four years, we are pushing those targets out or we will never achieve them. It is very much as simple as that.

The Chairman: And Dr Heathfield, the view of the pharma industry?

Adam Heathfield: I make a very similar point to the last one. If you look at areas where we need to innovate in medicine, they are all around us. Alzheimer's disease and diabetes are huge future burdens and we need new medicines for them. In respect of austerity, there are problems in the future, so the pressure to continue to innovate and do that more effectively and efficiently is always there. In terms of austerity, I think that is hitting us more directly through revenue and, again, for our business model, revenue is what drives our ability to spend money on research.

Baroness Valentine: So the sort of mix of economic patterns within Europe has roughly no impact on what you are saying.

Colin Sirett: We have a smoothing effect, particularly with the civil aviation business, because if you take year on year, decade on decade, we have been experiencing 45% growth every decade for the last three decades, irrespective of global crisis, terrorist attack, conflict and oil crisis. We do expect, through the next 20 years the demand for air travel and air traffic to double. That is a position that is widely held amongst the civil aerospace community. That is not to say that we are immune; that is not to say that we cannot do things better; and that is not to say that we can get away with the same products that we produce today.

Baroness Valentine: Is it the same issue in pharma?

Adam Heathfield: I am sorry—my mind has gone completely blank. Could you just repeat your question?

Baroness Valentine: I was just wondering whether the mix of economic success within Europe has any impact at all.

Adam Heathfield: Yes, of course. Again, it impacts on the revenue. We are operating globally, so global revenues feed into our R&D. We spend about \$8 billion on R&D. The public/private work that we do is very important and it facilitates a lot of collaboration, which is beneficial, but it is not the dominant element of our research—research, again, is from revenue. As for the mixed pattern across Europe, the more we can address problems in the countries that are really struggling and make sure that they operate their health systems efficiently and do not make unwarranted cuts that are going to store up problems in the future, the better. The revenues are global, so we are trying to get that all together.

The Chairman: I know it is a fundamental question, but if any of the four of you feel that you can say more about austerity, please do so. We hear about austerity every day, but is it a brake on innovation and research? If so, are you looking to do the research and innovation for countries such as China and the other BRIC members? I am not asking a question now, but if you have any information on it, it would be very useful if you could write to us.

Q51 Lord Kakkar: The question of austerity in Europe might drive the Commission to decide that the money available for research and innovation should be used more politically to support the development of research infrastructure and facilities in less affluent European nations. Does it concern you that this budget may not be driven primarily to the focus of excellence and deliverable outputs, as previous innovation funding rounds have been, but may in some way be driven either to develop infrastructure or to support a lack of investment in research and development in certain European states hit by austerity?

Colin Sirett: From an Airbus position, there is undoubtedly a socioeconomic consideration that has to be made. A number of the countries are in very difficult times. This is an area where the EU does have a role to play. The nature of collaborative research gives that opportunity for regeneration and it is not at the expense of the lesser-hit communities.

The Chairman: That is a very interesting point.

Lord Clinton-Davis: Is there a problem in the difference of approach between the northern countries of Europe and the southern countries?

The Chairman: Please could you think about that and let us know.

Adam Heathfield: One thing I think we should definitely avoid trying to do is to regress to the mean and try to make everybody the same in Europe. We should avoid the average if we can. Building capacity in countries is important, but it is a longer-term goal than the delivery of a project that needs to be excellent. We see this all the time—there are very different levels of familiarity and expertise in different technological areas between different countries. That is fine, because it allows excellence to flourish.

Dr Simon Weeks: If you are investing in excellence, there is a spillover from everything you do. If you are investing in the best projects, the spillover will be greater.

The Chairman: The rising tide raises all ships.

Earl of Liverpool: Do you think that the EU can add value with ideas and funding in non-traditional areas of research and innovation—for example, the financial services sector, creating new business models, et cetera?

Adam Heathfield: What they are doing that is really exciting is not so much in particular sectors but in bringing different sectors together. That is where we will see a lot of advantage over the coming decades. For us, electronic health records linking the IT sector with the pharmaceutical industry will be very productive, potentially. The EU's ability to bring together those different sectors to do something at scale that is technically difficult and needs big investment means that there is a lot of opportunity there.

Dr Simon Weeks: On the links from finance and research coming together, one area that was identified in the *Flightpath 2050* document, which is a long-term strategy document, was a need for innovative financing mechanisms for research programmes. Many of our technologies can take a long time to come to fruition, outside the normal bounds of risk investment, so innovative financing mechanisms would bring a lot of fruit to future research.

The Chairman: Before we finish this, do any Members of the Committee have a burning question that they want to ask our excellent witnesses?

Q52 Lord Brooke of Alverthorpe: I would like to ask Dr Weeks what Rolls-Royce is doing in this area. You talked about looking for innovative approaches to funding and financing, so what is Rolls-Royce thinking about there?

Dr Simon Weeks: It is an interesting question. I am not really a finance expert, but I am thinking about the availability of a wider range of financing options around longer-term projects, for which the payback may be many years ahead. That is not traditionally attractive to finance. But, as I say, I am not a finance expert; I am more of a research man.

Lord Brooke of Alverthorpe: Could Rolls-Royce think of floating bonds for research and development that would be payable over 20 years, so that the public could participate, rather than your having to wait for banks and European money?

The Chairman: You think that the banks do not lend anyway.

Dr Simon Weeks: It is an interesting idea.

Lord Brooke of Alverthorpe: That is what built electricity in Brighton in the 1900s—the local people put their money in and got their money back over the years.

The Chairman: But things have changed a bit since the 1900s.

Baroness Buscombe: One of my concerns about all this is the timing. You suggested earlier that some of this is not done in a very timely fashion—there are long delays waiting for decisions to be made. Does that really impact on success and innovation? It must do.

Dr Simon Weeks: Yes. So much is about being first in the market with an innovation.

The Chairman: Sometimes it is better to be second.

Adam Heathfield: It also helps to find which projects are best suited for those kinds of mechanisms. The UK is blessed with some institutions that are much more responsive. The Technology Strategy Board has been incredibly important partner for us—it has been very responsive. There are some things that you want to do with them and other things that you want to do on a more European scale.

Q53 The Chairman: This really is the final question. What questions do you think we should have asked you but did not? Would you be prepared to consider that and let us know what those questions are and, indeed, what the answers are?

Colin Sirett: Certainly.

Adam Heathfield: Yes.

The Chairman: Thank you. You have been wonderful, all four of you. I have certainly learnt a lot, as I am sure have other Committee Members. Thank you for your time and for coming here. We look forward to receiving some written evidence from you.

Professor Richard Brook, AIRTO, Professor Mary Ritter, Climate-KIC and John Hill, Growth Accelerator—Oral evidence (QQ 15–35)

Professor Richard Brook, AIRTO, Professor Mary Ritter, Climate-KIC and John Hill, Growth Accelerator—Oral evidence (QQ 15–35)

[Transcript to be found under Professor Mary Ritter, Climate-KIC](#)

Association of the British Pharmaceutical Industry—Written evidence

Summary

1. *The ABPI represents innovative research-based biopharmaceutical companies, both large and small, leading an exciting new era of biosciences in the UK. Our industry, a major contributor to the economy of the UK, brings life-saving and life-enhancing medicines to patients. Our members supply 90 per cent of all medicines used by the NHS, and are researching and developing over two-thirds of the current medicines pipeline, ensuring that the UK remains at the forefront of helping patients prevent and overcome diseases. Working with our Research Affiliate Members, leaders in pharmaceutical R&D, is vital in promoting the UK as a destination of choice for international life sciences investment.*

2. The biopharmaceutical industry is the leading industry investor in R&D in the UK - £4.6 billion annually (ONS 2011), and brings in an annual trade surplus of over £6 billion (HMRC 2011). Industry R&D expenditure in the UK is greater than in any other EU member state, and provides for 67,000 highly skilled jobs (ONS, BERD 2011).

3. Increasing the European Commission's investment in research and innovation is vital in securing economic growth through the life science industries. The life science sector is a strength of the UK and EU and therefore should be a strategic area of EU focus for growth, particularly in a climate of austerity in EU member states. This sits against a backdrop of historically low EU-27 investment in research – 2% GDP (OECD 2010), a shortfall against the Lisbon target of 3% GDP. Hence we support the Commission maintaining the investment target into EU2020, and are strongly supportive of Horizon2020.

Key points

Public private partnerships (PPP)

4. The evolving nature of R&D: The biopharmaceutical industry increasingly operates in a complex R&D ecosystem of mixed actors, and companies increasingly participate in public-private research partnerships, particularly in precompetitive R&D. We support the renewal and creation of public-private partnerships in the EU2020 strategy to leverage investment in research and innovation and enhance the EU's global competitiveness.

5. Benefits of PPPs: There are several EU programmes of relevance to the biopharmaceutical industry. For example, the Innovative Medicines Initiative (IMI) is a flagship PPP between the European Commission and the European-based pharmaceutical industry, totalling a joint investment of €2 billion over 7 years from 2007. It is estimated that midway through the IMI, projects thus far have generated 1,500 jobs in the EU³. Across member states, UK organisations have so far won the largest proportion of IMI funding (€140 million), with the greatest number of participants. The UK has therefore secured substantial value from IMI. This success is also reflected in UK dominance in Framework programmes.

³ http://ec.europa.eu/research/health/pdf/imi-ppp-expert-panel-report_en.pdf

6. The UK also has good domestic research programmes, and these should continue – of note, national initiatives have the potential to be much more agile, adaptive and less bureaucratic than EU programmes. For example, the MRC-ABPI research consortia in immunology and inflammatory disease; establishing the Centre for Drug Safety Science.

7. However there remain areas requiring critical mass across the EU and where individual member states cannot do everything. Some key areas have been in antimicrobials, cancer, pain and asthma research, for example. Benefits of working through the EU include securing companies' resource contributions from their various headquarters in EU member states; and enabling training and mobility of talent across the EU.

8. Essential features: The pharmaceutical industry and the EC plan to renew IMI as a Joint Technology Initiative in Horizon2020. Essential features to retain include engagement with industry at the earliest stages; a focus on addressing the bottlenecks facing industry in drug development, through high quality science. Project management and coordination is necessary for effective implementation. Simplicity and flexibility are touched on in later sections.

Stakeholder consultation

9. The industry's experience is that the European Commission has been good at reaching out to various sectors within life sciences.

- It has issued public consultations that the industry took part in;
- It also held an InnoVAHealth conference under the Cyprus EU presidency to create a roadmap for an Open Innovation environment in the EU;
- The Member States' Group structure was set up to engage with stakeholders;
- The IMI holds stakeholder feedback meetings on an annual basis.

Member State cooperation

10. The Medical Research Council has been active in the UK Member State's group in communicating and promoting IMI to the academic community. There is room for improvement in the Technology Strategy Board/ Knowledge Transfer Networks participation, particularly in reaching out to SMEs.

Engaging private sector support

11. The European Commission's Management Plan 2013, issued by the Directorate-General for Research and Innovation, reports that "IMI has achieved a substantial leverage effect on industrial investment in R&D and has promoted collaboration between large-scale industry, SMEs, research organisations, patients and regulators. Therefore, it contributes to reinforce the EU's competitiveness in this critical sector" (page 23). It has also facilitated cooperation between companies in precompetitive research.

Monitoring and evaluation

12. The pharmaceutical industry's and EC's plans to renew IMI was based on a demonstration of delivery of outputs and outcomes from IMI. Ongoing IMI projects are already generating outputs – in training (EMTRAIN), biomarkers and molecular tumour classification (MARCAR), integrating bioinformatics and chemoinformatics approaches for prediction of toxicities (eTox), biomarkers for respiratory disease (U-Biopred), and so on⁴.

⁴ <http://www.imi.europa.eu/content/ongoing-projects>

Use of the outputs of research and innovation

13. The strong technology base of the UK, with the pharmaceutical industry's input (through EU or other programmes) can further develop personalised medicine through greater targeting of medical treatment. This is of course contingent on other environmental factors such as coordinated informatics and bioresource, and demonstrated ability to conduct clinical trials to time and target.

14. We recommend that initiatives are aligned with appropriate funding mechanisms if they are to be effective – an example where there was a gap in the UK was the NIHR Translational Research Partnerships (TRP) where the Biomedical Catalyst fund was limited to SMEs and may have influenced the low flowthrough of industry projects through the TRPs. The MRC is often assigned as the major conduit of translational research funds but cannot fund industry directly, only responding to academic-led projects, whereas the Technology Strategy Board has an industrial remit but have decided to focus on SMEs in the Biomedical Catalyst.

15. More broadly, ensuring that the outputs of research and innovation are used – e.g. innovative medicines for unmet medical need are adopted in healthcare systems – would benefit societal health, economic output, enable and encourage further industrial investment into R&D.

Impact of economic crisis and atmosphere of austerity

16. We emphasise that EU investment in research and innovation must grow to match the Lisbon target of 3% GDP, where in times of austerity it is particularly necessary to focus on strategic areas such as life sciences for economic growth.

17. Indeed, research-intensive member states (eg France, Germany, Sweden) have increased their science and research expenditure in life sciences in recent years as part of their growth strategy in response to the economic crisis.

Suggestions to maximise the effectiveness of legislative and project proposals

18. The following improvements will maximise effectiveness as well as attract greater participation from stakeholders.

- Streamlining governance, financing and project management. Reducing bureaucracy in the application and accounting/ reporting paperwork.
- Flexibility – as different sectors within life sciences operate in different business models, innovation cycles, types of collaboration and financial arrangements. Hence flexibility is essential in types of partnership structures, in applying in-kind contributions from companies, and incorporating industrial contributions from outside the EU.
- Intellectual property – adopting the IMI model of handling IP would enable flexibility, fit-for-purpose while respecting the spirit of open collaboration in precompetitive research.

- Promotion of JTIIs should be enhanced in the UK, particularly to the SME sector which has not been as successful as UK academia or as SMEs in other member states in winning IMI funding. The Technology Strategy Board could have a role here.

Other points

19. Creating an attractive research environment in the UK and EU should feed into the potential of attraction into the UK from non-EU headquartered companies.

13 February 2013

The Association of Independent Research and Technology Organisations (AIRTO) —Written evidence

This response is from AIRTO (The Association of Independent Research and Technology Organisations). AIRTO's members comprise representatives from:

- Public Sector Research Establishments (PSREs)
- Non-profit distributing member and non-member based research and technology organisations (RTOs)
- Privately held research and technology companies (including Contract Research Organisations - CROs)
- Universities (Enterprise/Technology Transfer Departments)
- R&D departments of industrial companies
- Business support (including Access to Finance) and early stage technology-based venture capital companies

AIRTO's members generally operate in the private sector but with varying degrees of interaction and financial involvement from the public sector. All are, to a significant extent, involved in aspects of the translation of ideas, research and technological advances into the commercial arena, for clients in both the private and public sectors.

AIRTO's response to the questions posed follows:

Q1. What are the essential elements of an effective proposal relating to research and innovation?

1. To be effective, proposals for research and innovation support should be configured with exploitation of the outcomes as the main driver. This means ensuring that there will be paths for pulling through exploitation in directions that will deliver contributions to achievement of European Union (EU) objectives, currently, and certainly in the near to medium term, growth and jobs. Industry must be considered the main exploitation route for achieving this. To engage industrial interest there must be strong prospects of:
 - Significant market potential for new products and services.
 - Opportunities for securing a competitive edge (based on technology, a novel business model or the equivalent - opportunities for significant cost reduction in non-core areas can also be attractive to some companies and organisations).
 - Securing protectable intellectual property.
 - A perceived match to existing corporate strengths or the opportunity to develop desirable new strengths.
 - Access to sufficient resources, skills and finance to undertake exploitation.
 - Minimal complexity, bureaucracy and restrictions.Trying to achieve the above whilst also seeking to encourage joint working between different entities in different EU states can complicate matters and dilute attractiveness to industry if the drive for collaboration is not handled carefully.
2. In areas where there are clear societal challenges to be tackled or other tangible deliverable objectives that the EU wishes to realise, it would in many instances be helpful to produce roadmaps to guide research and innovation propositions. Space is probably

3. Different treatment of proposals would be more appropriate in other areas. Many potentially interested organisations would prefer proposals to be wide-open, flexible, non-prescriptive and not overly determined by strong lobby groups or dominated by a limited number of large multinational companies.
4. An effective proposal framework should facilitate engagement of SMEs, while discouraging a grant dependency culture. Criteria for accepting project proposals should therefore require inclusion of an identified business framework with a potential roadmap to commercialisation. At the same time it must be made easier and more cost effective for high growth SMEs to engage with the EC programmes on a one-off basis without the need to go up a significant learning curve, or to engage in a continuing stream of projects, to make it worthwhile. The single-company 'SBIR (Small Business Innovation Research scheme) lookalike' proposed for Horizon 2020 (H2020) is to be welcomed in this context.
5. The above also implies that intermediate bodies, including RTOs, should be enabled and encouraged to act as proxies for engaging such SMEs with EC programmes. The UK lags behind most of the other main European players in this respect. A combination of the proposed flat rate overhead recovery from H2020 and the absence of complimentary national funding sources in the UK, from which to cover the remaining overhead costs, render the intermediary role largely impractical for most intermediaries. It is the view of many AIRTO members that this will make it even more difficult for intermediate organisations to engage on a viable and sustainable basis, given their limited options for covering the balance of their costs. The consequences could be quite damaging overall as:
 - a. It is clear that, in the rest of Europe, intermediate organisations are instrumental in bringing industrial engagement to the framework programmes and
 - b. The UK is struggling to maintain, let alone increase, industry's engagement with these programmes.
6. In summary, proposal frameworks should:
 - a. Allow a variety of funding intensities, with criteria for selection biased towards collaboration and shared risk.
 - b. Be more conducive to business-driven innovation, striking a balance between allowing the business community to innovate within their strategic directions (bottom-up) and those based on priorities defined at a European Commission (EC) level (top-down), the latter aimed at solving, for instance, grand societal challenges, but which might also create new markets for innovative companies.
7. The balance between heavy financial audit and in-project technical and business level monitoring and support could be improved. There are some moves to simplify the former but not much sign of improving the latter (which could nevertheless incur an extra, but worthwhile, EC overhead).

Q2. Do you feel that stakeholders at all levels, including academic institutions and small and medium-sized enterprises (SMEs), are properly consulted in the development of EU proposals on research and innovation? How could

consultation be improved; and to what extent does consultation affect policy formulation?

8. EU consultation processes are quite comprehensive. The UK does not always translate the opportunities for consultation into effective national engagement with such processes. There are UK consultations for gathering views but they seem to focus on bureaucracy and mechanics rather than politics and programme content. The UK industry stakeholder communities in particular seem not to be good at understanding how the EC's strategic advice and consultation processes operate, at getting involved, and at making the effort to make a difference. There are exceptions to this in some sectors, such as aerospace. These exceptions are usually based on the large companies getting involved and influencing programme content accordingly.
9. For SMEs it can be difficult to find the time to engage. They are also deterred because the timescales for European projects are felt to be too long, bureaucracy is perceived to be too burdensome and the chances of success are thought to be too low.
10. Improvements could be based on increased levels of resourcing and engagement within BIS and greater communication/transparency of the Commission's processes and workings into the private sector by BIS (but that will cost more in the public sector).
11. Inputs received by the EC are mixed with many other sources of advice and then may or may not survive subsequent high level 'horse trading', which is not generally transparent beyond the public sector policy negotiators.
12. In general, the EC should undertake its own independent research into the needs of the market, remaining objective and mindful at all times that those who are consulted do not represent more than a modest fraction of those who will eventually be affected 5 or even 10 years into the future. Generally, at least a year will elapse between the input from stakeholders and a call for proposals, at least another year between the publication of the call and projects starting and at least another 3 to 4 years between then and the start of commercialisation. Having over-prescriptive calls is therefore a recipe for potential obsolescence of the resulting end-products. Many EC proposals in the past have veered into prescriptiveness, attempting to define how results should be achieved instead on concentrating on defining broad areas in which research could profitably be undertaken.
13. Experience varies from sector to sector but, in some areas, the input of stakeholders can, if anything, have too much weight; this leads to calls for proposals which are too obviously biased towards special interests, too short-sighted and too narrowly defined, not just in terms of what needs to be done but also in terms of how to achieve those aims. The consultation process should not be simply a mechanism to generate the call text by a 'cut-and-paste' process which adds up all received contributions; instead, it needs to start with a principled set of long and medium-term aims and use consultations to clarify those aims, extending them or re-formulating them as needed but without succumbing to short-termism and special interests. The EC could therefore usefully make a more determined effort to assess the needs of the market and the lacunae in knowledge independently; it should stay at all times above the potential influence of lobbying activities and ensure that consultation helps steer the process of defining proposals but does not commandeer it.

Q3. The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?

14. Yes they are effective, in terms of getting multiple inputs and some degree of consensus from specific communities. It is in many instances the UK networks required to feed into these European open methods of consultation that are lacking - not the consultation processes themselves.

Q4. Has the EU been successful in securing co-financing and other types of support from big businesses and industries for EU projects with a strong research and innovation dimension? Similarly, has the EU been successful in encouraging small and medium-sized enterprises to participate in EU-funded strategies and projects?

15. The EU has been successful, but the UK private sector has not. Part of the problem in the UK is poor understanding of the programme and its opportunities together with apprehension over collaboration with potential competitors. The official UK response has been to arrange workshops and meetings where the EU story is told. This is not sufficient and sometimes not adequately or correctly targeted.

16. Exceptions to this are to be found in the engagement of some of the major multinational companies, of which there are not very many in the UK in areas of interest within the EU's programmes. This reflects make up of UK industry.

17. SMEs are harder to engage for reasons given in Q2 above. One concern that smaller organisations have when operating with EU frameworks is the length of time taken to clear invoices. Such cash-flow considerations can be catastrophic for SMEs. A means by which project milestone dependencies can be addressed and partial payments be provided would encourage further engagement by smaller companies undertaking high risk innovative activities.

18. The scoring for selection of projects for funding within current frameworks is perceived as somewhat random by commercial organisations when receiving feedback on submitted proposals. The high cost of preparing proposals therefore tends to favour larger organisations that can take a statistical perspective on the probability of securing funding over a large number of project applications. The implication of this is that true innovation is not the driving factor for success, but rather the skill of a lead organisation in attaining the requisite shape for a consortium, and using the appropriate key words in proposals. A request for clarifications at the early stage of the application process would allow perceived weaknesses in proposals to be quickly addressed by proposers, with reviewers able to consider proposals with an improved degree of parity.

19. The urgent need is to ensure that industry's engagement does not deteriorate substantially with the implementation of H2020 financing rules, which may well have a severe impact in a number of respects on the willingness of the private sector (as opposed to academia) to participate in collaborative research.

Q5. Does the EU strike the right balance in terms of legislation and regulation in stimulating research and innovation and its use? Are there ways in which this could be improved?

20. The UK's position seems to be developed and delivered in a rather ad hoc way. The best thing that could be done is to have a more effective UK network feeding into Brussels' institutions. Brussels' approach is fairly comprehensive, although better transparency would be welcome, but that may not always be possible. Simplification would also be welcome, but is perhaps not likely.

Q6. Do you think the EU can add value with ideas and funding in 'non-traditional' areas of research and innovation, for example, financial services sector, creating new business models, etc?

21. Yes, particularly through acting as anchor tenant for pulling through new services (using public procurement as the instrument) to try out new business models for instance.

Q7. The European Commission created an Impact Assessment Board in 2006, while the European Parliament recently created its own impact assessment unit. Do you believe these entities have led to better EU proposals in terms of clearly-stated outputs, outcomes, impact, and 'European added-value'?

22. It is hard to tell yet whether impact assessment has led to better proposals and outcomes, partly due to the nature of impact in science based programmes, which can take years to become apparent. Nevertheless, it is worthwhile to go through the process; it causes people to think carefully and in detail about what they are trying to achieve.

23. It is not obvious why two bodies are needed to monitor impact.

Q8. How have the economic crisis and the atmosphere of austerity in many EU Member States impacted on the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

24. In general, the atmosphere of austerity seems to have shifted the balance of emphasis somewhat, at least at high level, from pure to more applied research, while maintaining overall spending. With reductions in national funding in many countries, researchers from those countries see the European programmes as vital to the survival of their research resources.

25. Given the importance of research and development to economic growth and prosperity, the levels proposed for spending on EU research and innovation programmes are therefore appropriate in the current circumstances. But, although the budget for Horizon 2020 remains higher than for Framework 7, it is clear following the recent negotiations that such funding is an easy target in the face of entrenched opposition by some member states to pressure on other EU budgets. This shows that we must be alert to such dangers and exert as much influence as possible in defence of the research and innovation budgets.

Declaration of interests

This submission is made by the Association of Independent Research and Technology Organisations (AIRTO). The organisation represents research organisations and technical consultancies, operating in the space between the academic research of universities and the commercial needs of industry. AIRTO members undertake research and development, and knowledge and technology transfer. This submission does not necessarily represent the views of individual member organisations. AIRTO currently comprises organisations, employing more than 20,000 scientists and engineers, with a combined annual turnover in excess of £2billion (AIRTO Ltd. is a company limited by guarantee registered in England No. 1217006 Register office address: National Physical Laboratory, Hampton Road, Teddington, Middlesex, TW11 0LW. AIRTO is a not-for profit organisation funded by membership subscriptions, and managed under contact by NPL Management Ltd.). The members of AIRTO currently are:

AHVLA
ARUP
AWE
BCIS
BMT Group Limited
BRE Group
BSRIA
Campden BRI
CERAM Research Ltd
City University London
CIRIA
Clear Angle Technologies
C-Tech Innovation
FERA
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HR Wallingford Group Ltd (HRL)
Institute for Sustainability
ISIC
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National Physical Laboratory (NPL)
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Pera Group
QinetiQ Group plc
QUOTEC Limited
SATRA Technology Centre
The Steel Construction Institute (SCI)
Smithers Rapra Technology Limited

The Association of Independent Research and Technology Organisations (AIRTO) —
Written evidence

Thames Innovation Centre Ltd (TIC)
The Scotch Whisky Research Institute (SWRI)
The Smith Institute
TRADA Technology Limited (TTL)
TWI Ltd
University of Greenwich
University of Surrey

5 March 2013

Association of Medical Research Charities—Written evidence

Key points:

- **Science is international. Coordination and collaboration across Europe is important to foster research and innovation. The EU plays an important role in facilitating these collaborations.**
- **Medical research charities are keen to engage with the EU and have valuable insights into policy development. However there are challenges that both charities and the EU must overcome. Increased transparency of EU processes and well-publicised consultations would increase participation, leading to more effective research and innovation proposals.**
- **The UK is a European leader in many research and technology areas, notably the life sciences, attracting international investment. It is important that the UK engages effectively in EU policy-making to ensure the UK and Europe can continue to attract global investors.**
- **Research and innovation proposals must work for everyone, including charities and patients.**

1. The Association of Medical Research Charities is a membership organisation of the leading medical and health charities funding research in the UK and overseas. We welcome the opportunity to respond to this consultation. Our vision is charities delivering high-quality research to improve health and wellbeing for all. Securing the best environment for medical research in the UK and EU is key to achieving this. We will confine our remarks to those points most relevant to charity funders.
2. Medical research is the most popular reason for people choosing to donate to charity in the UK. In 2011/12, 33% of donors giving every month chose to donate to a medical research charity.⁵ This high level of charitable support for research is relatively unique across the EU, the UK being second only to the Netherlands in scale of giving to medical research.⁶
3. In 2010-11, AMRC members invested over £1 billion into health research in the UK alone. This scale of investment has so far been maintained throughout the current economic crisis. Charities are hubs of expertise. Many have direct links with people with medical conditions and work with leading clinicians in the field, bringing together research knowledge and patient experience, enabling them to provide unique insights into research strategies. As not-for-profit organizations they are able to provide flexible and innovative funding for research to meet the needs of patients. This position allows them to invest in early-stage research or in technologies that do not have an obvious commercial value (case study 1). Charities therefore complement public and private investors, making Europe, and particularly the UK, where we have a high number of medical research charities, an attractive place to conduct research and development.

⁵ NCVO CAF, *UK Giving 2012* (2012) - <https://www.cafonline.org/publications/2012-publications/uk-giving-2012.aspx>

⁶ European Commission, *Eurobarometer on Science & Technology* (June 2010) - http://ec.europa.eu/public_opinion/archives/ebs/ebs_340_en.pdf

4. **CASE STUDY 1:** In 2007, the UK spent £1.34 on research into hearing loss for every person affected. This compares to £14.21 for sight loss, £21.31 for diabetes, and £49.71 for cardiovascular research.⁷ Charitable funding for hearing loss research is therefore meeting an area of high unmet need. The Action on Hearing Loss Translational Research Initiative for Hearing (TRIH) supports research that is likely to attract follow-on funding at the conclusion of the grant and is open to academic institutions or small/medium enterprises (SMEs).⁸ Demonstrating the unique qualities of the charity sector, it offers funding and partnership opportunities to allow industry to enter hearing research in a low-risk way, provides a research hub to coordinate and link up research efforts, and engages patient support for, and participation in, clinical trials for hearing loss and tinnitus globally.

5. EU research and innovation initiatives support philanthropic research funders, either directly through grants (case study 2), or by providing the infrastructure to facilitate research, such as the European Molecular Biology Laboratories in Cambridge (UK) and Heidelberg (Germany). More collaborative working and funding opportunities between the EU and charities would be very welcome in future EU proposals.

6. However, European funding processes are complex and many small charities with valuable project proposals have little resource to invest in understanding the system. Bodies established to help them navigate the system – such as the national contact points – are welcome but can themselves be a challenge for individuals new to the system to know to approach them. There is a role for umbrella organisations such as AMRC in demystifying the system, and AMRC has ongoing work in this area. But it is important that accessibility of funding is considered as research and innovation proposals are developed in Europe.

7. **CASE STUDY 2:** The AKU Society⁹ works internationally to enable research into the rare disease Alkaptonuria (AKU). With 81 affected individuals identified in the UK and only a further 325 across the rest of Europe, an international collaborative approach is the only way to recruit enough participants for the study of the disease and to test potential treatments. The AKU Society, founded in 2003, has established several sister arms, including ALCAP in France, AIM AKU in Italy and DSAKU in Germany. In 2013, the AKU Society and the Royal Liverpool University Hospital will be launching clinical trials to assess the use of the drug nitisinone in AKU patients, funded through a grant from the European Commission. The trial will take place across Europe at centres in the UK, France and Slovakia. This exemplifies the strength of charities in coordinating research for the benefit of patients, often in areas of high unmet need, but also demonstrates the crucial role of the EU and other public agencies in providing financial support for projects that are prohibitively expensive for charities to undertake alone.

8. Effective stakeholder engagement is vital to develop successful research and innovation proposals. Medical research charities with their unique links to both patient groups and

⁷ Action on Hearing Loss (2010) *TRIH: Hearing matters* <http://www.actiononhearingloss.org.uk/supporting-you/policy-research-and-influencing/research/hearing-matters.aspx> [accessed 19 September 2012]

⁸ <http://www.actiononhearingloss.org.uk/your-hearing/biomedical-research/trih/about-trih.aspx> [accessed 15 August 2012]

⁹ The AKU Society is a registered charity but not currently a member of AMRC.

researchers, have valuable insights into unmet need and actions needed to address this. Their engagement in policy making can avert unintended consequences and ensure policy delivers for research and innovation (case study 3). However monitoring and inputting into EU policy development is a resource-intensive activity that many are unable to undertake individually. Again, there is a role for umbrella groups such as AMRC to facilitate this engagement but there are also a number of steps EU institutions could take to make it easier for stakeholders to engage:

- **Communication** of policy areas that the Commission intends to look at and of the purpose of proposals at their outset, will allow charities to be better prepared to respond to consultation, development and implementation.
- **Increased transparency** to make it easier to follow policy-making processes and see where, when and with whom to engage (case study 3). This should include being open to engagement with national organizations.
- **Impact assessment** to identify where legislation in one field may impact on others and ensure that relevant stakeholders are consulted.
- **Realistic consultation timeframes and engagement** to ensure relevant stakeholders are aware and are able to respond.
- **Responsiveness** to address changes in the research environment

9. **CASE STUDY 3:** The European Parliament is currently debating the Horizon 2020 funding proposals, including deciding which areas of research the money will be spent on. Following the European Court of Justice's ruling in *Brüstle vs. Greenpeace*¹⁰ that technologies that require the prior-destruction of embryos are not patentable, the EU Parliament's legal committee (JURI) recommended that research involving human embryonic stem cells should not be funded through Horizon 2020. Regenerative medicine based on this research has huge therapeutic potential and George Osborne recently named it as one of eight key areas for UK economic growth¹¹. The medical research community responded quickly to engage with MEPs to protect this important area of research. Without their engagement, a valuable stream of funding for UK research may be lost, however, the complex and unfamiliar system of the EU Parliament is a challenge for UK medical research funders to engage with. Clearer communication of the legislative process and opportunities to input may have facilitated this engagement.

10. It is important that the impact of all EU legislation on research and innovation is considered. For example, the Data Protection Regulation currently under debate in Europe will impact on the UK's ability to access NHS patient data for medical research. The government's *Strategy for UK Life Sciences*¹² included a £60 million investment to establish a new secure data service, the Clinical Practice Research Datalink, to service the needs of the research and life sciences community that could be put in jeopardy if amendments are made to this Regulation. UK representation on the Council of Ministers scrutinising this Regulation is being led by the Ministry of Justice. It is important that the UK representative is fully aware of the impacts on medical research

¹⁰ <http://curia.europa.eu/juris/liste.jsf?language=en&num=C-34/10>

¹¹ http://www.hm-treasury.gov.uk/speech_chx_091112.htm

¹² BIS OLS *Strategy for UK Life Sciences*, 2011

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32457/11-1429-strategy-for-uk-life-sciences.pdf

and hence UK research and innovation as they negotiate in Europe.

11. Research and innovation is central to the economic recovery of the UK. EU legislation, initiatives and programmes have a strong influence on the UK medical research environment. These influences can be positive, such as EU Rare Disease policy (case study 4), and negative – the 2001 Clinical Trials Directive (case study 5). Effective national engagement with EU policy making is vital to ensure negative impacts can be averted and addressed quickly. For example, effective engagement has led to the development and proposal of a new Clinical Trials Regulation.

12. **CASE STUDY 4:** Rare diseases is a policy area where leadership from the EU has been hugely valuable for patients and industry. Rare diseases are those that affect less than 1 in 2,000 people. Europe-wide policies and legislation have been implemented to support the development of “orphan” drugs which offer promising treatments for rare diseases but have a low commercial value.¹³ This support includes market exclusivity, licensing fee reductions and R&D grants from the EU and enables these drugs to be developed by charities and industry to benefit patients. The European Commission has also developed a Communication on Rare Diseases which sets out proposals for a comprehensive, EU wide strategy on issues including research, diagnosis, treatment and care for rare disease patients. This recommendation called on all EU member states to develop plans or strategies for rare diseases by 2013 to increase integration of strategies across Europe. The UK government is currently developing a UK plan.

13. **CASE STUDY 5:** It is widely accepted that the Clinical Trials Directive 2001/20/EC¹⁴ has led to delays in trial setup due to inconsistent implementation of the Directive by Member States, increased bureaucracy and inflexible regulation. Cancer Research UK coordinated a joint position across UK, pan-European and other European organisations to demonstrate a common position shared by the medical research community on proposals by the Commission for a new EU Clinical Trials Regulation.¹⁵ The response to this has been positive and so far, helpful. The Commission ran several consultations on plans to revise the 2001 Directive and associated guidance and the draft legislation showed they listened to the concerns and viewpoints that were raised in the joint statement. This is an example of good practice in an important policy area.

14. The UK has a world-leading position in the life sciences. Effective policy for research & innovation at a European level can help us maintain and grow this, pooling resources to build effective pan-European collaborations. The Horizon 2020 programme is very welcome to continue to support effective and collaborative research and innovation across Europe, which is key to attracting global investors.
15. Medical research is evolving rapidly; as we move towards more stratified medicines, the processes of research and licensing must adapt to enable us to trial new treatments on smaller populations and explore how we can facilitate earlier access to life-saving treatments. We are already addressing these issues at a national level but the EU can

¹³ AMRC, *Opportunities for medical research charities to engage with Europe* (2011) http://www.amrc.org.uk/news-policy--debate_engaging-with-europe

¹⁴ <http://www.eortc.be/services/doc/clinical-eu-directive-04-april-01.pdf>

¹⁵ http://www.cancerresearchuk.org/prod_consump/groups/cr_common/@nre/@poll/documents/generalcontent/cr_0774_60.pdf

take a valuable lead in bringing together multiple stakeholders to shape policy and move all EU states together towards a more adaptive licensing model. If achieved successfully, the EU can become a global leader in this field.

16. The UK should look to encourage and influence EU policy to promote research here in the UK and across Europe – recognising the international nature of science. It is important to consider the effect of proposals not only on industry investment but also on philanthropic organisations and the public.

11 February 2013

Professor Roberto Bernabei, Professor Iain Carpenter, and Bridget Carpenter—Written evidence

The authors, Professor Roberto Bernabei, Università Cattolica del Sacro Cuore, Rome, Professor Iain Carpenter, Emeritus Professor of Human Ageing and Associate Director, Health Informatics Unit, Royal College of Physicians and Bridget Carpenter, Co-Director NIHR Research Design Service South East, express their views as individuals

Questions

1. What are the essential elements of an effective proposal relating to research and innovation?

1.1 One of the essential elements of an effective proposal is that it is cross national. Whilst it is essential that research proposals have a rigorous scientific rationale and methodology, European funding brings with it the opportunity for researchers to become exposed to the differing cultures and experiences in a very broad range of EU countries. This is highly effective in challenging current ways of working, thinking and acting. For this reason, European funding is important for developing its researchers as well as developing scientific knowledge.

2. Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

2.1 Stakeholders are currently not properly consulted in the development of EU proposals. In contrast, the UK's National Institute for Health Research (NIHR) funding programmes have an explicit requirement for patients and the public to be consulted about the design of research projects and encourages users of health services to participate in the research delivery process. This is completely separate from the requirement for patients to be the subject of research. Involving patients and members of the public in research can lead to better research, clearer outcomes, and faster uptake of new evidence.
<http://www.nihr.ac.uk/awareness/Pages/default.aspx>

2.2 The NIHR encourages patients and the public to be actively involved in all NIHR-funded health and social care research, to:

- Set research priorities
- Identify the important questions that health and social care research needs to answer
- Give their views on research proposals alongside clinicians, methodologists, scientists, and public health and other professionals
- Help assess proposals for funding
- Take part in clinical trials and other health and social care research studies, not just as subjects but as active partners in the research process
- Publicise the results.

Professor Roberto Bernabei, Professor Iain Carpenter, and Bridget Carpenter—Written evidence

2.3 Because European funded research does not explicitly require researchers to consult with stakeholders in the design and conduct of research. there is a gap between the two. Policy makers are influenced by stakeholders and pressure groups. As a consequence, there is no bridge between researchers, stakeholders and policy makers. Evaluations of research utilization have shown that robust linkages and interaction between researchers and policy-makers are crucial for research processes to influence policy.¹

1 Lomas J. 1997. Improving research dissemination and uptake in the health sector: beyond the sound of one hand clapping. McMaster University Centre for Health Economics and Policy Analysis. Policy Commentary C97-1, November 1997.

2.4 The authors conducted two EU funded projects on care of older people in Europe which validated systems and developed quality indicators for care of older people both in home care and in nursing homes. Neither project explicitly required stakeholders to be consulted and as a consequence, policy has not been informed by the research.

2.6 The Aged in Home Care (AdHOC Mar 2001-Aug 2003) project which generated information on older adults receiving home care services in Europe. AdHOC enabled 11 member states to compare quality of home care using standardised person-level assessments from which a series of validated quality indicators were generated. The quality indicators showed significant differences in practices in home care across Europe. The development of quality indicators supports current policy concerns in safeguarding older person's fundamental rights and quality of life, advancing mutual learning and monitoring progress in practice among countries. The project resulted in 23 papers in academic journals on a variety of subjects. The rate of citations was however low and research which should have been of interest to stakeholders and policy makers, had no influence on policy. There has been no development of quality indicators for home care which can facilitate inter-country comparison.

2.7 The authors also conducted a related EU FP7 funded, Services and Health for the Elderly in Long Term Care (SHELTER Jan 2009- Dec 2011) project. SHELTER undertook a 360 degree analysis of over 4,000 residents of nursing homes in eight European countries over an 18 month period. The study measured in exactly the same way in each country all aspects of an older person's wellbeing; from the their psychosocial status to cognition and mood, disease and health status, medications, treatments, their leisure activities and social supports. The project developed quality indicators for unwanted health outcomes, which are illustrated below and show the differences between nursing care in the countries studied:

	Little/no activity	Urinary tract infection	Physical restraint use	Influenza vaccination	Depression	Behavioral problems	Inadequate pain management
CS	57.9	1.9	3.8	35.5	30.3	22.1	15.8
DE	41.3	1.9	4.9	31.6	17.9	20.7	8.3
UK	48.5	0.9	0.7	21.2	31.3	32.3	9.8
FI	28.7	1.3	10.8	7.8	32.8	35.2	9.8
FR	66.5	3.4	12.2	7.3	31.7	29.5	15.2
IL	56.9	3.4	33.6	7.3	25.9	34.0	3.8
IT	46.2		22.7	5.9	34.1	35.6	3.8
NL	41.3	3.2	7.4	13.0	39.3	31.4	12.9

Table 1: Prevalence (%) of unwanted health care outcomes, i.e. QIs, in Europe. The lower the score, the better the performance.

For these research results to impact on policy in member states, a complex range of stakeholders would be required to be engaged in the research results.

2.8 Measuring the quality of long-term care is important for establishing standards of care and monitoring the performance of service providers, enhancing consumer choice and competition. The US, Canada, Australia and New Zealand, collect these measures using standardised and mandatory patient assessment systems, but Europe has only limited experience in measuring quality and setting performance standards. In an attempt to join up research results with policy makers, the SHELTER project employed a dissemination strategy that sought to identify stakeholders and policy makers and to involve them in the dissemination of the results. In doing so it encountered a number of problems:

- Policy makers were difficult to access. Few policy making organisations list individuals with whom the researchers could make contact.
- Stakeholder organisations, such as charities, had policy advisors who were more accessible, but had little latitude for working with researchers. Policy advisors also had no access to the scientific literature and no funding to attend meetings to interact with researchers.
- The EU recommends that at the end of the project, a policy brief is developed and sent to stakeholders and policy makers. The policy brief should be developed from the study findings. In order to have credibility, these findings have to be published in peer review journals. As a consequence, the timescales are impractically long. Academic papers were published up to six years after the project AdHOC project concluded, with the majority being published three years after the project ended. At this stage, project funding is finished and the team disbanded, meaning there was nobody to write a policy brief.

2.9 The authors believe that if stakeholders and policy makers were required and funded to become involved in the design and conduct of EU funded research projects, there would be a better flow of information between them and researchers and the benefits which NIHR has recognised, would be gained.

Professor Roberto Bernabei, Professor Iain Carpenter, and Bridget Carpenter—Written evidence

3. The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils. Are these modes of cooperation effective, and could other methods be used?

3.1 The open method of co-ordination is a voluntary initiative and at too high level to be effective in influencing researchers and research. The NIHR has demonstrated the value of bottom up engagement of patients and the public in health research.

4. Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

4.1 The private sector has not been successfully engaged in research in care of older people. Care of older people is an industry, but unlike healthcare, it is not evidence based. By requiring the involvement of industry as stakeholders in the design of research projects, research could be improved and the results put into practice sooner. For example, a private nursing home company was involved in the SHELTER project as participants in the research activity. The company provided access to the research subjects and received feedback on the research results. When the company was shown results from other European countries, this led to very rapid improvements in continence care. If the nursing home industry more widely had been involved as a stakeholder in the project, these improvements could have spread wider and faster.

5. Do EU proposals clearly state their desired outputs, outcomes, impacts, and ‘European added-value’? Do you think the European Commission’s Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

6. Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

7. In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

7.1 Europe lags behind Australia, Canada, New Zealand, Singapore, USA in using the results of research on the care of older people. US funding for care of older people has been based on research evidence for more than 15 years. In Europe, policy making for care of older people is at the whim of policy makers with little evidence base. The SHELTER project Principal Investigator Prof Roberto Bernabei, Università Cattolica del Sacro Cuore in Rome has said: **“Wide disparity exists in the way in which Europe cares for its elderly citizens. While governments collect quantitative data such as number of patients per room, there is currently no methodology to assess the quality of the care received. This has significant implications for the care being providing for some of Europe’s most vulnerable citizen, and has a negative impact on their quality of life.”**

Professor Roberto Bernabei, Professor Iain Carpenter, and Bridget Carpenter—Written evidence

8. *How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?*

Europe should fund more research into health and social care systems. Here are two views on the need for more research to compare healthcare systems across Europe:

'At the same time, the need for European countries to evaluate their health care systems is being fed by the increased pressure on government budget, with spending on health care for many, if not all, European countries rising faster than economic growth'. OECD News release 29th October 2010 [www. OECD.org](http://www.OECD.org)

'In Europe, the incremental way in which health systems have developed has resulted in a collection of unique 'patchworks' in which knowledge from health service research is highly dependent on understanding the national context. As a result, simply copying service arrangements from different health care systems is rarely justified. The importance of context calls for greater understanding and comparison of health care provision across countries in order to achieve effective policy making. This is especially true as health systems and health care policies across Europe become more interconnected because many of the challenges that are faced do not stop at national borders. As the EC notes: 'this increased interconnection raises many health policy issues, including quality and access in cross-border care, information requirements for patients, health professionals and policy makers; the scope for co-operation on health matters; and how to reconcile national policies with the obligations of the EU internal market?' Health services research in Europe: evaluating and improving its contribution to health care policy. Editorial Johan Hansen Journal of Health Services Research and Policy Volume 16, Supplement 2, July 2011

9. *What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?*

4 February 2013

British Academy—Written evidence

EU Research and Innovation: The Central Position of the Social Sciences and Humanities

1. The British Academy, the UK's national academy for the social sciences and humanities, welcomes the opportunity to submit evidence to the House of Lords Select Committee on the European Union Sub Committee B – Internal Market, Infrastructure and Employment on the effectiveness of EU research and innovation proposals.
2. In recent years there has been welcome progress in broadening and deepening policymakers' understanding of the central position of the social sciences and humanities in producing a holistic and interconnected knowledge base for the development of public policy and international cooperation.
3. For example in terms of the European research and innovation programme for 2014-2020 known as Horizon 2020, the social sciences and humanities are fundamental to the understanding of inclusive, innovative, reflective and secure societies. Social science and humanities research is crucial to such inclusive societal challenges as multilingualism, demographic change, immigration, migration, social bonds, solidarity, work, poverty and cultural diversity. The understanding of these challenges has to be additionally enriched from Europe's historical experiences in these diverse fields. The value of the social sciences and humanities to understanding Europe's cultural heritage and identity through reflective societies is clear. Drawing lessons from the past across Europe in varied fields such as history, literature, art, philosophy, religion, the media, transport and education are indubitably areas that the social sciences and humanities will lead.
4. The social sciences and humanities also have a key contribution to make in defining and understanding the conditions for fostering innovative change. Innovation is neither a quick nor a linear process. It is a complex process with diverse interactions and synergies that can provide greater understanding and knowledge of the economy, society, culture we live in and the wider world. Technology is far from being the only, or always the best route, towards greater innovation. The social sciences and humanities have a vital contribution to make in both stimulating innovation and increasing the probability that innovation will lead to progress.¹⁶
5. Security is a core matter for social science and humanities research in which the social sciences and humanities community has huge potential to offer to policymakers. Investing in technology is not *sine qua non* for bolstering our or the world's security. As our colleagues at the League of European Research Universities have said "a better understanding of the social and cultural dimensions of security, the historical causes of insecurity, the role of media and communication and the citizens' perceptions, are equally important elements" in creating secure societies.¹⁷

¹⁶ ESF-STOA Policy Brief, *The Science of Innovation*, June 2012.

http://www.esf.org/index.php?eID=tx_nawsecuredl&u=0&file=fileadmin/be_user/research_areas/social_sciences/documents/SCSS/Innovation_Conference/Science_Innovation.pdf&t=1360325000&hash=5b1e6e8ea5384d7ce0440e65418e60a4eb622a5a from The Science of Innovation Conference held in the European Parliament, Brussels on Tuesday 28 February 2012.

¹⁷ LERU Advice Paper, *Social Sciences and Humanities: Essential Fields for European Research and in Horizon 2020*, No.11, June 2012, http://www.leru.org/files/general/LERU%20AP%2011_SSH%20Essential%20fields.pdf.

6. The social sciences and humanities have a strong and positive contribution to make throughout Horizon 2020 across its three pillars and probable seven societal challenges. The British Academy welcomes the central position the social sciences and humanities have been afforded in Horizon 2020 and the recognition of the key role that the social sciences and humanities can play in driving an interdisciplinary approach. The social and economic challenges we face today require research and innovation that overcome disciplinary barriers.
7. Up to now, EU research and innovation funding, as it is in the UK as well, has struggled to develop interdisciplinary research proposals. This is a critical component for developing successful research outcomes and overcoming the grand challenges of today. This would be vitally supported if the UK encouraged the design and implementation of interdisciplinary research themes within Horizon 2020's Work Programmes that could include issues such as the economy, inequalities, health, ageing population, well-being, agriculture, food security, education, migration, globalisation, governance, democracy, transport, climate change, energy, innovation, water, the environment, and sustainability.¹⁸ All of which are paramount challenges that require broad research within, across and between the entire spectrum of the sciences, humanities and arts.

EU Research and Innovation Funding and Impact

8. Over the life time of Framework Programme 7 (FP7) from 2007-13 the UK is expected to receive €7 billion of research funding; second only to Germany. Our funding from FP7 represents 13% of the UK's receipts from the EU. The UK has also won more than 16% of all FP7 funding to EU Member States and 27% of funding from the European Research Council (ERC), which is more than any other Member State. These are both far higher than the UK's contribution to the EU budget, at roughly 11.5%, and the UK's share of overall EU spending, at around 5.6%. The clear point here is that the UK does very well indeed out of research and innovation funding from the EU; so well in fact, that such funding is critical to the future sustainability of the UK's knowledge base, which the government has recognised as a "national asset".
9. EU funding, alongside national funding, is key to driving private and foreign investment in high quality UK research so that we can continue to compete. The UK's ability to successfully win EU research funding vis-à-vis other Member States is an essential platform for the UK's ability to leverage private research and innovation funding. Currently, 22% of UK research and development funding comes from abroad, which is more than any other large economy and double the EU average.
10. The estimated long-term impact of FP7 is that it will have generated an extra 0.96% of GDP and created 900,000 jobs. That is a boost to growth the size of the total expenditure on all other EU budget lines combined. EU research and innovation funding should thus receive the full support of the UK government as it is in our national interest, even defined in narrow economic terms, as well as in the interests of research

¹⁸ For example, see the European Science Foundation reports, *Vital Questions: The Contribution of European Social Science*, November 2009, http://www.esf.org/fileadmin/links/Social/Publications/SCSSpositionPaper_2009-11.pdf, and *Responses to Environmental and Societal Challenges for our Unstable Earth (RESCUE)*, February 2012, <http://www.esf.org/publications/forward-looks.html>.

development and scientific excellence. The proposed €80 billion Horizon 2020 budget is thus a minimum requirement. Indeed, a target such as the €100 billion for Horizon 2020 set by the European Parliament would be well worth supporting and would recognise the key importance of research and innovation in achieving the Europe 2020 strategy as well as support job and wealth creation at home and continue to enable the UK to be a global research leader leveraging further investment and recognition towards the UK in the long-term.

EU Research and Innovation Ecosystem

11. The profusion of activities and bodies established to support and implement FP7 has made it at times difficult to engage with the development of Work Programmes and Calls, and the reviewing of bids. It is thus very welcome that for Horizon 2020 DG Research & Innovation has just begun an open call for expressions of interest for its Expert Advisory Groups. This step towards greater transparency and openness is vital but should also go further. We recommend that DG Research & Innovation opens up the work of the Advisory Groups once they are constituted as well.
12. Additionally, the myriad stakeholder and advocacy organisations, alliances, foundations and so on that make up the European research and innovation landscape require a significant overhaul and simplification. It is too much to ask the European Commission to know which body is which and whether it is a relevant and substantial organisation. The research community needs to organise itself properly and simply. This is a process that the British Academy would be fully prepared to join in order to present clear research community representations to the European Institutions.

8 February 2013

Department for Business, Innovation and Skills—Written evidence

Written by the Department for Business, Innovation and Skills, with input from the Department for Energy and Climate Change, the Department for Environment, Food and Rural Affairs, the Department for Transport, the Department of Health, the Food Standards Agency, and Her Majesty's Treasury.

Q1

What are the essential elements of an effective proposal relating to research and innovation?

1. In the Government's view, Commission legislative proposals in the research and innovation field are likely to be effective if they:

- focus on fostering excellence with a competitive selection process underpinned by independent expert evaluation of project proposals;
- reflect extensive consultation with stakeholders, including the research community, business and Member States;
- take account of evaluations of current and previous programmes and incorporate a thorough *ex ante* impact assessment;
- have high European Added Value (that is to say those programmes or projects where pooling resources will generate economies of scale and scope, and promote cross-border networks to support a genuine European Research Area (ERA));
- strike an appropriate balance between a challenge-led, top-down approach and support for world class, non-directed, bottom up research;
- allow for flexibility in the challenge-led areas to meet changing needs and opportunities as knowledge develops;
- propose administrative processes which are as simple and efficient as possible from the user's perspective, thereby promoting value for money;
- have clear and effective mechanisms to ensure that results are exploited and communicated to expected end users;
- support collaboration between universities, the wider public sector and business to help ensure that projects have genuine impact.

Q2

Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation

2. In our experience, in the research area the Commission generally do a good job of consulting stakeholders at different levels. They operate an open door policy and frequently meet stakeholders, both officials and representatives from the research community. In certain areas, however, there could be enhanced transparency (see below).

3. One example of consultation concerns Horizon 2020. Before publishing their proposals the Commission conducted an online consultation on a Green Paper. Some 1300 individual online responses were submitted by interested individuals, companies, research institutes and citizens. In addition, 775 position papers were submitted (including the UK

Government response, itself reflecting the results of a BIS call for evidence). In our view, the resulting proposals were in line with key priorities articulated by Member States including the UK. UK ministers and officials have also enjoyed good access to the key Commission players on research issues.

4. The Commission also organised a large number of stakeholder events in Member States. BIS hosted two such events, with the Director General of DG Research and Innovation representing the Commission. These brought together Research Councils, the Technology Strategy Board (TSB), companies including small and medium-sized enterprises (SMEs) as well as officials from different Departments.

5. When it comes to the implementation of programmes in specific fields, the Commission consults Member States via Programme Committees which are composed of national experts and chaired by the Commission. One of their key functions is agreeing the draft (multi-)annual work programmes, which set out the priority areas for funding within specific parts of the programme. The Commission also consults External Advisory Groups in relation to the development of overall strategy. The Government, along with other Member States, considers that these Programme Committees play an essential oversight role in ensuring that EU funding complements national programmes. A flow chart setting out the progression from high level policy formation to deciding on funding individual research teams to undertake specific research is attached at Annex I.

6. While we have not detected significant systemic weaknesses in the Commission approach to consultation in the research field, the Government would like the Commission to increase the level of transparency in the area of European Innovation Partnerships (EIPs). EIPs are a relatively new concept. They aim to establish a framework for streamlining and simplifying existing mechanisms including procurement, regulation and standardisation as well as research and development (R&D) and have been established in areas such as active and healthy ageing and raw materials. There have been concerns that the appointment of EIP Steering Group members has not been as transparent and inclusive as it could be. This may be explained by fact that different DGs of the Commission have been leading different EIPs.

Q3

The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?

7. There is no single model in operation and a complex web of groups and networks exists. Examples include:

- The formal ‘comitology’ type Programme Committees, mentioned above, which oversee the execution of different parts of the Framework Programme (and in future Horizon 2020). We think these perform a valuable role for holding the Commission to account and in encouraging transparency;
- Advisory Committees to the Commission and Council. Most notable is the European Research Area Committee (ERAC) and associated ERA Groups dealing with specific issues related to the ERA. ERAC has played a useful strategic role (for instance, in developing a position on implementation of the ERA). It is chaired by the Commission with a Member State Vice-Chair;

- Steering Groups for EIPs (high-level stakeholders appointed by the Commission). It is too early to judge their effectiveness (see above for concerns about lack of transparency);
- Specialist Expert Advisory Groups dealing with specific topics (e.g. Key Emerging Technologies) and individual programmes;
- Intergovernmental networks, such as EUREKA, which is organised as an Association under Belgian law with the Commission as a member, and chaired by a Member State; and COST which is run by Member State representatives, though funded by the Commission.
- The European Technology Platforms (ETPs), which have strong industry participation and are influential in setting research agendas;
- ERAnets are another popular mechanism for bringing together national funding agencies and facilitating alignment of national programmes.

8. As funding and policy focus in research and innovation have increased substantially at EU level in recent years, the number of stakeholder groups has undoubtedly increased. While the Government considers that current arrangements are generally fit for purpose, it is important that every effort is made to avoid unnecessary overlap and duplication at this time of pressure on Member State resources.

Q4

Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

9. There has been concern across the EU for some time about the levels of business participation in the EU's research programmes. This concern is shared by the UK. While our universities have been remarkably successful in competing for EU funding, companies overall have been less engaged (though participation rates by business have stabilised in the current programme at 23.7% of UK participations compared with 61% for universities¹⁹ and there is evidence that some companies have become repeat participants in successive programmes). One of the main reasons for lower industry take-up is the level of red tape associated with Commission-run programmes and there may be a perception that the programmes are aimed at academia rather than industry. In the case of energy, it is also likely that current economic conditions have been responsible for slower progress on the Strategic Energy Technology (SET) Plan than had been expected. This is why the UK has focused so much on simplifying procedures in Horizon 2020 (in particular actions aimed at shortening time to grant) and ensuring good linkages between fundamental research and downstream innovation. The Government is keen to boost levels of UK business participation.

10. We will encourage this through:

- a strong and effective network of National Contact Points (NCPs) to provide support to potential UK participants, funded mainly by TSB (NCP provision for Horizon 2020 is currently being reviewed by BIS and the TSB);
- setting a 20% target of funding dedicated to SMEs under the relevant blocks of Horizon 2020 and supporting other SME-specific instruments in this programme;

¹⁹ BIS Analysis of signed grant agreement data released by the European Commission on 29 October 2012

- a focus on public-private partnerships (Joint Technology Initiatives or JTIs), which are industry-led. First established under FP7, these are popular with industry and should continue under Horizon 2020;
- TSB co-funding of some EU programmes including EUROSTARS for research performing SMEs;
- looking to be more proactive in the energy field in stimulating collaboration with national programmes and engaging private sector investment in the context of the SET Plan.

11. Participation in European funding programmes may not, however, be the right option for every company. Evaluations have demonstrated that financial support, though important, is not necessarily the most important benefit which participation in these programmes may bring. Such benefits may include participation in networks, access to markets and supply chains, and leverage effects.

Q5

Do EU proposals clearly state their desired outputs, outcomes, impacts, and ‘European added-value’? Do you think the European Commission’s Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

12. Commission proposals in the research field are routinely accompanied by Impact Assessments (IA). These should be subject to rigorous internal challenge by its IA Board. We understand this body’s work is regarded as rigorous and challenging in its approach and we strongly support its activities. The Government would like to see its role strengthened (as set out in the UK response to the Commission’s consultation on Smart Regulation last summer attached as Annex 2). Thus, for example the legislative proposals for Horizon 2020 were accompanied by a reasonably robust IA which went into more detail than usual on expected economic impacts. This stated that, by 2030, research funded by the programme is expected to generate an extra 0.92% of GDP, 1.37% of exports, -0.15% of imports, and 0.40% of employment.

13. It is important to bear in mind that the nature of research means that it is not possible to quantify economic and societal impacts with certainty and certainly not in the relatively short time scales associated with evaluating EU programmes. The ERC, for instance, conducts frontier, blue-skies research whose ultimate impact through real world innovations is difficult to predict and could be many years hence. In the Social Sciences and Humanities fields impacts may lie in incremental policy development or the support of EU cultural heritage. It is also very difficult in practice to trace the specific impact of EU support in generating a given innovation outcome, as researchers generally use multiple sources of funding. Finally, it should be noted that many of the most positive outcomes of participation in EU funding programmes (creating sustained networks of collaboration, cross-fertilisation of different approaches and skills etc.) are not easily captured in simple numerical terms.

14. Commission proposals in the research field make considerable reference to European Added Value. These programmes tend to focus on collaborative projects and ones whose scale is beyond the capabilities and resources of individual Member States. These include ITER (the global nuclear fusion project), JTIs, pan-European competition in the ERC and cross-border mobility in the Marie Skłodowska-Curie programmes.

15. More detailed objectives are set out in individual work programmes and at the level of the Calls for Proposals. The aim is to ensure proposals address the challenges identified, while at the same time providing sufficient autonomy to consortia, as in the nature of research and innovation it is possible developments will take a different path from the one originally foreseen. Ensuring that consortia can submit proposals with novel approaches that meet the Call's objectives is a matter for the Commission and the relevant Programme Committee in the design of the Call, while the evaluators assess the proposals against the Call's objectives. We are working to ensure that Programme Committees retain the right of funding approval in Horizon 2020, to ensure that national representatives have a final chance to assess procedural 'compliance' before projects are cleared to begin. Once underway, monitoring of projects, and assessing any changes of direction, would be primarily for Commission Project Officers. The Grant Agreement will impose an obligation on consortia to prepare progress reports and to inform the Commission of any changes, where this is not been set in generic terms in the Rules for Participation. Similarly, the governance structures underpinning the SET Plan include a requirement for activities to include clear objectives, performance indicators and review points. This provides a clear structure to identify agreed priorities and measure progress.

Q6

Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

16. EU proposals that undergo Impact Assessment should summarise monitoring plans in the Impact Assessment report published with them. In the research field, Member States currently receive substantial information about monitoring and evaluation of the Framework Programmes. We have to recognise, however, that there may be a tension between seeking to protect this information flow and the Commission's desire to simplify administrative procedures in Horizon 2020, which we also support. The main sources of information are:

- an annual report on the EU's research and technological development activities (a legal obligation on the Commission, provided to UK Parliamentary scrutiny committees with Explanatory Memoranda);
- annual monitoring reports on the Framework Programme;
- annual progress reports on SME participation in the Framework Programme;
- an interim evaluation mid-way through the Framework Programme;
- an *ex post* evaluation of the Framework Programme;
- information provided to Programme Committees;
- public information on individual project results which is placed on the DG R&I website;
- CORDIS, the in-house Commission information service, which also places information on the web.

17. The Government believes there is scope to improve the amount of "real time" information the Commission provides on the results of the research which could inform public policy at national level (e.g. in the areas of transport, environment and food). More generally, the UK is taking a lead in ensuring publicly-funded research is more accessible through extending Open Access (currently the subject of House of Lords Science & Technology Select Committee and House of Commons BIS inquiries).

18. On the wider ERA agenda, monitoring results will play a big part in any future decision by the Commission to reopen the possibility of legislation. This has not been done in an entirely satisfactory way, with limited involvement of the Member States in the early stages and an over-complex questionnaire issued by the Commission to Research Funding and Research Performing Organisations. We also question the fitness for purpose of some of the proposed indicators. We are working with other Member States through ERAC and in other fora to ensure that this process is managed effectively and that the information which emerges is meaningful for setting policy directions.

Q7

In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

19. Horizon 2020 and other research and innovation actions proposed by the Commission are designed to support the implementation of the Innovation Union agenda as set out in the 34 commitments entered into by the Commission and Member States in 2010. Improving uptake of the outcomes of research and innovation in the wider economy and policy environment are central to this agenda.

20. The Commission performs regular comparative analyses of innovation systems. These show a varied picture. There are many innovation hotspots in the EU, including some countries classified as innovation leaders (Denmark, Sweden, Germany and Finland). At the same time, the latest Commission Innovation Competitiveness Report (2011) draws attention to EU's weaknesses, including:

- a widening gap between the EU and its world competitors, notably due to weaker business R&D investment;
- an inability of business to make optimal use of skilled labour in Science and Technology;
- while remaining a top player in terms of knowledge production and scientific excellence, Europe is losing ground as regards the exploitation of research results;
- Member States are introducing reforms to improve the functioning of the public research base and increase public-private cooperation – however knowledge transfer in Europe remains weak;
- European SMEs are innovative but they do not grow sufficiently. The United States has shown a much better capacity to create and grow new companies in research-intensive sectors over the last 35 years.

21. In addition, the Annual Innovation Scoreboard benchmarks EU and Member State performance against 25 core R&I indicators and, for 12 of these, against the performance of major international partners. Relative to GDP, business investment in R&D in Japan or in South Korea is twice the level of that in Europe. It is also noted that the level of investment in venture capital (VC) in the EU is lower than that in the US: the US supply of VC is around four times larger than that of the EU in proportion to GDP; and the US funds are larger, making it easier for them to provide follow-on investment as a successful start-up grows, whereas European start-ups do not have access to that level of VC support.

22. Taken together, these reports draw attention to the competitive threat posed by other countries as well as the scope for partnership with these and other countries, including the likes of Brazil, China and India.

23. In terms of using results for public policy, there is scope to do more. For instance Government Departments, such as the Department for Transport, are keen to access results early. Sight of emerging research findings can help create more innovative policy options, inform early public policy discussions and enable Departments to prepare better regulatory environments for the exploitation of science and technology breakthroughs. The impact of EU funded research will depend on whether Member States can access research results early and the active translation of outputs as part of adequately funded knowledge exchange mechanisms. The lack of accessibility to project outputs is therefore a barrier to their uptake. Effective processes are needed to allow systematic review of the evidence coming from projects so that it is in a form, and delivered to a timescale, needed by end users. In addition, the funding of EU research could be better connected to policy development and implementation processes to ensure outputs are both timely and relevant.

24. It should be noted that Open Access will be a key feature of Horizon 2020 and will apply to all funding. The ERC has operated an Open Access policy since 2006 for its awards. The European Commission has issued a recommendation to Member States on improving their Open Access policies and practices; the UK accepted the Commission's recommendations to Member States, as these are in line with the published UK policy on Open Access. However the Government is encouraging the Commission to refine its intended Open Access policy for Horizon 2020 in line with the UK policy on embargo periods for 'Green' Open Access, as set out in Explanatory Memorandum ref. 12846/12 and 12847/12, submitted to Parliament on 7 August 2012, and cleared from scrutiny by the House of Lords on 17 October 2012. . The UK Open Access policy was published before the Commission's, and the UK is widely regarded as global leader for Open Access. The UK has therefore brought to the Commission's attention the preference for 'Gold' Open Access in national policy.

25. Horizon 2020 contains a range of mechanisms aimed at pulling research outputs through to the market. These include the European Institute of Innovation and Technology (EIT) and its operational arms, the Knowledge and Innovation Communities (KICs), which aim to join up the three sides of the 'knowledge triangle' of research, education and innovation (this part of the Programme is run by DG Education and Culture).

26. The equity and debt finance facilities for high-growth innovative firms, support for research-performing SMEs through Eurostars, and sectoral public-private partnerships (in aeronautics, pharmaceuticals etc.) in Horizon 2020 should be used to support new industries.

27. FP7 is open to third country participation and the intention is that this will be true for Horizon 2020. This recognises the fact that, in a global economy, Europe needs to access the best brains worldwide. The ERC is currently undertaking outreach actions aimed at encouraging researchers from around the world to submit proposals for funding (meaning that they would have to base themselves in Europe if successful).

Q8

How have the economic crisis and the atmosphere of austerity in many EU

Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

28. DG Research and Innovation has conducted annual surveys of national investment in R&D. The last review conducted in autumn 2012 concluded that the picture was very mixed across Europe.

29. In a difficult economic and fiscal context with strong effects on public budgets, the survey on public R&D investment in Europe showed that, in 2011, many Member States (including the UK) have adopted public measures in support of research and innovation, protecting their public R&D spending as part of their efforts to carry out a smart fiscal consolidation.

30. However, the survey also reflected the worsening of the economic situation compared to previous year's survey. In particular, a number of countries with medium or medium-low R&D intensities decreased their efforts and/or expectations due to fiscal consolidation measures (as seen in Spain and Portugal). In contrast, some countries with a lower R&D intensity, such as Hungary, Poland, Lithuania and Romania, have very ambitious political commitments to increase their R&D efforts. More detail is set out in the table in Annex 3.

31. One area where the financial crisis has clearly had an effect is the SET Plan, whose progress and private sector buy-in has certainly been hampered by the financial crisis compared to original expectations and assumptions. The UK is now looking to be proactive in encouraging and facilitating participation over the next few years to try to build momentum, working with those Member States able to partner with us in the current environment of austerity.

32. The Commission proposed a budget for Horizon 2020 of some €80bn at 2011 prices for 2014-20. We welcome the outcome of the European Council discussions on the Multi-Annual Financial Framework (MFF) in this area. While the precise outcome for Horizon 2020 is still being worked out, it is clear that, in line with UK objectives, research and innovation expenditure will account for a larger share of a smaller EU budget and that the Horizon 2020 budget will represent real growth compared with the 2013 level. This is in recognition of the importance of expenditure in this area in promoting growth and competitiveness. It should be noted that the MFF still requires the consent of the European Parliament.

Q9

What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?

33. It is worth making a distinction between research and spending programmes, and regulatory framework conditions which impact on market conditions and private investment. In relation to Horizon 2020 spending, the main scope for improvement relates more to programme implementation than to the content of the legislative proposals. We need to monitor actively the Commission's performance against their pledge on 'simplification', notably on speeding up the administrative processes.

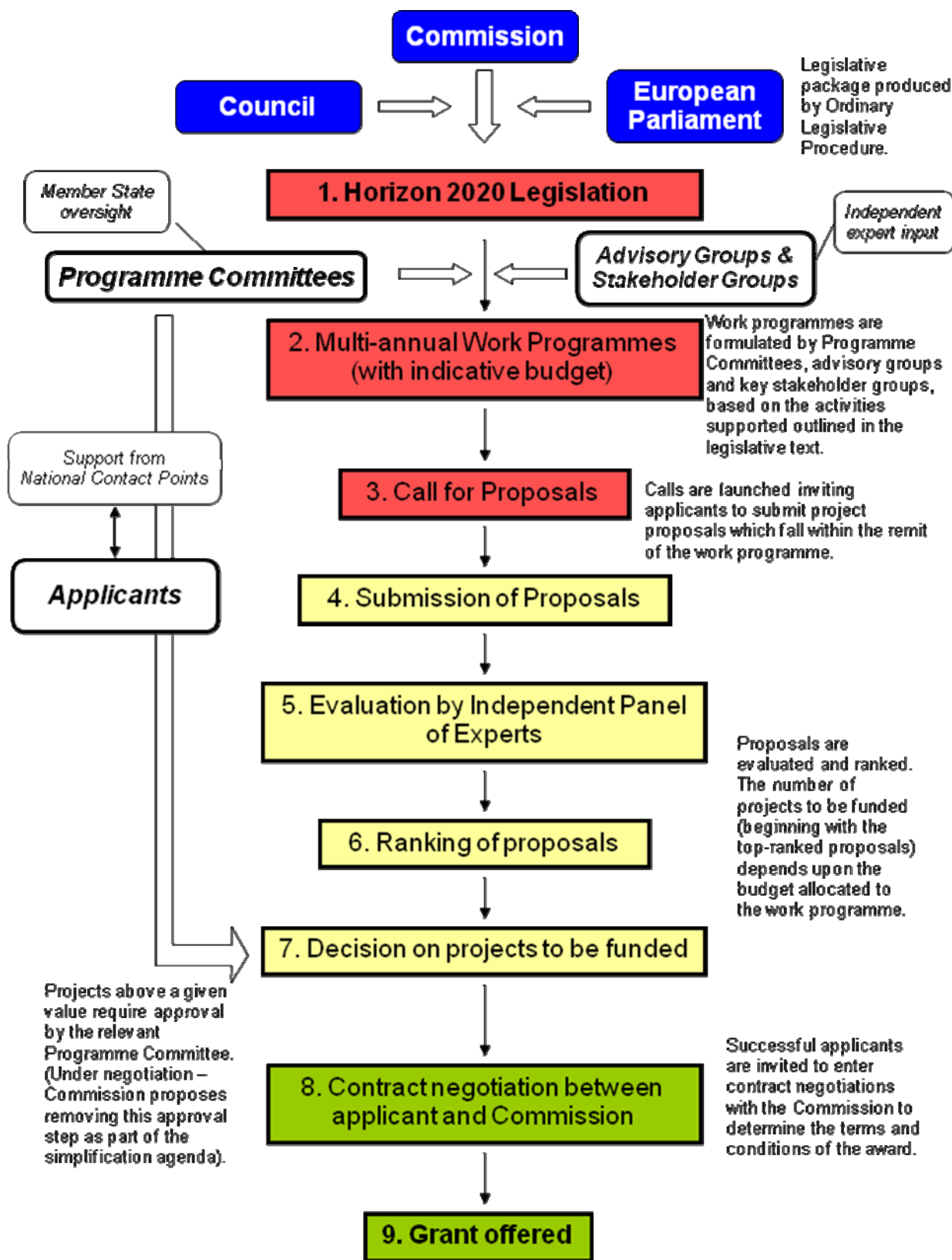
34. As far as wider framework conditions are concerned, the Government considers that a top priority is to address regulatory obstacles at EU and national levels, which risk stifling the rollout of key new technologies with massive economic potential.

35. These may be caused by a variety of reasons, including the absence of a suitable regulatory framework for new technologies to be exploited, as well as the formation of new policy in a way which impedes innovation. The latter situation may be due in part to an approach to regulation which does not fully take into account scientific evidence on risk and hazard. The appointment of a Chief Scientific Advisor to the Commission, Professor Anne Glover, is an indication that the Commission want a science-based approach to policy issues of this nature, although she has a small team and therefore has only had limited influence over policy to date.

36 The Innovation Union flagship included a commitment for the EU and Member States to undertake a screening of the regulatory framework in key areas starting in 2011, with the aim of identifying current regulation which is unsuitable, as well as areas where regulation will be required. David Willetts has raised this topic with the Commissioner and his equivalents in other Member States, and a joint non-paper (an informal discussion document designed to stimulate discussion) from the UK, France and Germany outlining the key points on this topic has been drafted and will be submitted to the Commission and interested parties.

February 2013

Horizon 2020 Grant Decision Process



**Rt Hon David Willetts MP, Minister for Universities and Science,
Department for Business, Innovation and Skills—Oral evidence
(QQ 68–82)**

Evidence Session No. 5

Heard in Public

Questions 68–82

MONDAY 11 MARCH 2013

Members present

Lord Wilson of Tillyorn (Acting Chairman)
Lord Brooke of Alverthorpe
Lord Clinton-Davis
Lord Elton
Lord Fearn
Lord Haskel
Lord Kakkar
Earl of Liverpool

Examination of Witness

Rt Hon David Willetts MP, Minister for Universities and Science, Department for Business, Innovation and Skills.

Q68 The Chairman: Minister, thank you very much for coming. Welcome. You have got a team behind you as back-up but you are just on your own here. In a moment I will ask you to introduce yourself just for the record and then ask you if you have got any particular points you want to start with. First of all, we should all declare any interests we have. I should declare an interest as a trustee of the Carnegie Trust for the Universities of Scotland which, among other things, gives money for research. If I may, I shall go round the room. Are there any other interests to be declared?

Lord Kakkar: Lord Chairman, if I may, I am a professor of surgery at the University College London, an institution which is entitled to participate—and does indeed participate—in programmes of funding for research from the European Union.

The Chairman: Thank you very much. That is all the interests declared. The session is on the record. It is being webcast live and will then be accessible on the parliamentary website. Witnesses always receive a transcript of the session to check it and correct it, and this is then put on the public record in printed form and on the parliamentary website. Then, as I said at the beginning, I would ask you, Minister, to introduce yourself for the record and whether there are any particular things you would like to say—general points—before we go into the actual questions. Will that be all right?

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David Willetts MP: Yes, of course. David Willetts, Member of Parliament for Havant. I think previously it was known as Langstone, where there was a particularly formidable Labour campaign in 1955. I am the Minister for Universities and Science and involved in the discussions, of course, at the European level on research and innovation generally.

The Chairman: Do you want to say anything, Minister, in general, before we get into the questions?

David Willetts MP: No, I will be very happy to answer any questions you may have. It is very helpful to have this assessment by the Committee and I am sure you will have advice and observations that we in the Government will be able to learn from as we handle these issues in Brussels in the future.

The Chairman: Well, thank you very much for that. Could we start the questions? Perhaps I may take the first question. Do you think that stakeholders at all the levels are properly consulted in the development of proposals by the EU on research and innovation? Do you think that stakeholder concerns are then properly taken into consideration?

David Willetts MP: In general, I have to say that I am rather impressed by the Commission's approach to consultation in this area. I cannot speak more widely for the Commission as a whole, but in this area I speak as I find. I think they do quite a good job. I think Commissioner Geoghegan-Quinn is genuinely receptive and open minded. It is sometimes quite a cumbersome process but at least it is open. They had a web-based consultation on Horizon 2020 which got 1,300 responses and 775 position papers. We, of course, domestically, in the UK Government, ran our own call for evidence on Horizon 2020 which got about 130 responses. You cannot satisfy everyone—there are always going to be trade-offs and tensions—but the way they have handled exercises such as the move from FP7 to Horizon 2020 has generally been pretty fair and open.

The Chairman: Thank you. That is very helpful.

Q69 Lord Fearn: The EU facilitates member state co-operation on research and innovation through the open method of co-ordination, the creation of high-level groups, associations, networks and councils. Are these models of co-operation effective and could other methods be used?

David Willetts MP: There is quite a dense network of consultation exercises. This partly goes back to the previous question and is, in some ways, rather helpful. There can be quite a thicket, though, of different types of consultation, right from the formal Comitology Committee, where legal bodies are consulted, through to much more informal arrangements. However, as I say, there may be other areas where I have my criticisms of the Commission, and they may come up, but, in general, there are so many different players—small businesses, universities, the scientific community—with different legal provisions for representation. While it is not perfect, the system works quite well.

Lord Fearn: No other methods could be used?

David Willetts MP: Well, there is a range of methods. Personally, I quite like the more informal arrangements. Sometimes the more formal committees can be quite time-consuming and burdensome. As I say, I think in general the system works quite well, with legally enforced oversight in some areas, right through to informal consultation in others.

Lord Clinton-Davis: Are there any other criticisms by Ministers elsewhere?

David Willetts MP: I am moving here between process and substance. I think it is true to say that the main source of tension in the Council of Ministers, both in our formal meetings and our informal discussions, is that countries that do not yet have excellent research are always trying to pull this programme towards a regional policy role. Our position has been that excellence is the criterion rather than regional policy but that we want to put out a helping hand to countries which, perhaps because of the accidents of history, have had their universities or their research community weakened. We want to put out a helping hand for them to be able to do better in future. But most of the issues on process and procedure are disguised ways of addressing the underlying basis on which the money should be allocated.

Q70 Lord Haskel: Are you happy that, as far as the UK is concerned, the associations, networks and councils are truly representative of the organisations here? For instance, Lord Heseltine, your colleague, in his report makes the point that chambers of commerce and other organisations are not really representative because they have very low membership. Are you happy that everyone has in fact got their fair say?

David Willetts MP: There is always going to be some frustration. There is, particularly, always the issue of small and medium-sized enterprises. Almost by definition they are not going to have the time individually to go to Brussels and make their case. So you are having to find representative bodies for SMEs. Chambers of commerce are one candidate but, as you rightly say, their membership is relatively low as a percentage of all businesses. There is always the challenge of hearing the voice of the insurgent, not the incumbent, and I accept that is a weakness.

Lord Kakkar: To come back to the point that you made about the tension between excellence and regional policy, do you feel that, in this round for Horizon 2020, that tension has been dealt with adequately so that excellence will remain the key objective for the use of that substantial funding?

David Willetts MP: The short answer is yes. I could give a longer answer but I think there is a very clear view that the criterion has to be excellence. When we discuss these things there is always a pretty clear group, heavily led by Germany and Britain, arguing that. Where I recognise that we need to do more is in helping countries, especially if they have had periods under fascism or communism and their intellectual life has suffered. We cannot say that they are permanently condemned to being in the junior leagues. Often they have had a great history of scientific and research activity in the past. We have to be imaginative in the ways we can help them, as I said, to rejoin the premier league. There is a lot we can do by way of co-operation, friendship and teamwork to help them, but the criterion has to remain as excellence.

Lord Elton: I am not quite sure whether I read aright your answer to Lord Haskel or whether I am trying to draw you further away from your brief than you would like to go. Are you aware of any difference in the level of participation of SMEs in chambers of commerce on this side of the Channel and chambers on the other, or the effectiveness of the two groups of organisations?

David Willetts MP: Lord Heseltine is passionate on this subject. It is true that there is a different model of chambers of commerce from our model in which, essentially, membership is compulsory. You then have the chambers of commerce as your representative for your business community and they become kind of quasi-statutory bodies. That has not been historically the British way of doing things. For us they are voluntary associations with membership that is only a small proportion of total businesses.

You then have a chicken and egg question, which goes beyond the scope of our discussion today, about whether you should treat them as if they do represent everyone and then more people will join, or whether you have to start by requiring or incentivising membership. Whenever British Governments have looked at it, we have always concluded against a radical change in the roles of chambers of commerce.

The Chairman: Thank you. That is very helpful background.

Q71 Lord Elton: Are the impact assessments which accompany many of the EU proposals useful, and do they clearly show the level of European added value that we are looking for?

David Willetts MP: Later on we will come to areas where the Commission is falling down, but, again, we do not think these impact assessments are bad or weak. They are dealing, inevitably, with uncertainties and sometimes, as I think we put in our written evidence, the figures are suspiciously precise. When we are told that by 2030 research funded by the programme should generate an extra 0.92 per cent of GDP and 1.37 per cent of exports, I am not totally convinced about the last decimal place in those figures. So you have to take that kind of estimate with a pinch of salt. But, in general, they are worthwhile exercises and it is better to have an impact assessment than not to have one. Indeed, we were pleased. For a long time historically we were pressing for more and it is good that in the past 10 or 15 years impact assessments have spread more widely in these EU Commission assessments.

Lord Elton: At its last meeting the Committee examined an alternative fuels infrastructure proposal. That was on 4 March. The Government felt that the accompanying impact assessment was not realistic and have commissioned a separate, UK specific IA. Is that a helpful approach?

David Willetts MP: If there are occasions when, in the words of that comment, they are not realistic, we should say so. Certainly if we have reasons for dissatisfaction, we are absolutely entitled to see whether we cannot get a better analysis done.

The Chairman: Is it helpful, Minister, if the European Parliament also does impact assessments, or does it become confusing if you get two lines of assessments?

David Willetts MP: I think I would encourage them to try to improve and press the Commission for better quality in their own impact assessments rather than have a Parliament doing a rival one.

Q72 Lord Elton: This follows on rather from impact assessments, which are part of the administrative process of picking up which research proposals to support. We have heard comments that this process is so long that the staff that applicants have recruited to do the work which they hope will be subsidised have actually moved to other jobs by the time it comes through. Can you or your department say how you think it could be made much shorter?

David Willetts MP: Yes. This is a genuine problem, a serious problem. This is the time-to-grant problem. I am aware—I think I have come across it but it may be anecdotal—of the case of a company that was so excited by being told that it had got a grant that it recruited extra staff. But then the money was so slow to arrive that they had gone bust. They had recruited the extra staff before they had got paid for them and it ended up turning into a disaster. The figures here are shocking. It is currently 340 days between the closure of a

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framework programme call for proposals and the Commission signing a grant. This is not good enough. Commissioner Geoghegan-Quinn has committed the Commission to reducing average time-to-grant by around 100 days for Horizon 2020. This is an area where bureaucracy gets in the way. It is far too slow.

Lord Elton: My question was whether you have any specific suggestions about how this could be achieved, but perhaps I should substitute a question of whether you think it is likely to be achieved under the present proposals.

David Willetts MP: We think that they could have a simpler system. They think we could have a simpler funding model with a flat-rate-only approach to indirect costs. We could have better IT systems and they could run some of their assessments in parallel rather than sequentially. So there are things we could do. This is something that I have raised with the Commission. The commissioner knows that we in Britain feel strongly about this and they are trying to raise their game, but it is not acceptable at the moment.

Q73 Earl of Liverpool: I wonder whether you thought that the EU struck the right balance in terms of stimulating and facilitating research and innovation on the one hand and regulation on the other, and whether you think there are ways in which this could be improved.

David Willetts MP: Well, this is another area where I do not think the EU as a whole has got things right. There is too long a list of new technologies which are hard to introduce within the EU. I have raised this at the Competitiveness Council and the Prime Minister has raised it at the summit. We sit around in the Competitiveness Council talking about favouring innovation but meanwhile—be it the attitude to nanotechnology in the way some nation states incorporate the REACH regulations; or the difficulty of getting a regulatory regime for innovative space vehicles; or a completely unscientific approach to risk in things like Bisphenol A; or some of the hysterical remarks made by at least one commissioner at the time of Fukushima—if you look at it all, there is an irrational attitude to risk and uncertainty, and that can stifle innovation. So this is a problem. But this is across the whole Commission. The whole problem is that, even if the Competitiveness Council and the innovation and research Ministers want to push something forward, you can assemble a blocking minority of member states for some of these technologies and make life very difficult.

Earl of Liverpool: That is quite worrying.

David Willetts MP: It is. We have really tried to raise this. We had a very useful discussion, led by Anne Glover, the Chief Scientific Adviser to President Barroso, at an informal lunch of Ministers in Brussels last autumn. It is quite powerful when you bring them all together because, for each one, people understand that there is a domestic problem, that there is a group of countries where there is a problem with nanotech and that there is a group of countries where there is anxiety about Bisphenol A. If you do a long list of all the areas where there is a technology that is encountering difficulties in being adopted in the EU, it is worrying. It is an area where I think we really ought to keep up the pressure.

Q74 Lord Brooke of Alverthorpe: May I follow up on the appointment of Anne Glover? Would you say this is a useful development? Do you feel that she has got the powers that might be needed—in the sense that the scientific establishment in the UK has quite a big influence in the way the Government go—or do you think that more could be done to help her?

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David Willetts MP: I think it is a step in the right direction. It is a voice of empiricism and rationality beside the President of the Commission, advising him when all these scares are running that Fukushima is Armageddon or Bisphenol A is going to poison our babies through hardened plastic in milk bottles. She is very much a personal adviser to the President of the Commission. So the answer to your question is that she does not have the structure behind her that Sir John Beddington does here.

Lord Brooke of Alverthorpe: Do you think perhaps we might consider having a look at this and maybe recommending something to try to move towards a more structural position—to review what she is doing and, if needs be, seek to get the Commission to make changes in due course?

David Willetts MP: I think that would be helpful. There was an interesting announcement last week—we are still trying to get to the bottom of it but it is potentially very encouraging—that the President is now going to have a council of science and technology around him, which is again something that we recognise here with our Council for Science and Technology, which I think Anne Glover will chair. This strengthens her position with an array of expertise that she can draw on. I take these as encouraging signs that they are moving in the right direction, but there is a lot more that should be done.

The Chairman: Could I just ask: where could we get information on the setting up of that council? Could the department send us details?

David Willetts MP: Yes. To be honest, the main information we have on it is in an EU Commission press release, I think of last Friday. I am very happy to send this Committee a note on some of the observations we have got about this whole issue of risk. The handling of risk and uncertainty and the need for scientific appraisal of risk and hazard is a problem that does worry us.

The Chairman: That would be extremely helpful. It would also be helpful to have a little bit of note on Dr Glover and what the structure is—how big the office is—because it is a completely new office, if I have understood it right.

David Willetts MP: There is basically no real structure around it. It is a personal appointment.

Lord Elton: I am trying to listen to all this with GM crops in my mind, which have accumulated 44 years collectively in the waiting list. I am reflecting that the Commission is not a democratic body but the member Governments are, and the pressures on them are very different. Surely there needs to be some mechanism which enables them to understand what the pressures are and for our Governments to interpret their programmes in a way which the electorate finds agreeable. Otherwise, whatever advice they get about the empirical research results saying that X is perfectly safe, if enough people—lunatics maybe—decide that it is not and start acting politically, they will not be able to go ahead without considerable political damage in the countries where that exists.

David Willetts MP: Well, you have put your finger certainly on one of the tensions: that you can construct a kind of blocking minority for any given technology, and GM is obviously a particularly sensitive one. You can construct a blocking minority of people who do not want it in their country and next try to stop it happening anywhere in the EU. That is the risk.

Q75 Lord Haskel: Follow-on funding: do you think that there is a need for a more formal mechanism to enable a submission for follow-on funding in order to capitalise on the networks, to build on previously funded projects and to get the maximum benefit from them?

David Willetts MP: There is a real dilemma here—it is one that we wrestle with in the domestic area as well—and that is that there is a danger of repeat funding. There is a danger of keeping a research programme alive when you have to be ruthless and say that it has not quite delivered what we hoped for and we now need to make—given that every budget is always going to be limited—space for the new applicants, rather than having a revolving programme of support for existing applicants. I sometimes hear the opposite concern about EU research funding, actually—that too much of it is going to the same programme, the same researchers, a second or third time and that it has become a closed shop rather than being open for the new bidder. Having said that, there is always an issue about how, if a programme is really making progress but it needs to be brought closer to market, you might move on. If there is a clear sense of progress and you have already financed some research upstream and you are now going to finance it to get to commercialisation like that, is it a reasonable request? But, as I say, we want to counteract the tendency of repeat funding of the same bid.

Lord Haskel: In the United States, if you have got a bit of research and it is closer to market, there is a venture capital industry which picks these things up very quickly. Do you think that it is a failure here that we are not benefiting from this work because of the lack of funding through a venture capital system and that we rely too much on borrowing from banks and not enough on equity? This seems to be the view of many people if you question them in the United States or elsewhere about this.

David Willetts MP: This is one of the big issues in innovation policy. I would accept that one of America's advantages is its substantial venture capital industry. We in Britain have, I think, the largest in Europe, but ours is a quarter of America's size and in other European countries it is very small indeed. So, yes, access to venture capital is one of our problems.

Also in the US, federal grants can take projects closer to market, certainly closer than our research councils in Britain historically would do. But that, of course, is the reason why the previous Government created the Technology Strategy Board—to have another source of funding that takes a project closer to market. If it is being handed over, in British terms, from a research council funding the upstream research to the TSB funding it closer to market, that is all right. It is the rolling over of a research council funding programme a second time or a third time for the same recipient that one worries about.

Lord Haskel: Do you think that the European Union is an institution which could take on some of this follow-on funding closer to market?

David Willetts MP: Again, one of the reasons why I am cautiously pro-Horizon 2020 is that it has got a clearer structure—which, if I may say so, is partly influenced by British thinking. There is a kind of “blue-skies research” strand; there is an “applying research to the world's great challenges” strand; and there is a “financing technologies closer to market” strand. So they have tried to construct Horizon 2020 in a way that meets your concern.

Q76 Lord Kakkar: Do you feel that the European programmes guarantee participants—particularly business participants—a fair return on their participation and investment in terms of intellectual property? We have heard concerns, particularly from some of the

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businesses, that the open access to results of research will risk their ability as private companies to secure intellectual property rights. We have also heard from large industry, in terms of the Association of the British Pharmaceutical Industry and Pfizer, that the innovative medicines model of handling IP was particularly successful in terms of striking a balance up-front between the protection of IP and open access.

David Willetts MP: Again, this is a genuine kind of policy dilemma which we wrestle with domestically as well. It is true that there have been concerns, particularly from the aerospace security industry. They were worried that their commercial interests would not be protected and that there would not be sufficient patent protection for IP that was generated. We have been involved in trying to ensure that the rules for participation in Horizon 2020 tackle this concern. It is an issue that, in particular, the security industry is worried about and we hope we can make progress in tackling their concerns. It is an issue. Initially, some of the proposals may have been a bit naïve in not understanding that the commercial sector required a return and had to be able to capture some kind of IP, but I think now that progress is being made.

Lord Kakkar: And in terms of the whole question of patent protection, with the agreement by 25 member states to the European patent in December, do you think sufficient or similar progress might be made with regard to European copyright issues that could help provide security in terms of investment made by partners into these schemes?

David Willetts MP: Yes, I would hope so. That is important as well. We are not there yet but we hope that we can get there.

Lord Elton: You pinned your answer on IP protection on the aerospace industry, which, of course, is an enormous player, but do not the same principles apply to much smaller concerns and are you equally concerned about their profitability?

David Willetts MP: The industries that have raised this with us are aerospace and security—

The Chairman: Would you like to finish your point, Minister?

David Willetts MP: Those are the two main sectors. I am not aware of anything specifically from SMEs but, if there were points, we would happily consider it further.

The Chairman: Thank you very much. We have to take a short break.

Sitting suspended.

Q77 The Chairman: Sorry for that short interruption. You have given us quite a good answer but you may have more to say on the same point, Minister.

David Willetts MP: I do not think I have anything to add at this stage, no.

Lord Haskel: Open access: the Science and Technology Committee published a report last week about open access. They are concerned about other nations not having open access. Do you think that this country's open access policy will affect the policies of other member states and the EU generally, if at all?

David Willetts MP: I hope we do have an influence. From the discussions I have had, I think that our proposals set out in the excellent report by Janet Finch have had an influence.

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The Commission themselves, of course, have an open access policy which, in general, is on broadly similar lines to ours. I have some disagreements on the detail. In particular I am not totally convinced that their model is sustainable because you need to finance academic publishing in some form or other, and if the period during which time you have protection behind a pay-wall is too short it is not really a viable model. They know that I am not totally confident that theirs will be viable. But there is, both in the EU and the US, and in individual nation states such as Britain, a lot going on on open access.

Lord Haskel: Do you think that Europe as a whole will move together or do you think we will be on our own?

David Willetts MP: It is an area of shared competence where the EU can only set out the framework for the programmes they fund. Within individual member states, the Deutsche Forschungsgemeinschaft produced an open access policy in 2006. They said that for the ones they funded they were looking for open access within six to 12 months. They also covered costs for APCs. So our policy is not that out of line with the German policy.

Lord Haskel: Can you explain what APCs are?

David Willetts MP: Article processing charges, which is the cost of getting a piece of research published. The starting point in Janet Finch's report, which I completely share, is that there is a genuine cost for communicating research and that that has to be met somehow. One way in which you can do it is through so-called gold open access within the research grant: part of the research grant is to pay for the publication. Another way you can do it is by publishing in a journal, which accepts your article for free but gets revenue by charging for access to that journal, that article, for a certain period of time—it is limited, but for a certain period of time—and that is called the green open access model. I think I was being interrogated about this very policy, probably in this very room, by a different House of Lords Committee only recently. There are different national models. As I say, I think we have got it pretty much about right in Britain with trying to fund gold but recognising that green operates alongside it.

Q78 Lord Clinton-Davis: Is it your view that the Government do enough to support businesses which wish to take part in EU programmes? Do you have any criticisms in that behalf at all?

David Willetts MP: This is an area where we do need to raise our game. Again—I hope the Committee has sensed this—there are some areas where I do not think there is a problem and others where, frankly, I think there has been a problem, and this area has been a problem. In the light of stakeholder concerns, we did a review of the key stakeholders which identified some problems. The crucial one was that the national contact point, which was seen in principle as being valuable by the research community, was felt to be under-resourced and fragmented and there were criticisms of the national website. So we in BIS have now agreed with the Technology Strategy Board that we will work together to resource better the national contact point, to improve the website and to improve the central helpline service. It is going to cost a modest amount of extra funding but we are going to put it in. We want to have a new support system that is more accessible to businesses in place by the summer of this year in time for the launch of Horizon 2020.

Lord Clinton-Davis: Is your view supported by other Ministers in other Governments?

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David Willetts MP: I am really talking about our own effort in Britain to ensure that businesses in Britain get proper information and proper guidance on available EU programmes. I could not really speak for how other national Governments perform. It does relate to the wider EU problems we were talking about earlier, such as the time-to-grant, but certainly there has been a problem in Britain.

The Chairman: You mentioned that you had done a review, Minister. When was the review?

David Willetts MP: We committed ourselves to the review in November 2011 in our innovation and research strategy, and we carried out the review in the course of 2012.

The Chairman: And that is a public document, is it?

David Willetts MP: I can happily send the Committee a note about it, yes.

The Chairman: That would be very kind. Thank you.

Q79 Lord Brooke of Alverthorpe: I think to a degree we have already covered this topic when we talked earlier about the chambers of commerce, but perhaps we could look generally at the decline in the amount of research funding which industry has been taking—this is right across the whole of Europe—in recent years and, indeed, the relatively poor performance on our part. You gave us, in a very useful document—the cross-departmental paper that you submitted to us—a list of efforts that you will be making to try to reverse this trend. Is there anything more you can add, given that we have had some exchanges in Britain with the chambers of commerce and the federation of small industries on the extent to which they are engaged? Is there any way in which we might perhaps look for a new model, as well as the national contact points, to try to get more people engaged so that we get more industry bidding than we have had in the past and, in particular, to get a greater focus on SMEs than we have had previously?

David Willetts MP: You may be referring, Lord Brooke, to question 4 in the written evidence, where we completely accept that we have done well overall on our participation rate. If you drill down you will find that we have done very well with universities but less well with businesses. We set out the measures we are taking, of which improving the national contact points is one. Again, this Committee may have ideas which we would happily learn from. I have tried on an ad hoc basis to spread the message out. For example, when you looked through these KICs—the Knowledge and Innovation Communities run out of the EIT—Britain was not participating on the scale that I wanted to see, so we invited over the chairman, Alexander von Gabain, who I think is an Austrian, and he kindly came over. We organised a conference at BIS to which we invited representatives of the business community and the academic community. He brought with him some Commission staff and they explained how KICs worked; explained why Britain had under-performed in the first round; and gave us some advice on how we could raise our game. So if we identify a particular area where we are under-performing, I am very happy to use all the resources of BIS to communicate better to businesses, as well as to researchers, how we can improve our performance.

Lord Brooke of Alverthorpe: What can we do in the energy industry—where, again, there have been low levels of interest—and security, to a degree?

David Willetts MP: I do not immediately have any suggestions to add to the ones I have

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just given and what we have given in answer to question 4, but perhaps this Committee has ideas. On the energy industry, maybe working with DECC, we need to work even more closely with the representative bodies of the energy industry.

Lord Brooke of Alverthorpe: Is that a factor to do with ownership?

David Willetts MP: I do not know. These international companies, or companies with headquarters outside the UK, are always looking, in a clear-headed way, where they are and how it can be done best and most effectively. Often international business will conclude that the UK is the place. As I said, if the Committee has further advice on that, it would be very helpful and welcomed by the Government.

Q80 Lord Elton: On the outputs from research and innovation that we are talking about, does the Commission use the results effectively to inform public opinion and generate economic growth when you compare them with Australia, Singapore, the States or wherever?

David Willetts MP: The Commission does carry out comparative analyses of R&D and innovation in Europe through its annual Innovation Union Scoreboard. It makes some comparative analyses of our innovation systems compared with elsewhere. It produces a very mixed assessment of Europe's performance. We have got some hot spots and places where innovation is good, but it does show, for example, that on business R&D investment Europe can lag behind both the US and some Asian countries. In turn, the sense that we are in danger of falling behind the premier league does influence policy making in Europe. I hope it is one of the reasons why, even when we had a very tough budget position being negotiated in the last couple of months, we have ended up with, if anything, an increase in real terms of spending in this area. So I think you can trace the analysis, with its rather chastening conclusions, and the policy—which we said is the British Government's position—that research and innovation should be a larger part of a smaller total budget.

Lord Elton: You are saying that the reactions can be seen on the balance sheet on the amount of the spend, but that surely is not the only test: the mechanism itself must need very close attention. I come back to the earlier question really: is the Commission good at looking its own shortcomings and taking administrative steps to make them better?

David Willetts MP: There are some weaknesses in performance, such as time-to-grant, and, to be fair to the Commission, they have not been defensive or tried to claim that there is not a problem. They have accepted that there is a problem and are trying to address it. So when we can show why small businesses are finding it hard to use the grants in the way they should, they try to respond. There is a wider agenda here in regard to flexibility in labour, better links between universities and business and the ability to exploit research for commercial purposes, which are really matters of national policy and where individual nations try to raise their game.

Lord Elton: And is there a question of an administrative culture, if I can put it like that? It has been suggested to us that they require decisions to be made too high up the chain of authority and that it is this referral up and up and up, and then down and down and down, that takes up the time. Looking at some other countries' chains of decision-making, they are very much shorter.

David Willetts MP: Yes, I think it would be true to say that most British businesses find the process of dealing with the British Government policy, whatever its imperfections, easier

than applying for funds at the EU level. That is a challenge; I accept that. Of course, there are also particular benefits for applying for funds at the EU level. One reason why we support this overall programme—perhaps I should have said this at the beginning—is not, being very crude, that we get back more than we put in but that there is also evidence of a genuine added value if you tackle a research problem through the eyes of more than one team of researchers in one country. We genuinely think that co-operative endeavour, linking up researchers in different universities or different R&D labs in different EU member states, can be very productive. We think it right that there should be some EU co-operation at that level.

Q81 Lord Brooke of Alverthorpe: On the same theme, if I may, and turning back to your evidence to us and question 9, where you talk about, “We need to monitor actively the Commission’s performance against their pledge on ‘simplification’, notably on speeding up the administrative processes”, have you anything in mind there and any lines that you might wish to put to us that we could consider as possible recommendations? Is there a role for an outside body to intervene and assist there maybe?

David Willetts MP: As I say, I am trying to find a figure. They have made a specific pledge on speeding up things like time-to-grant, which they now need to be held to. That is very important. There are opportunities in successive European Councils. There is going to be a smart regulation discussion in March and there is going to be an innovation discussion in October. There is work that needs to be done and needs to be monitored but, with the Commission, the spirit is willing but sometimes the flesh is weak, just like the rest of us.

Earl of Liverpool: You have mentioned several times and in an earlier question the issue of time-to-grant, or approval to the procedural grant. I think that in the earlier question you mentioned the figure of 340 days’ time lapse. I do not know whether you can put your hand on that but was that stating the average time lapse between approval to grant receipt?

David Willetts MP: That is—and I will happily send the Committee a further note if we need to clarify it—the time between the closure of a framework programme call for proposals and the Commission signing a grant agreement. That is what is called the time-to-grant, which currently stands at an average of around 340 days. There are some programmes where it is a bit better but the ICT thematic programme averages around 260 days and the security thematic programme averages nearly 500 days. The Commission has already committed to reducing average time-to-grant by around 100 days. That is the evidence we have.

The Chairman: Minister, if you want to, send us a note. Those are pretty alarming figures. It would be very nice to have them precisely and if you could send us a note that would be very helpful.

Lord Elton: Do you regard that as a satisfactorily large reduction?

David Willetts MP: No, we want to see them go further. It is very frustrating in a fast-moving world. We are talking here about research and technology and this is clearly far too slow.

Q82 The Chairman: Can I ask you a final question, Minister, on the multi-annual financial framework? There was a meeting of the European Council last month, I think on 7 and 8 February, which reached broad agreement on that. Could you tell us what the Government’s policy will be about whether you will be pressing for as much resources as possible being put into research and innovation out of that?

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David Willetts MP: We did—but of course within the need for an overall budget discipline. Our objective, which we signalled in advance, of a larger part of a smaller budget was achieved because, if I may say so, of the Prime Minister's excellent negotiating skills. I do not mind being quoted on that. Heading IA (which includes FP7) was 9% in the past; it is now going to be 13% of the new budget. We do think it was a good outcome. Of course, there is a lot more detail still to know—there is a negotiation with the European Parliament—but it was good that the Council recognised the importance of backing programmes investing in the future, not protecting agriculture.

Lord Haskel: But it will need to get past the European Parliament though?

David Willetts MP: That is indeed the next stage, yes.

The Chairman: Do any other Members of the Committee have any points to make? We have run up against what should be our time limit, although we had to take a break. Minister, is there anything else that we should have asked and, if so, what is it and what would you have answered?

David Willetts MP: You tempt me. No. We look forward to the Committee's advice. I am certainly very happy to share with this Committee the points I have made. As I say, I have tried to be fair and even handed. There are some areas where the systems do work—it is not all a complete disaster. In the area of time-to-grant, I can send you a further note. On the challenge of being a pro-innovation environment and identifying some of the areas where, inadvertently perhaps, it has turned to anti-innovation, we can also provide the Committee with a note on that.

The Chairman: Thank you very much indeed. You have been extremely helpful. I hope we can produce a report which, as you said, you hope will be of some assistance.

Department for Business, Innovation and Skills—Supplementary written evidence

EU Regulatory Barriers to Innovation

1. Research and innovation play a key role in fostering economic growth and competitiveness. However, a regulatory framework which impedes rather than supports innovation makes investing in research, development and innovation, new business opportunities and jobs in Europe less attractive compared to our global competitors. Indeed, European Commission analysis shows there is a widening gap between the EU and its world competitors notably due to weaker business R&D investment.
2. Significantly, licence and patent revenues from abroad are three times higher in the United States than in Europe. Therefore, while remaining a top player in terms of knowledge production and scientific excellence, Europe is losing ground with regard to the exploitation of research results.
3. Regulatory barriers to innovation stem from either the absence of the right regulatory framework for developing and exploiting new technologies, or formulation of European regulations in ways which obstruct innovation. Examples of this can be found in policy areas across Whitehall.
4. An absence of an appropriate regulatory framework results from a failure to legislate quickly enough to keep pace with new business opportunities based on technological innovation. In addition, new regulation may be developed solely in the context provided by existing technologies, rather than recognising the need for flexibility which will accommodate unforeseen new technology-based approaches.
 - a. An example of this is the lack of regulation governing the use of commercial space-vehicles. Space tourism is a developing industry and a Virgin Galactic space plane operation in the UK could be worth £50 million per annum. There is currently no safety regulation regime in place to allow space planes to fly in Europe, whereas the appropriate regulatory framework is already in place in the USA. We therefore risk excluding Europe in the operation of these vehicles, as well as losing the development of space plane technologies into other markets.
 - b. Currently the UK Space Agency is working with the DfT and CAA to develop a certification regime in the UK for space tourism which will not depend on EU support, with the view that Virgin Galactic could operate services in the UK by 2014/15.
5. One way in which EU regulation is impeding innovation is a hazard-based approach to regulating, instead of taking sufficient account of scientific evidence of risk.
 - a. An example of this is the introduction by France of a reporting regime for the production and use of nanomaterials. This has not been based on scientific risks

and benefits – ‘nanomaterial’ relates to the particle size and does not necessarily mean that the material has hazardous properties.

- b. Separately, the European Commission is proposing the ban of certain neonicotinoid-based insecticides due to concerns over their effects on bee populations. However, research data on this issue is currently limited and a total ban, lacking the support of unequivocal scientific data, would result in major economic losses for farmers as well as pesticide producers.
6. The appointment of a Chief Scientific Advisor (CSA) to the Commission, Professor Anne Glover, as well as the establishment of a Science and Technology Advisory Council chaired by her, is a clear indication that the Commission wants a science-based input into policy issues. However, she has a small team and has had limited influence over policy to date.
7. There are also additional sensitivities which need to be considered, including social-acceptance of controversial technologies (such as public concern over Genetically Modified Organisms). European citizens respond to scientific advances with a mixture of enthusiasm, interest and caution, which is reflected in legislation and regulations. This is linked to a lack of public understanding of the concept of risks, suggesting that a sustained effort on this issue independent of specific dossiers is called for. It is therefore necessary to encourage an early dialogue between scientists, policymakers and civil society to create a clearer understanding of societal expectations and a greater public understanding of the concept of risks, allowing a more balanced approach in European policymaking.
8. Additionally, one commitment in the Commission’s Innovation Union Flagship is to undertake a screening of the regulatory framework in key areas. This has been started in two areas of the European Innovation Partnerships, “Water” and “Critical Raw Materials”. However, progress on this has been slow and an initial report is now expected in the middle of this year. The methodology framework produced for these pilot screenings would need to be critically assessed and, if necessary, adapted so it is fit-for-purpose for other areas.
9. The Minister for Universities and Science, David Willetts, has engaged on this topic with Commissioners as well as his equivalents in other Member States. All have expressed support but there is clearly recognition that a generic “solution” could be problematic due to sensitivities over different technologies in different Member States. The UK, France and Germany will shortly submit a joint non-paper to the Commission on this issue to stimulate discussion.

SCIENTIFIC ADVICE TO THE PRESIDENT OF THE EUROPEAN COMMISSION- PROFESSOR ANNE GLOVER, EU CSA AND THE PRESIDENT’S SCIENCE AND TECHNOLOGY ADVISORY COUNCIL

1. Professor Anne Glover was appointed as the first the EU Chief Scientific Advisor in November 2011 and took up office formally at the start of 2012. It should be noted that this is a personal appointment by President Barroso. She and her small team are based in the Bureau of European Policy Advisors (BEPA), which provides strategic advice to the President and the College. The Government has welcomed Anne Glover’s appointment and while it is still early days considers the role of EU Chief Scientific Advisor has the potential to develop over time to become a source of valuable objective advice to the European Commission so that robust scientific evidence increasingly underpin EU policy and legislation. Bearing in mind the limited staff resources available to Professor Glover, she seeks to operate by building effective links with relevant Commission Directorates-General, notably DG Research and Innovation and the Joint Research Centre (JRC). .

2 At her appearance before the House of Commons Science and Technology Committee in October 2012, she mentioned that she enjoyed good access to President Barroso.

3 On 27 February 2013 President Barroso announced the creation of a “Science and Technology Advisory Council”. This will be an informal grouping of 15 individuals reporting directly to Barroso and chaired by Professor Glover. Its remit is “to provide advice directly to the President on how to create the proper environment for innovation by shaping a European society that embraces science, technology and engineering. In particular, the Council will advise on the opportunities and risks stemming from scientific and technological progress.” The Commission press notice announcing its establishment, formal terms of reference and biographies of its members are attached. The Government welcomes this interesting development and looks forward to seeing outputs of the Council in due course.

Acceleration of Commission administrative procedures

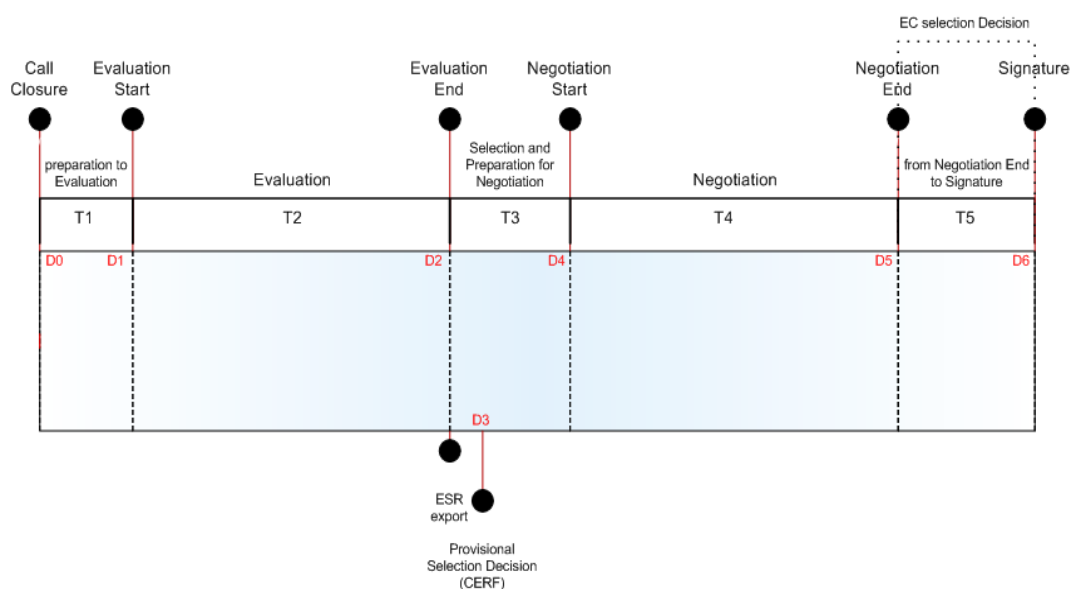
1) It has long been a criticism of the Framework Programme that it is slow and cumbersome, which has proved to be a deterrent for many would-be participants (especially among the business community). Making the programme and its administration lighter and faster has therefore been one of the key simplification objectives for Horizon 2020. The Commission has proposed initiatives in the following areas.

Time-to-grant

2) Time-to-grant, in the context of the Framework Programme, is the period from the close of a call for proposals to the date the Commission signs a grant agreement and is expressed in calendar days (it may be several days/weeks later when project participants sign). For two-stage calls for proposals, the count is from the close of the second stage call.

3) The average t-t-g varies across the different thematic areas of the current Seventh Framework Programme (FP7) – for example, ICT (263 days), Energy (333), Health (405), Transport (448) and Security (499) – but the latest recorded average for the programme as a whole is 331 days (as at June 2012 and noted in the Fifth FP7 Monitoring Report²⁰). The overall average t-t-g has been as high as 348 days. This is too long for many organisations operating in fast moving technology areas.

4) For Horizon 2020, Commissioner Geoghegan-Quinn has committed the Commission to reducing average t-t-g by 100 days (as a non-binding target). This would result in an average of around 250 days. While this should be possible – the current FP7 ICT thematic programme is nearly there at 263 days – effort to achieve this will need to focus on particular stages of the project selection process. The following diagram shows the stages of that process.



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http://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/fifth_fp7_monitoring_report.pdf#view=fit&page=none

5) The Commission advises that the evaluation phase (stages T1-T3) currently takes on average 150 days to complete, and that the negotiation phase (stages T4²¹-T5) takes around 200 days. It further advises that the main evaluation stage (T2) cannot be further shortened to any significant extent without compromising the quality of the evaluation, and that efforts to shorten t-t-g will therefore need to focus mainly on the negotiation phase.

6) A 150-day evaluation phase would be compatible with Article 128.2 of the recently revised EU Financial Regulation²², which requires that applicants be told of the outcome of the evaluation of their application within six months of the close of the call for proposals. A target reduction of 100 days to the negotiation phase would also be roughly compatible with the FR, which requires grant agreements to be signed within three months (or around 90 days) of the date applicants being advised that the evaluation of their proposal was successful. In both cases, exceptions are allowed to allow compliance with requirements in the basic act (e.g. the legislation establishing H2020) and target periods may be exceeded for reasons that include delays attributable to the applicants.

7) Significant reductions to the negotiation phase should be possible as a result of a number of simplification measures introduced to the H2020 ‘rules for participation’ (still subject to co-decision agreement with European Parliament). These include: a simplified funding model that should make costing more transparent to Commission checks and easier to re-calculate should negotiations require it; the introduction of clearer guidance documentation (including for application); and removal of some validation requirements for type of participant (e.g. SME). Some time could also be saved by running more processes in parallel (particularly in stages T1, T3 and T5) rather than sequentially.

Late payment

8) Late payment has been an issue for many in the programme and is one of the issues the Commission has sought to address. Instances of late payment caused by the need to check reports and accounts should be fewer as a result of reducing the requirement for audit certificates, greater acceptance of participants’ usual accounting practices (for example, in calculating personnel costs) and the impact the simplified funding model will have on cost calculation.

Removal of requirement on pre-financing interest

9) The removal of the requirement for Project Coordinators to bank pre-financing (about a third of the EU’s financial contribution to the project payable within 45 days of grant agreement signing) in interest-bearing bank accounts and to pay to the Commission interest earned (prior to disbursement of the pre-financing to other project partners) will remove one of the causes of delay to subsequent payments – when non-compliance with this (often for good reason) would trigger Commission investigation.

²¹ The main negotiation stage, where the Commission will be aiming to identify and agree with the consortium the essential costs and activities for the project.

²² <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:298:0001:0096:EN:PDF>

Externalisation

10) It is the Commission's intention to outsource more of the management of the programme to executive agencies, expanding on the arguably successful pilot of giving some parts of FP7 to the Research Executive Agency to manage. This should reduce some pressure on internal Commission resources and additionally benefit a larger part of the programme through a resource dedicated 100% to management duties.

Background to new UK support service for Horizon 2020

1. Following feedback from the UK's research community (particularly the business community), BIS accepted a commitment in its Innovation and Research Strategy paper (Nov 2011) to work with the Technology Strategy Board (TSB) in reviewing existing support services for the EU Framework Programme on R&D with a view to implementing, by summer 2013, an improved support system for potential UK applicants to Horizon 2020.
2. The joint review, which commenced in the spring 2012, has now completed, with conclusions and recommendations agreed with the TSB. The review took account of feedback from key stakeholders, policy leads, current support providers and the research and business communities, and of relevant evaluation and benchmarking reports.
3. The main deficiency identified with the current system was the National Contact Point (NCP) service, which, while seen as valuable by the research and business communities, was nevertheless felt to be under-resourced and too fragmented to be able to provide a consistent service covering the breadth of the Framework Programme or to undertake all the work seen as necessary to support optimum UK participation.
4. Problems were also seen with the national website (which had proved an ill fit in a system designed for other purposes), with a lack of regional knowledge since the demise of the Regional Development Agencies, and with poor coordination / cooperation between the various support players (e.g. NCPs, the Enterprise Europe Network, the Knowledge Transfer Networks etc).
5. Whereas the current (seventh) Framework Programme, FP7, was built on four pillars of distinct activities (i.e. ten thematic programmes, various capacity building programmes and the large European Research Council and Marie Curie Specific Programmes), Horizon 2020 will be a larger programme based around three strategic objectives or Pillars (Excellence Science, Industrial Leadership and Societal Challenges) that will be far more integrated and cross-cutting.
6. Three options were considered for supporting Horizon 2020 and for ensuring greater coordination between the UK's various support providers:
 - A 'lower cost' option allowing FP7 NCP contracts to lapse and not be replaced for Horizon 2020, with central support limited to minimal content on BIS/TSB websites and reliance on fragmented support from the EEN, the KTNs and the academia-focused UK Research Office (UKRO) in Brussels;
 - A 'status quo' option based on continuing with NCP resource at roughly current levels and terms (i.e. mostly part-time and under contract) but with an improved website and increased TSB central resource (possibly part-located in Brussels);
 - An 'enhanced / higher cost' option which would additionally raise the NCP resource to full-time for the majority of Horizon 2020 objectives, technologies and societal challenges (with most of the NCPs covering business interest areas being employed by the TSB), and introduce additional resource in the form of 'H2020 Pillar' leads to assist

coordination and ensure identification of cross-cutting opportunities. The NCP resource could be augmented by specialist resource if a clear need for this is seen. TSB-employed NCPs would provide support to all organisation enquiries although the bulk of effort will be focused on supporting businesses.

7. In all options, it was expected that the Devolved Administrations would separately each continue to provide their own regional NCP.
8. The first option, while saving money, was rejected for the negative impact it would be certain to have on UK (particularly business) participation. The second was felt to still be short of the resource needed to support the larger programme and offered little extra in terms of business support. The third option was seen as providing the additional resource needed to support the size and cross-cutting nature of Horizon 2020 and improved coordination between the NCP network and other support providers. It would also bring the additional benefit of fully integrating the bulk of the business relevant resource into TSB's technology and innovation support structure, which would allow greater flexibility, open up the expertise of TSB technologists to the NCPs and make it easier to take advantage of synergies between Horizon 2020 and TSB-run programmes.
9. BIS and TSB have agreed to implement the third option, with BIS retaining overall responsibility for the national support structure.
10. We will, over the coming weeks, be agreeing with the TSB the finer detail of implementation, including the timetable and process for employment and contracting of NCPs, the design of the new website and enhancement of the TSB-hosted central resource.
11. Separately and over a slightly longer timescale, the TSB will explore options for establishing a limited Brussels presence, with a view to obtaining the benefits of closer links with the EU institutions and with the expertise of UKRO.

19 March 2013

Bridget Carpenter, Professor Roberto Bernabei, and Professor Iain Carpenter—Written evidence

Bridget Carpenter, Professor Roberto Bernabei, and Professor Iain Carpenter—Written evidence

[Submission to be found under Professor Roberto Bernabei](#)

Professor Iain Carpenter, Professor Roberto Bernabei, and Bridget Carpenter—Written evidence

Professor Iain Carpenter, Professor Roberto Bernabei, and Bridget Carpenter—Written evidence

[Submission to be found under Professor Roberto Bernabei](#)

Professor Christopher Chapple Professor Sheila MacNeil—Written evidence

Background

During 2012, the Committee examined a number of European Commission proposals for projects and strategies containing a strong emphasis on research and innovation, including the EU ‘smart cities’ innovation partnership, the development of an EU transport technology strategy, the economic potential of cloud computing, and the completion of the European research area. The Commission is issuing these proposals against the background of the Europe 2020 Strategy, which emphasises supporting growth and jobs, and the ongoing negotiations on the Multiannual Financial Framework 2014-2020 where the UK Government, and this Committee, support an increase in the budget devoted to investment in education, research and innovation. The Commission’s Work Programme for 2013 also foresees legislative proposals later this year to renew and create public-private partnerships to leverage investment in research and innovation.

In its scrutiny of the above proposals, the Committee identified a number of cross-cutting issues which will form the basis of this inquiry. The Committee is particularly interested in contributions from those working in research and innovation in sectors where those disciplines play a particularly vital role, for example, transport, medicine, agriculture, creative industries, etc. Respondents need only reply to those questions which they consider relevant to them, and are welcome to address matters which are relevant to the inquiry but are not covered by these questions.

Questions

The following answers are provided by Prof Christopher Chapple, BSc, MD, FRCS (Urol), FEBU, Consultant Urological Surgeon, Royal Hallamshire Hospital, Sheffield Teaching Hospitals NHS Foundation Trust, Honorary Senior Lecturer in Urology, University of Sheffield; Visiting Professor of Urology, Sheffield Hallam University and Chairman of the International Relations Office, European Association of Urology.

Professor Chapple is currently the Scientific Co-ordinator for an EU funded 7th Framework programme in research and innovation, which is a Marie Curie European training network project called TRUST (Training for urology scientists to develop treatments – see www.eustrustproject.org). Professor Chapple is also clinical lead for a COST network and has considerable experience in contributing to EU research funded projects. He has coordinated a number of international projects across Europe dealing with both guidelines and education, working in collaboration with the European Association of Urology and the International Consultation on Urological Disease. He is currently the urogenital lead of Devices for Dignity, a programme funded by the National Institute of Health Research and which is committed to identifying new technology and to institute collaborative research to expedite the adoption of these new technologies into the NHS.

The following answers have also been provided by Sheila MacNeil, Professor of Tissue Engineering in the Department of Materials Science and Engineering at the University of Sheffield. She is currently Director of the Interdisciplinary Programmes Office for the

Faculty of Engineering (from February 2010) and the Sheffield lead for an EPSRC Doctoral Training Centre in Tissue Engineering and Regenerative Medicine (a DTC held between three Universities, Leeds, Sheffield and York) from 2008.

She has previously been Deputy Director of the Kroto Research Institute (from 2005 to 2009) and Director of the University Centre for Biomaterials and Tissue Engineering from 2002 to 2009, promoting interdisciplinary research between engineering, physical sciences and life sciences (see www.cbte.group.shef.ac.uk). She was also a founding Director of the University of Sheffield spin-out company, CellTran Limited from 2000 to 2007.

Her research focuses on developing tissue engineering which will benefit patients, alongside fundamental work to develop new understanding and tools in the area of tissue engineering. Her primary research interests are in tissue engineering of soft tissues – skin, oral mucosa, urethra and cornea, with a strong focus on translating research for clinical benefit. Her group have a long history of working with clinical NHS colleagues using tissue engineered skin to benefit burns patients (from 1992) and more recently patients with chronic ulcers (2004) and patients requiring reconstructive surgery of the urethra (from 2007). Additionally she has developed 3D tissue engineered models used to study a wide range of normal and abnormal conditions spanning wound healing, skin contracture, pigmentation, melanoma invasion, angiogenesis, bacterial infection and skin sensitisation.

Professors Chapple and MacNeil have worked extensively as co-applicants on EU research projects.

1 What are the essential elements of an effective proposal relating to research and innovation?

An effective proposal needs a really effective leader who is respected in terms of their research in that field and who has national and international contacts which is a prerequisite to being able to pull together a strong team. The team needs a worthwhile and important focus and realistic linkages between the team members, academic institutions and industry with a strong common theme.

With respect to the balance of research and innovation this is difficult. A good proposal is one which demonstrates that there is strong ownership of the problem and a desire to move forward by applying attractive, innovative science to the problem being considered, harnessing centres and individuals who are actively working and have a demonstrable profile in a particular field. However, to deliver on a big programme, often a lot of the work that's needed is sensible and integrative rather than innovative, to underpin and coordinate the scientific developments(s) and integrate the activities of innovators, scientists and industry. Therefore we personally think the balance of innovation to co-ordinated research effort is probably something like 30% innovation, 70% sensible co-ordination of existing research resources.

2 Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

We do not feel that stakeholders are properly consulted in the development of EU proposals on research and innovation. We understand the difficulty and capacity required to consult with large numbers of organisations across the EU. Whilst the involvement of pan European patient organisations is essential and this is well implemented within the EU committees at present. However we think more active engagement with European level specialist organisations like the European Association of Urologists would be beneficial in identifying the areas requiring investment in research to deal with the emerging and future clinical needs of patients. At present we do not see sufficient levels of consultation with both researchers and healthcare workers to affect policy formulation.

We also feel that at a national level the process of providing the UK's input into the EU's work programmes on research and development in the health field is not an open or transparent process and organisations active in the research field cannot find a way to contribute to the process or easily give their views. For example, from our perspective, we see considerable links between the EU's research agenda in Horizon 2020 focusing on societal challenges particularly the ageing of the population and the future health challenges in the urology field such as of Stress Urinary Incontinence (SUI), Overactive Bladder Syndrome (OABS) and Pelvic organ prolapse (POP) all of which affect large numbers of people, have a serious impact on quality of life are costly to health care systems and require considerable further investment in research. More than 40% of the population, both men and women over the age of 65 are affected by urological problems with a considerable impact on quality of life and resulting in enormous costs to both the healthcare system and society in general. (Please see ahpma.co.uk/docs/Inco%20article%202%20Professional.pdf). We would suggest that urology should be considered as a potential priority field higher on the national and European research agenda, for the application of innovative research approaches such as tissue re-engineering. Currently, it is often difficult to find the appropriate mechanisms at national and EU level where this case can be effectively made.

3 The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?

The EU's Open Method of Co-operation (OMC) is an alternative EU policy instrument to legislation and relies on soft law mechanisms such as guidelines, indicators, benchmarking and sharing best practise. This means that there are no official sanctions for Member States that are lagging behind and no real incentives for them, to do better. The method's effectiveness relies on a form of peer pressure (the peer review process) and naming and shaming since no Member State wants to be seen as the worst performer in a given policy area. Again, we would re-iterate the point that the involvement of relevant stakeholders in the research and innovation agenda is extremely limited because of the intergovernmental nature of the OMC. We would argue that the decentralised approach through which agreed policies are implemented by the Member States and supervised by the Council of the European Union, the involvement of the European Parliament and the European Court of Justice is very weak indeed. Furthermore, the broad spectrum of stakeholders who are actively involved in research and innovation are not engaged with this process at all. The European Commission has, broadly speaking, a monitoring role and the ability to influence Member States in which direction to set the policy agenda in policy areas which are generally the responsibility of national governments. In the area of research, the

Commission's broad agenda is to influence Member States to invest 3% of GDP in research and development - it is debatable what success applying OMC has had in achieving this goal.

In terms of other methods of co-operation, we would like to see more active engagement with European level associations (such as the European Association of Urologists) and European level organisations representing the views of patients.

4 Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

From our own experience of EU grants, the engagement with the private sector happens through the team and their personal contacts and the energy they put into this. We have only recently become aware that the EU has a database of SMEs who could be contacted to be involved in projects. Awareness needs to be raised relating to this point and more work put into linking researchers with appropriate SMEs.

5 Do EU proposals clearly state their desired outputs, outcomes, impacts, and 'European added-value'? Do you think the European Commission's Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

EU calls for proposals clearly state that they are looking for European Added Value and this is given significant weighing in the evaluation processes when the EU selects projects for funding. However, it is very difficult to know exactly what they are looking for and the feedback on unsuccessful project applications is so minimal that it is frankly useless, in guiding the formatting of future submissions.

We had never heard of the European Commission's Impact Assessment Board and were not aware of its existence. We therefore have no knowledge of the accuracy of its assessments.

6. Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

Our personal experience when applying for EU funding has been that it is very disappointing to get through a first round and receive high marks for scientific innovation and then fail at the second round and receive low marks for scientific innovation. When one has put a lot of effort into writing the grant, the fact that you have a low mark for innovation doesn't tell you which parts were not considered innovative enough. This is extremely frustrating and doesn't give you enough information to move forward or improve on your efforts in the future. This is quite demotivating as is the apparent lack of consistency in the marking of the first and second rounds!

7 In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

Not enough information to comment fully but we would suggest EU needs to invest at least 3% of GDP in R and D (EU target). We know that the EU is lagging behind major competitors in terms of investment in R and D.

8 How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

We think the current level of research and innovation funding for the EU's Horizon 2020 programme at approximately €80 billion is appropriate in the current economic climate. We would urge the select committee to advise national government to take a negotiating position that does not reduce investment in R and D as this is badly needed at time when many EU member states are really struggling to keep excellent research labs going. Without adequate levels of funding there is the danger that our best researchers will choose to live and work outside the EU.

9 What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?

With respect to legislative issues and project proposals and research and innovation, Professor MacNeil can answer most readily from her own experience of biomaterials and tissue engineering. This experience is, however, shared by many of her colleagues – she recently ran a 2 day workshop on regulatory issues for tissue engineering and this was a consensus view.

At present it is very difficult for researchers to be able to progress research that involves living cells from the laboratory to the clinic without encountering disproportionate regulation. Until a few years ago it was possible for researchers to take autologous cells and under appropriate clean room conditions with informed consent and approval of a local ethics committee do a first in man safety study on a few patients. Currently we are aware that if we take cells from a patient, expand them in the laboratory in any way and then introduce them back to the patient, either on their own or with, say, a scaffold, this is viewed as an advanced medicinal product.

All researchers in tissue engineering know that what we are doing rarely falls under the heading of a simple **device** but certainly does not fall under the heading of **medicine** in the usually understood meaning of the word. However, the regulatory environment has pushed the combination of autologous cells, with or without a device, into advanced medicinal products.

There is a small grey window which talks about minimally manipulated cells. To give an example of this, we are seeking to develop a treatment for women with stress urinary incontinence and pelvic organ prolapse. Put briefly, current cell free meshes are causing major problems and they're not lasting a patient's lifetime. A biodegradable mesh combined with the patient's own cells will offer a much better chance of a life-long repair, i.e. produce some tissue that supports existing pelvic floor tissues and lasts the patient's lifetime. However, the regulatory issues areas follows: if one takes cells from patient's fat and

manages to extract these in a way that is called “minimally manipulated” and combines them with a scaffold, this would be an in-theatre procedure which would not attract major regulatory intervention and costs. However, if in extracting the cells, for example an enzyme is used or the cells leave the patient, leave theatre and are then handled in a laboratory elsewhere and then taken back, they fail this “minimally manipulated” checklist and become an advanced medicinal product.

This area of greyness is very confusing for researchers who would all argue for a safe but proportionate level of regulation. Put simply, excessive legislation in this area acts as a barrier to translating research from the laboratory to the clinic. There is a need for members of the European Union to ensure that the legislation is proportionate to the task in hand so that patient safety is not compromised but advances can be made to benefit patient’s health.

15 February 2013

Chemistry Innovation Limited—Written evidence

Below is a response to the call for evidence to the House of Lords European Union Committee.

Authors: Dr Claire Claessen
Dr Steven Fletcher

on behalf of Chemistry Innovation Limited which operates the UK's Chemistry Innovation Knowledge Transfer Network.

Chemistry Innovation is a partner in eight European projects (co-ordinator in two of these) and also assists companies in the chemical and related sectors in formulating and submitting proposals for European projects.

The paragraphs below provide responses to the nine questions posed in the Call for Evidence.

1. An effective proposal relating to research and innovation addresses a topic that: 1) has a large potential market opportunity for the EU; 2) is timely in the response requested in relation to that market opportunity; 3) is collaborative, leverages knowledge across Europe and enables sharing of risk and 4) encourages effective links to market to maximise exploitation potential. For SMEs a 'bottom up' approach that allows flexibility in the particular topic to be addressed is particularly valuable.
2. The EU tends to consult widely on the high level definition of research programmes with member states, national funding bodies and specific networks such as the European Technology Platforms, ERA-NETs, national contact points etc. However the process and timescales for how this takes place is often opaque, difficult to penetrate and requires significant time commitment to identify the most effective relationships and consultation routes. Consultation mechanisms could be improved by simplifying and clarifying the consultation process in order to make it more accessible - particularly for organisations new to the European funding landscape. There is also a tendency for proposals to be overly complex or to have scope creep as a result of being written by committee.
3. European Technology Platforms are effective in mobilising cooperation between organisations with common interests to work together to secure EC funding – for example SusChem's work to develop the SPIRE Public Private Partnership (PPP) and their successful sponsorship of several Coordination and Support actions such as CRM_InnoNet and Bio-TIC. In addition, ERA-NETs appear to be successful in instigating jointly agreed funding calls between member state funding agencies thus coordinating efforts. These are effective to a limited extent as public awareness of these tends to be rather low and the ERA-NETs tend to result in 1 or 2 calls during

4. All FP7 projects are co-financed by consortium members, many of whom are from the private sector. In addition, public-private initiatives such as ManuFuture, Innovative Medicines Initiative and Green Cars PPPs have leveraged significant business investment and this promises to be repeated through the new PPPs proposed within Horizon 2020 such as SPIRE (Sustainable Process Industry through Resource Efficiency). However, in the UK, businesses are in general less motivated than academic institutions to participate in EU research and innovation programmes due to the level of bureaucracy, stringent audit requirements and low (real or perceived) success rates associated with accessing European funding.
5. EU proposals generally state the areas of impact they expect projects to achieve, linking these to the most relevant EU policies and strategies which the proposal seeks to deliver. However, one area that offers much potential for improvement is in the continuity of funding to maximise commercial exploitation of technical research and innovation projects. Currently there is little done by the EC to consider the 'follow on' funding needs of completed projects and how impact could be maximised. In addition, making more use of public procurement to drive research and innovation could be a mechanism by which the economic impact can be maximised – e.g. analogous to the SBRI scheme in the UK.
6. The information is available, although it is largely contained in large documents that are not easily digestible. It would be helpful to make available some smaller, more specific documents that explain in simple language the important criteria for the benefit of participants. The topic of impact is one which applicants and assessors find particularly difficult and some additional guidance on what is required here and how it should be addressed in a proposal.
7. This is a complex question without a simple answer. The translation of research and development output into successful business innovation is affected by several factors, in particular the climate for investment within Europe compared with other parts of the world and the economics associated with operating in proximity to either suppliers or customers. Some of these issues are difficult to control from Europe or even a Member State, particularly as most companies operate within global supply chains. However UK legislation such as the Patent Box has already successfully ensured investment within the UK to exploit new technology developed in the UK. Similar incentives, within the UK or throughout Europe, would encourage the exploitation of technology and therefore the value to be derived within Europe.
8. The economic crisis and the atmosphere of austerity across the EU has had an impact on the level of resource committed to research and innovation within industry. In small, well established businesses there has inevitably been a focus on

existing operations and survival, rather than looking to new technologies requiring reinvestment. In larger companies, despite some major cost-cutting and reorganisation, the focus on innovation has generally been maintained. This has also been the case for smaller, high technology SMEs.

Within the UK the public support for research and innovation has been maintained, albeit with greater focus on science and technology with clear potential for commercial impact. The proposed level of spending on EU projects is appropriate in the current situation, providing a balance between prudent spending and the drive for innovation and growth.

9. The EU institutions should consider the following suggestions:
 - provide simpler, concise guidance to applicants on the criteria applying to project proposals, and particularly on how to assess the potential impact of the project;
 - provide more opportunities for collaborative projects where the output includes conclusions about commercial exploitation (eg. new business models) as well as new technology;
 - consider legislation to incentivise companies to exploit new European inventions within Europe (cf the UK Patent Box);
 - simplify the structure of the Directorates within the EC so that the output from research-focused projects is easily available to those engaged in innovation activities.

8 February 2013

Professor Mary Ritter, Climate-KIC, Professor Richard Brook, AIRTO and John Hill, Growth Accelerator—Oral evidence (QQ 15–35)

Evidence Session No. 2

Heard in Public

Questions 15–35

MONDAY 11 FEBRUARY 2013

Members present

Baroness O’Cathain (Chairman)
Lord Brooke of Alverthorpe
Baroness Buscombe
Lord Clinton-Davis
Lord Elton
Lord Fearn
Lord Kakkar
Earl of Liverpool
Baroness Scott of Needham Market
Baroness Valentine
Lord Wilson of Tillyorn

Examination of Witnesses

Professor Mary Ritter, CEO, Climate-KIC, **Professor Richard Brook OBE**, President, AIRTO, and **John Hill**, Director, Growth Accelerator.

Q15 The Chairman: Thank you very much for coming here. We are going to start one minute early. Members of Committee with relevant interests will declare these; remember when you are asking your questions. The session is on record and is being webcast live and will be subsequently accessible via the parliamentary website. Witnesses will receive a transcript of the session to check and correct. This will be put on the public record in printed form and on the parliamentary website. I want to start by saying welcome again and if you could begin by stating for the record your name and official title. We go from your left.

Professor Brook: Richard Brook, I am president of AIRTO, which is the Association of Independent Research and Technology Organisations. That is a grouping of approximately 50 RTOs and public sector research establishments and similar organisations in the UK. Many of our member companies are engaged with the European Union research and innovation schemes and with universities and industry.

Professor Mary Ritter, Climate-KIC, Professor Richard Brook, AIRTO and John Hill, Growth Accelerator—Oral evidence (QQ 15–35)

Professor Ritter: I am Professor Mary Ritter. I am an emeritus professor of immunology at Imperial College London and previously Pro Rector for International Affairs. But I am here particularly in the context of being the CEO of Climate-KIC, which is one of the three knowledge and innovation communities that the European Institute of Innovation and Technology set up in January 2010. In addition, I have many years of experience from work that I have done in Europe with the European Universities Association, particularly in the area of post-graduate education when I was inaugural Vice Chair of the Council for Doctoral Education.

John Hill: Good afternoon. My name is John Hill. I have a number of hats today. I am director of a UK programme called Growth Accelerator that attempts to coach the 10,000 fastest growing small companies in Britain per year on behalf of the Government—BIS. I am also the executive chairman of a company called Pera who is a provider of services, and I am the outgoing president of TAFTIE, the European Network of Innovation Agencies.

Q16 The Chairman: My goodness. Thank you very much indeed. We have to crack on with it because some of our people have to leave early. I will ask the first question. What are the essential elements of an effective proposal relating to research and innovation?

Professor Brook: Let me have a go at this to start with. I am tempted to say simple, speedy and timely, certainly from the point of view of the innovation component. But of course in a complex organisation like the European Union where we have multiple states with different priorities and agendas, different communities—we have academic communities, we have industry communities, all with a different view—inevitably the proposal that comes forward is going to be a compromise between a number of different preferences. I think the European Union struggles with each new framework programme to make them simpler, to make the processes speedier, and to make them clearer but it is an uphill struggle, if I may say so, although I think we are making progress. My view would be that if Horizon 2020 proceeds as currently proposed it will make progress towards simpler, speedier, and more timely processes.

I think the other important factor is to make sure that there is an ability to follow through with the research and the innovations which are developed under these programmes. We will not get the value unless industry in particular is able to take up the outcomes, run with them, and create growth, wealth, and jobs from them. So we have to make sure that there is ideally a seamless connection between the outcome from the research and innovation programme and access to finance, coaching, development, and all of the other things that industry needs in order to turn those innovations into business.

Professor Ritter: I would certainly agree with what my colleague has said. I would say that also you need an innovative way to bring people together. You need to develop trust, you have to base it on excellence and you also have to be agile and flexible. I think a key aspect as well is that it has to be long term, and you can be long term and flexible. In fact, in Climate-KIC we have 163 partners across Europe. They come from the business sector, they come from universities, they come from public bodies, we have regional and city councils, because I think innovation has to be systemic so you have to bring the parties together. In fact we have signed a seven year agreement with the EIT, which itself is a semi-autonomous body of DG EAC, and we have the option of a further seven years. So with this timescale you can really bring a community together and create some very innovative ways for them to work together to get to know each other. Our business partners form almost half of our community and at least half of those are SMEs and the other half are larger corporates. So our community enables us to bring partners together in different

Professor Mary Ritter, Climate-KIC, Professor Richard Brook, AIRTO and John Hill, Growth Accelerator—Oral evidence (QQ 15–35)

combinations. Each type of partner gets something different out of the Climate-KIC innovation community, and because it is stable they can continue the partnership long-term or start fresh collaborations as time goes on.

Q17 The Chairman: Do you find they all trust each other? Because there is always this concept about the European Union that we are always looking over our shoulder and not trusting people. Is it different in the innovation and research area?

Professor Ritter: We started on 1 January 2010. I would say we spent the first 18 months building the community and really getting to know each other, but now that we have it is really beginning to gain traction. The research that we do is very much market driven and every research project has business (big and/or small) as well as universities involved from the very beginning. A lot of our entrepreneurship work is taking existing SMEs and giving them the support they need to develop further business and to introduce them to their first customer.

The Chairman: That sounds an amazing thing that you are doing. I went to a meeting in Brussels the week before last on unemployment and the point was made that if every SME in the whole of the European Union employed just one person there would be no more unemployment. Anything you can do in that obviously is very good. Sorry, that was a diversion. Mr Hill?

John Hill: The research and innovation budget line sits underneath something called competitiveness, jobs and growth, so for me that is where I would start. The most essential thing is for Horizon 2020, the new framework, to be much better designed to fulfil its role in creating jobs, competitiveness, and growth. How do you do that? This is all part of the same thing: the way to do that is to involve more business. Business participation in Framework Programmes 6 and 7 has been steadily reducing down so that now only 25% of the participants are actually businesses. So get more businesses involved, because you cannot get growth in jobs unless you are creating innovation that ends up in the market place and creates new GDP and new jobs.

Another statistic: 6% of SMEs create more than half of the economic growth in every country in the European Union. That is why we are running something called Growth Accelerator. High growth SMEs have a massive impact, half of the economic growth created by 6% of SMEs. So the logic goes forward: involve more high growth SMEs in research and innovation. To do that the Commission have indeed created a new instrument called the SME dedicated instrument. It potentially is incredibly powerful but is currently very unclear about how much it will be funded. The envelope is now defined: €71 billion. For me the essential part is now within that €71 billion to get the balance of budgets right and get them in a form that funds SMEs and specifically high growth SMEs that will create growth.

Q18 Baroness Scott of Needham Market: I wonder if you could just help me out—if each of you could just briefly describe a project that has been funded through these sorts of mechanisms and in which we could clearly see added European value. It all feels quite conceptual at the moment.

Professor Brook: Let me give you an example of a set of projects. In addition to being president of AIRTO I am also a member of the European Commission's expert advisory group for space. That is an interesting and slightly unusual part of the programme but what Horizon 2020 needs to do is to add value to the work that the European Space Agency does and the work that national innovation agencies do. In particular there is a mass of data

Professor Mary Ritter, Climate-KIC, Professor Richard Brook, AIRTO and John Hill, Growth Accelerator—Oral evidence (QQ 15–35)

that we acquire from satellites which at this present time is underutilised. The processing of this data and research into its applications is not at the moment at a sufficiently advanced stage for individual companies to take that data and build value-adding business on the back of it. But the European Union, as a potential user of that data, can act as a customer and a requirement specifier for some applications. In Horizon 2020, part of that programme in the space area will be taking the data that the European Space Agency produces; and putting it to good use, adding value by helping companies build sustainable businesses using that data. So within the space there will be a number of individual projects where companies will take that data away and run with it creating new businesses and, therefore, employment.

Baroness Scott of Needham Market: That is very helpful, thank you.

Professor Ritter: Perhaps I can give two examples from two different types of project. There are the slightly longer term ones that involve business and universities, and in fact we have one that relates very much to the area to which my colleague was referring, which is developing new highly sensitive microchip sensors for measuring greenhouse gas emissions. But to give you another example, we also take young companies and, as I said at the beginning, we give them the encouragement and the support they need to develop their products. One example is a small company called Naked Energy, it is an SME that has developed a specialised solar panel that you install in your roof and that gives you both electricity and hot water and is something like 40 times more efficient than standard solar panels. They came to us as a very young company. We gave them a series of different types of help. The first was what we call an SME voucher that you can go and spend in any Climate-KIC partner; in fact they came to Imperial College and they worked with engineers to improve their product specification. They did this and so developed a much better business plan. We also gave them business coaching, we gave them a lot of different types of support. Then we introduced them to their first customer who actually is Sainsbury's, who are now putting their product into the roof of two of their stores. In fact that has now led on and they have a customer in Budapest as well, so it has helped them to get across national barriers. We have probably five or six examples like that just from the last 12 months.

The Chairman: That sounds amazing. What are they going to do from now on? Are they going to go through various trade organisations here to try and sell them?

Professor Ritter: Yes, they will, and obviously we now have to try to help them to ramp up their production and find further customers.

Baroness Buscombe: How much does that cost?

Professor Ritter: The SME voucher was worth €12,000. A lot of it is in kind so it is our business coaches for example, who are supporting them. It is something—

Baroness Buscombe: Are they paid or do they do it on a voluntary basis?

Professor Ritter: No, we pay for them from our Climate-KIC funding that we receive from the EIT. This funding that the KICs get from the EIT is only 25% of the total budget, and the other 75% is in kind or what is called complementary funding from our partners or from external sources. We are not fully funded.

The Chairman: Do you get funds from BIS?

Professor Ritter: No, we do not.

Professor Mary Ritter, Climate-KIC, Professor Richard Brook, AIRTO and John Hill, Growth Accelerator—Oral evidence (QQ 15–35)

The Chairman: Have you approached them?

Professor Ritter: We do talk with them, yes, so we certainly—

The Chairman: Just tell them to—

Professor Ritter: To give us some, yes.

Q19 The Chairman: Mr Hill?

John Hill: My examples are deliberately demonstrating that within European research it does not all have to be super long term, blue sky. You can actually make money out of it and get growth out of it. I picked two that are deliberately familiar markets: double glazing and croissants. I will do the croissant one first. A company called Fornax in the UK came to us and they wanted a low fat Danish pastry croissant, it is all layered and it gives you the wonderful feeling when you bite through it. But to get the layering at the moment you have to have lots and lots of saturated fats or butter; they want an 80% reduction so you can make a low fat, 80% less fat croissant and Danish pastry.

What we did is we took that as a market need, and this is the big thing about high growth SMEs. They do not usually come to you with a solution, they come to you with a need: low fat pastries. We developed a solution for them in concept form which was to take technology from the plastic injection moulding sector that makes your margarine tubs and your milk sachets that go in your coffee—multilayer technology. You do not need to worry about all that stuff. We took some technology from the polymer sector that basically created multi-lamellar surfaces and you could get lower fat stuff into that croissant.

The Chairman: They did not taste of plastic?

John Hill: No, it is just the technology. We built around them a supply chain to be able to take it to market; we introduced it exactly the same way we introduced them to their supermarket customers. So we create the solution, the European Commission funded the project, we built them a route to market, they are now in market or they are just about to go into market, and as a result they have been purchased because it is such blow-away technology.

Baroness Buscombe: Can I just ask: they have managed to sell it, so do any of the profits that they have reaped from selling it go back to the cost of helping them?

John Hill: No, it was grant funded so it is all a 100% grant that is non-reimbursable from the European Commission. It is like the dedicated instrument that is being proposed now. No, they take the risk, they fund half of the costs and the grant funds the other half of the cost. If it works, great; if it does not, not so good.

The Chairman: But what about the intellectual property?

John Hill: In this programme it is really nice and clean: it is always the SMEs. Universities in fact are involved because these types of companies are not continuous in-house researchers; they have just got a great idea. So the actual research that is done is done by universities for the SMEs, but the IP is always the SME's.

Earl of Liverpool: You mentioned when you were speaking earlier that 6% of SMEs create 50% of the growth?

John Hill: Yes, over 50% in every country.

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Earl of Liverpool: I wonder if you could just tell me—I am having a bit of trouble working it out—how is the 6% based? Is that 6% of all SMEs in each individual country?

John Hill: Yes. The truth is it varies somewhere between 5.5% and 11%. Finland is very high.

Earl of Liverpool: So you are talking about 6% of SMEs in each particular country?

John Hill: Yes, they create half of the economic growth across everything—not half the growth in SMEs, half the economic growth in the country. That statistic is the basis for why BIS's largest flagship programme is Growth Accelerator, because they decided they would not fund support to every SME; they would focus it on the ones that have the most chance of growing.

Q20 Lord Brooke of Alverthorpe: Mr Hill, you mentioned that in fact the amount of business involvement has been declining and on previous presentations we have had we have learned that British business involvement compared with some of our continental EU partners is lower. Could you tell us why you think that is the case and why you think it is declining, and what you think should be done to try and reverse that?

John Hill: Look at business participation as two flavours: big companies and little companies. In fact, we are pretty good at SME participation—we are rather good—but where you are talking about these big strategic projects it is as simple as this: the Germans will always do better than us because they have more big companies who do big strategic things. We have British Aerospace, we have some great drug companies, but we have a lower number of large companies. That is just the way it is, it is the demographic.

The Chairman: Is it large manufacturing companies—the pharma would not be, of course, but—

John Hill: Indeed, no, not necessarily manufacturing but, as you say, once you get past Jaguar Land Rover, the big drug companies, British Aerospace, there is not much left.

The Chairman: The rest is supermarkets.

John Hill: Absolutely, the rest is supermarkets.

Professor Brook: Large companies will get involved in Framework Programmes if they can drive the agenda and shake the programme.

The Chairman: Yes, to keep the intellectual property.

Professor Brook: Shaping the programmes takes a lot of work, effort and engagement with Brussels and I think there are a couple of other factors deterring engagement. The European Union programmes do not get a terribly good press; there is a degree of, “This is all very difficult”. Also I think the “compete and collaborate” culture is possibly not as well developed in this country as may be in other places. Referring back to what you said earlier, there is some worry or suspicion, about leakage of intellectual property, and if you are not very familiar with the programme you would probably say, “Well, that is all too difficult, I will go and find some other way of supporting my innovation”.

Q21 Lord Elton: Mr Hill, you sent us an interesting paper in which you point out, to my surprise certainly, that the most innovative companies or the highest growth SMEs tend to farm out the R&D and that naturally takes funds into the university. So there is a symbiosis here. I was wondering whether there are any structures or conventions or any other means

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by which the universities can support this from their end rather than simply receiving the money.

John Hill: I will answer this as an intermediary rather than a university; I am sure my colleague will have a different view, possibly. I think that the best way that universities can support small companies like this, which can be a challenge, and take on the service provider mantle is, rather than be very German about it, develop lots and lots of technology and hope it can be pushed into markets from an academic point of view. They should have a service provider attitude, wait for the SMEs to come up with the ideas because—guess what?—small business entrepreneurs are much better at coming up with business ideas and product ideas than I am or academics are. Wait for them to come with the need, configure the technological solution that would meet that need and give the features on the product—low fat croissant—and then be a good service provider. Do not try and take their IPR, get paid to do a job and do it in a timely, businesslike fashion. That would be great. I think British universities are doing a great job of doing that.

The Chairman: We have to move on. I know we have a long period of time for this session but we always seem to get bogged down in the first question because we are all anxious to get at you. I am going to use Chairman’s prerogative to finish this one up. Can I just say I was a bit disappointed when you started saying “We develop the technology and then we sort of throw it at them”, but you really then redeemed yourself and you said at the heart of it all are those people who think they know what the market is like, and they are talking about the 500 million customers in the European Union.

John Hill: Unfortunately, as it is at the moment in European research, the massive majority, 80% of the funding, is what I call technology push—“I will create the technology and I will push it out to the market”—rather than market pull: “I will come up with the idea and you tell me how I am going to do it”.

The Chairman: You redeemed yourself by saying “unfortunately”.

John Hill: Yes, I am not supporting it. In fact if we change the balance of the budgets we can start reversing this, rather than just keep pushing it in the same old research channels.

The Chairman: Quite right. Well, I should not say that.

Q22 Lord Fearn: My question is on consultation really. Do you feel that stakeholders at all, including academic institutions and small and medium sized enterprises, are properly consulted in the development of EU proposals on research and innovation? How could consultation be improved and to what extent does consultation affect policy formulation?

Professor Brook: I will be interested in John’s view. My impression is that the European Commission go to considerable effort to try to consult. They would take opinions from a wide variety of different communities and organisations. I think actually the UK is not as good at translating that into a national consultation as our continental colleagues. So the UK is weak, I think, compared to other European nations, in consulting its own communities and then feeding those opinions into the programmes as they get shaped.

For SMEs it is extraordinarily difficult. If you are growing a small company and cash and customers are your primary consideration, as it is through most of the stages of growth, it is very hard to find the time to engage in policy and strategy for research and innovation programmes. So SMEs need a proxy, a representative, someone to represent their views and make sure that the SME viewpoint is reflected in the development of instruments like

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the SME instrument that has already been referred to. That works reasonably well. SMEs will always feel underconsulted but then finding the time to be consulted they would find difficult. But in general, I think the UK does not put as much effort as other European nations into, dare I say, working the Brussels system, getting inside the system, and influencing in the way that other countries do. I think the weakness here is on our side rather than the Commission's side.

The Chairman: Can I just pick you up on that just for one moment? What role do the CBI take, or the Chambers of Commerce? The CBI would not go among the SMEs anyway, I guess, but surely there is a role for the collective responsibility, if you like, of the Chambers of Commerce and all these business groups.

John Hill: I can give you a wonderful and terrible example. Eurochambres represent all the Chambers and in Europe there is another organisation called UEAPME. Think of the European version of FSB. In Britain you have the CBI. For SMEs, forget them because they have an SMEs' wing but they are not there for SMEs. Then you have Chambers. Now, Chambers and the FSB, the Federation of Small Businesses, are so fed up with the European scene they have disengaged from it. So much so, in fact, that last month British Chambers resigned from Eurochambres and gave up the concept of having any influence in Europe. The other national Chambers are much more willing to try and influence the European agenda through Eurochambres.

On a European level SMEs are reasonably well represented by Eurochambres and this organisation called UEAPME, but from a British point of view FSB do not engage Chambers, British Chambers do not engage on the European agenda, so there is no British representative for SMEs to stick up for them.

The Chairman: Yes, but surely BIS gets involved in this. Remind me, Members, we had a study on the one-stop shops, do you remember, and the single point of contact. Who was that? Was that BIS?

Professor Brook: Yes, they are our national points of contact.

The Chairman: They are reactive rather than proactive; is that what you are saying?

John Hill: They have a total agenda. It is not particularly for SMEs. It is for all aspects of British participation.

Professor Brook: They will tell you about mechanics and how the system works, but I am not sure they are terribly engaged in the content and directing the strategy from the point of view of content.

Professor Ritter: Could I add to that? My experience with BIS is that they are very consultative, certainly on the EIT and all the discussions that have been going on concerning the EIT within Horizon 2020. It represents about 3.5% of the Horizon 2020 budget, and there are three current KICs and then the potential for new ones. I am regularly sent the papers that are going through Council and Parliament. We have the opportunity to comment on them. I discuss them within my KIC community and the SMEs have representation on my board so that they can have a voice there. It may be that if you have a specific instrument like the EIT it is much easier to be focused and have a focused discussion.

The Chairman: It does look as though somebody needs a bit of push somewhere.

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Professor Ritter: One of the curiosities of the EIT is that, although it is in Horizon 2020, it is the one in it that is not under the directorate of research—it sits in education (DG EAC). I do not know whether that makes a difference but certainly BIS's response to most calls from Brussels are very highly regarded by the Commission's recipients. They are very thoughtful.

Professor Brook: I would like to reinforce that. I think the Commission seeks out the UK opinion and viewpoint on a lot of things.

The Chairman: Yes, we find that, too.

Professor Brook: Our views are very well received, but I think the problem is with probably not putting enough resource as a nation in walking the corridors in Brussels and having people out there. We do quite a lot of consultation within the UK. I suspect that there is some representation on things like the IET board and so forth, but I do not think it is sufficient.

Lord Clinton-Davis: You have made your concerns very clear to us. Who else do you make them clear to?

Professor Brook: We make it clear to BIS mainly.

Q23 Lord Kakkar: Just to come back to this point because it is quite important: we have heard how vital activity in the SME sector is for stimulating economic growth and we have concluded that previous programmes in research and development innovation in the European Union have provided important opportunities, but how do we ensure that the SME sector in the United Kingdom engages properly in Brussels? That is the key question. Is it that BIS have to put more effort into both engaging with the Federation of Small Businesses and the Chambers of Commerce here and helping them engage more, or is it that BIS have to do more engagement themselves in Brussels—as you say, the Brussels corridor influence? What exactly needs to happen to ensure that our SME sector can take full advantage of Horizon 2020 investment?

Professor Ritter: My colleagues might disagree, but I would have thought BIS was best engaging with the networks that are within the UK in which the SMEs are members or are integrated, because I think you need bodies that represent SMEs. There are such a large number of them. There are obviously other bodies as well, but from my experience I think that this is where the KICs are so good for SMEs because they do represent them. It is also where having a longer term community is very useful because you get to know who your SMEs are and you know how to consult them and then you can put forward a collective view. BIS do engage with us but obviously there are other communities that perhaps would be useful.

Lord Clinton-Davis: Coming back to the question I asked, you said you made representations to BIS. What has been their reaction?

Professor Brook: I think things are moving in the right direction. We have a number of organisations that are capable of helping hand-hold SMEs into Horizon 2020. One set is the Catapults and the Catapults are charged by the TSB through BIS, or BIS through the TSB, with getting SMEs engaged in innovation, and that includes getting engaged in Horizon 2020. There is John's organisation. There are the other research and technology organisations that can hand-hold SMEs into the programme. I certainly remember talking to the European Commission about getting the SBIR lookalike—that is the American small business support

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scheme—replicated in Europe. Now, this is radically different because it means that SMEs can engage with Horizon 2020 without having to find partners in countries with which they may not be familiar.

The Chairman: Like Poland or whatever.

Professor Brook: Yes. I think the instruments that are available for the SMEs to utilise hopefully will be a lot more SME-friendly in Horizon 2020. I think the Commission have listened to advice and I think that BIS has listened to advice and that things, provided they finally get realised at the end of the day, will have moved forward in that respect. Therefore, I am hoping that it will be easier for SMEs to get involved in Horizon.

Q24 Lord Kakkar: Hope is a very important thing but, just to be clear, has enough been done? If all of this materialises would you say that we have created the perfect environment for our SMEs to interact with this important funding stream in Horizon 2020 or is there more beyond what is proposed at the moment?

Professor Brook: I think there is more.

Professor Ritter: I am sure there is more.

John Hill: There is much more and BIS specifically have a massive opportunity between now and June to do something specifically more.

Lord Kakkar: What is that more?

John Hill: Three words: instruments, integration, facilitation. First of all, David Willetts's team, through the competitive council, should make sure that for SMEs this new dedicated instrument is sufficiently funded within the money that is available—so instruments first. Next, integration—and this is here in Britain. BIS are already talking about it. They talk about the big four BIS programmes: UKTI trade teams, mass manufacturing advisory service, Growth Accelerator and the TSB. Integrate much better the programmes that are touching the SMEs so what you are getting is a supply of SMEs with great ideas into the framework programme of Horizon 2020. Get the right balance of instruments; integrate better here so you are getting more good quality SMEs with the right ideas being put forward. The third one, and Richard mentioned it, is facilitation. There are already some great actors, whether it is Growth Accelerator programme or manufacturing advisory service that is already paid by BIS or whether it is the universities themselves or members of Richard's association. Get those facilitators facilitating the SMEs to get involved in the framework programme. SMEs, when they see it, are just scared to death of all the bureaucracy.

The Chairman: Yes, I am sure that is right.

Lord Kakkar: These SMEs get scared to death. How easy is it when they look at these to identify a point of contact or something or somebody that takes away their fear so that they do not have to be afraid and they can have the opportunity opened up to them?

John Hill: I am an engineer so I am going to have to do something with engineering. Think of it like a modern car engine and the AA. If you break down, certainly nowadays, you do not put your head under the bonnet because it is too complicated. There are already experts in research institutes, in Richard's organisation, in universities, that are expert in putting things together for the European Commission. Go to the man who can.

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Lord Kakkar: Can I just declare my interest as well, as I should have done originally? I am Professor of Surgery at University College London and, of course, eligible to receive EU funding for my research, as is my institution.

The Chairman: Can I just mention the word UKRep to you. Does it mean anything?

John Hill: Yes.

The Chairman: Are you in dialogue with them?

John Hill: Definitely. We have found Scott Hudson very helpful.

The Chairman: They are a terrific unit and I do not think they are utilised anything like enough. I was just envisaging a situation where the three of you could go over to Brussels and give them a presentation and just say, “This is what we want. Keep your ears to the ground and just get on with it”. I think you have asked your question, Lord Clinton-Davis, have you not, about connections? Yes.

Q25 Lord Wilson of Tillyorn: I declare an interest as a trustee of the Carnegie Trust for the Universities of Scotland that, among other things, does some financing of research in universities. Would you give us your views on how successful the EU has been in securing co-financing and other kinds of support from big business and industries for EU projects that have a strong element of research and innovation? At the same time, taking the SMEs, have they been as successful in getting SMEs to take part in EU-funded strategies and their projects? Those two bits, please.

Professor Brook: We half answered this earlier on. Yes, I think, as far as the large companies are concerned where they can drive the agenda, they have been pretty successful at getting them involved. The UK is under-represented in that category because we do not have so many strategic large companies. As far as SMEs are concerned, my impression in general is that, apart from some notable success on my right through John, SMEs have not done terribly well, partly because the instruments and the mechanisms have not been SME friendly.

Lord Wilson of Tillyorn: I am sorry, could I take that a little bit further because you did, as you say, answer both of those in a way? Could you give us an example of how the big businesses have become involved in a couple of projects? I thought the examples you gave earlier were tremendously significant because it gives us a grasp of the thing. The second question is on the SMEs. We talked a lot just now about what SMEs are or are not doing here, but what about the other way round—Europe to SMEs; in other words, them seeking out British SMEs?

Professor Brook: I think as far as the large companies are concerned, if you look at Siemens and similar people, they will get in and they will determine the agenda for their particular areas of interest. The aerospace companies will go in and determine the aerospace agenda, whether that is cleaner aircraft for the future or whether it is a transport-related topic. I do not think I am in a position to give you a specific project, but it is quite clear that the companies are engaged in writing the scopes for these programmes.

As far as SMEs are concerned in other countries, my experience is that they suffer similar difficulties with engaging that we do. On the expert group that I am on and the panels that I have been on I hear from France, the Netherlands and everywhere else about the difficulty of their SMEs becoming involved and, “Please can we have more focus on getting SMEs

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involved and more SME-friendly measures within the programme”. But, John, you may have more experience.

The Chairman: Yes. Professor Ritter was first.

Professor Ritter: Just to follow on from that, this comes back to where I think having a large and long-term community makes a big difference because you do not have partners coming together for a specific project. They come together for the entirety of the community and then they may be involved in several projects. Our projects are all pull rather than push projects so business is involved from the very beginning. As I said earlier on, 47% of our partners are from business, only 32% are from academia and the remainder are regional and local governments so we really do have business partners, and in fact, our partnership has grown from 15 in 2010, through 88 and then 120 and now 165 in 2013, and the sector that has grown has been business and it has been both large and small business.

That is one thing. The other is, as I said earlier, 75% of our funding does not come from the EU budget, it comes from the partners. A lot of it is in kind—it is people’s time, it is equipment and so on; but 40% of this comes from the business sector²³ and 60% comes from the university, so I think there is genuine buy-in. One quarter of our partners are SMEs and that is a sector that is growing. I said the partners came from all over Europe; they do. We come together at 11 hubs and five of them are what we call co-location centres, which are physical locations where you can come, where students get their entrepreneurial education and our students start spin-outs themselves, but where the entrepreneurship business support comes—where research is done.

Those co-location centres are in the UK, France, Switzerland, Germany and the Netherlands. But we also have six—what we call—regions in our regional innovation and implementation community. I am sorry for all the long names, but the regions are led by regional or city governments and they have universities; they have businesses, large and small, with them as well. They are the eyes and ears of society and tell us what the societal challenges are. If you are a city mayor and you have a carbon target, how do you face it? What challenges do they have? They also act as the test beds for testing new innovation in technology or policy and in scaling it up, and they have SMEs, so it is a very large community that gives SMEs a lot of opportunity for getting in contact with big business. Yes, we have UK big business but we have big business from across Europe.

Q26 The Chairman: I have just been told that businesses are paying for the climate change institute. Why is that?

Professor Ritter: Sorry, who is paying?

The Chairman: Business.

Professor Ritter: Business, for the climate change institute?

The Chairman: Yes.

Professor Ritter: I do not know what—

The Chairman: You do not know what it is?

Professor Ritter: —the climate change institute; it is not me.

The Chairman: Why do large businesses invest in your climate change institute, the KIC, the Knowledge and Innovation Community for Climate Change?

²³ Note by witness: Overall, approximately 25% of this comes from the non-academic sector.

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Professor Ritter: Why do they invest? If you ask big business why they want to be part of the community, they say, “We have challenges, we have demands. We know that there must be a lot of bright ideas out there but we do not know how to access them so if we come to your community then will you put us in touch with those bright ideas”. The bright ideas come from the students, from the start-ups, from the SMEs who say, “We want to get in touch with the demand side but we are quite small. If we go to a big company they probably will dismiss us. What you do, as a KIC, is to give us a seat at the top table”. Each type of partner gets something quite different out of the community. We are trying to think of a good term for it. We used to call it sheltered innovation where innovation could flourish within the shelter of the community but then it sounds as if we are being rather soft on them and we are not—we are very tough and only pick the best.

At the moment we are talking about accelerated serendipity, if you like. We engineer the encounters and put partners in contact with each other to accelerate innovation and we have a lot of different tools that we are developing to bring them together. I hope that has answered your question.

Lord Wilson of Tillyorn: You very kindly answered about from the UK to the European Community—that direction. Just one question: to what extent does the European Commission go out and search for SMEs in order to involve them?

Professor Ritter: We in Climate-KIC do the searching. What happens is that, for us, we put in an annual business plan to the EIT, which is devolved from the Commission, and then they give us a budget. But we search the partners so we have a partnership strategy. We have areas of focus that we work on so we then develop the partnership that suits that focus.

Q27 Baroness Scott of Needham: We have just concentrated so far on policy and funding and the way in which all this feeds into strategic objectives. I wonder if you could say a little about the legislative and regulatory framework at a European level—first of all, the extent to which a positive legislative framework is needed and required, and then also looking at it negatively in the sense of whether you find sometimes that regulatory decisions made for some other purpose get in the way of this innovation and research agenda.

Professor Ritter: I think the answer is yes to both halves. With the KICs it has been particularly interesting but tough. There was no legislation when we started because we were new and there was nothing quite like it, for example we are not quite like FP7, although a little bit has been borrowed from it. One of the things that slowed us down a lot in probably 2010 into 2011 was that we were developing our own legal documents but the EIT was developing its own and it has been developing its financial autonomy from DG EAC. It does not have full autonomy yet but the concept is that it will, so that it is an institute rather than just an instrument of the Commission. In one way, in answer to your question, it has been a lot of work and it has slowed down innovation because we have been developing things de novo. But on the other hand, as things are progressing, the regulations provide a bit more autonomy and a bit more flexibility than perhaps with something more standard like FP7. It is good and bad, I would say.

John Hill: I am very much an SME answerer, so for me the aspect of SMEs’ regulation, in terms of their relationship with innovation, is relatively neutral except for occasionally a regulation changes the dynamic in the market—because you simply cannot sell it that way, you have to sell it another way. That stimulates an SME to become innovative in creating a solution to that and if someone can create a cheaper solution to it—be it complying with a

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regulation for how a new product needs to look now—then that gives an opportunity for growth and sales so regulation can be a stimulus of innovation.

Baroness Scott of Needham: That is very interesting and I had not thought about it. How good would you say the mechanisms are for potential innovators to see things coming down the road, because all European legislation has a long lead-in time? So if you think there is going to be some regulation that detects horsemeat in beef lasagne, for example, and new regulations were being considered—how good is the intelligence?

John Hill: The mechanism for that does not work too badly at all. The European Commission have currently an instrument—it does not matter what it is called—but it is basically to fund a load of SMEs with a common problem, related to some upcoming regulation, to develop a solution to it. It is quite a good instrument and the people that play a great role there are the trade associations. For instance, injection moulders: they all have the big problem that they are going to get whacked with an energy tariff because injection moulding machines use loads and loads of energy. They can flag it up to their members; the members get together and try and develop a solution for them all to share in. There is quite a good instrument for that already within the European Commission, and the trade associations nationally make that thing work.

Q28 Lord Brooke of Alverthorpe: I have a couple of questions. If I may just go back to Mr Hill's earlier answer, you said that BIS has, until June, a great opportunity to turn things around. Do you think you will be kind enough afterwards to send us two or three questions that we might put to BIS?

John Hill: I would enjoy that.

Lord Brooke of Alverthorpe: It is to see if we can ensure that they are working at it and that there in fact will be, come June, an opportunity to test them on whether or not they have delivered what you think should be delivered. We would find that very helpful indeed.

The Chairman: I think it is very interesting and absolutely marvellous that we are asking witnesses to do our jobs. However, you might get a better answer.

John Hill: Yes, absolutely.

Lord Brooke of Alverthorpe: Thank you very much indeed. Do you think that the EU can add value with ideas and funding in non-traditional areas of research and innovation? For example, we have already heard that the CBI cannot produce that many major strategic companies to get involved but we do have a very big industry in finance. Is there any opportunity, do you think, for work, research and development to be done at European level in those areas where we do have a big interest, or in other technical areas, such as the development of new business models and so on where we have a good reputation in consulting and advising business on what they should do, even though sometimes we do not quite build the business ourselves?

Professor Brook: We tend to think that way in terms of technology and technical things in relation to research and innovation. Often the key to competitive success is the business model and I would be all for mechanisms that encourage new business models and let them be tried out. The difficulty with a new business model, if you have an innovative business model, is finding a market or a customer who will have the courage to adopt your business product or service. The European Commission can act as a client to try out business services based on new business models. That is not quite the same as supporting research and innovation through a grant in the way that we have just been talking about.

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But there is another way in which the Commission can help to stimulate innovation and that is by acting as a first adopter client and taking on innovative products and services to allow the high growth SME to deliver its product or service to a customer. That has the advantage of encouraging a customer-supplier relationship rather than dependency on grants. It has other leverage because if the SME is looking for investment to grow its business from a backer such as a venture capitalist, and if it can show you have traction in a market because it has customers, it greatly increases the chance that it will get private investment into its business.

So, there are all sorts of ways in which the Commission could stimulate innovation in addition to providing grants for research and innovation as we have been talking about here. But I think these are different kinds of transaction; with the Commission acting as a customer for somebody supplying something innovative that will otherwise stay on the shelf because no one has the courage, if you like, at that point to take it on board.

Professor Ritter: I—

Q29 Earl of Liverpool: The European—

The Chairman: Oh, sorry. Professor?

John Hill: I would like to answer that one as well.

Professor Ritter: Just a quick answer that is a little bit different, which is to say certainly in the area of climate change the main or some of the main purchasers are the regional and city governments and there we are doing quite a lot of work. There is a lot of opportunity for the EU to fund work for the take-up and implementation of innovation, and to take up clusters of innovation. Certainly these partners of ours are very interested in developing business models but particularly financial models, models of procurement. I think there is a huge opportunity there. It is no good having fantastic technological advance if you cannot get it implemented.

Lord Clinton-Davis: That is about your relationship with the Commission, but what about the European Parliament: what is your relationship with them?

Professor Ritter: I have a relationship with some MEPs. The MEP in the UK I have the closest relationship with is Malcolm Harbour, who has procurement as his speciality. He has been involved with our Climate-KIC region in the West Midlands originally with Advantage West Midlands, which used to be one of the regional development agencies.

The Chairman: He was our witness last week.

Professor Ritter: Oh, was he?

The Chairman: Yes.

Professor Ritter: Right. Yes, he has been extremely supportive and very helpful.

Lord Clinton-Davis: But do you have any relationship with the Parliament's committees, relevant committees?

The Chairman: He is the chairman of the parliamentary committee on the Internal Market.

Professor Ritter: Yes, we do with some of them but particularly through contacts like Malcolm and also Maria da Graça Carvalho. She is an alumnus of Imperial so I know her

Professor Mary Ritter, Climate-KIC, Professor Richard Brook, AIRTO and John Hill, Growth Accelerator—Oral evidence (QQ 15–35)

through that.²⁴ She advised Barroso on it, so we have different routes in and I am sure my colleagues probably do as well.

The Chairman: Mr Hill, you also wanted to answer?

John Hill: Yes, two answers in series. First of all, I will answer on non-technological innovation. It is something the European Commission desperately want to do but they do not know what it is and they are not sure how to measure it when it appears in a proposal in front of them. Certainly business model innovation is an opportunity, but they are going to have a real problem evaluating a proposal in terms of whether it is fundable and innovative when it is a business model. It is a great idea. I am not sure how practically it can be implemented. Conversely, or as another option, another form of non-technological innovation that probably is more easily assessed as to whether it is innovative or not is design.

The Brits are great leaders in design and a stream of proposals that does not exist at the moment around innovative design could be turning up in Horizon 2020 and could be practically evaluated as worth funding and a measure of innovation put on it. I think that would be a big opportunity for Britain having European projects that were all around design.

The Chairman: Do you have any specific products that are design gaps that you can think of? For example, I believe Dyson—Sir James Dyson—is involved with BIS, is he not?

John Hill: Yes, he is. He is an ambassador.

The Chairman: Yes, and would he not be one of those? He has huge energy and marvellous designs.

John Hill: Yes, and talking as I did earlier on about the integration world and getting all the BIS programmes to be better integrated in order to create a flow of companies into the Commission, there is another BIS programme, quite small, called “Designing Demand”, of which James Dyson is an ambassador. They go out and they are talking to companies about being innovative in design, so they could be a great conduit in to the Commission.

The Chairman: Is there anything that they would need added to their responsibilities that would achieve what you want to achieve?

John Hill: Better integration across the BIS programme so that they can connect more easily with the others and then build consortia to submit proposals on that topic.

The Chairman: We will make sure they hear about that. Thank you. Any more questions from any Members on that particular issue before I go back to Lord Liverpool?

John Hill: Yes, there is the ITRE question and we are involved quite a lot with both the Committee of ITRE and also Carvalho, Madurell and Ehler, who were the three big rapporteurs. They are three big reports, one on the budget, Madurell; one on the structure, Carvalho; and one on the rules of participation, Ehler.

The Chairman: You seem to be well switched on and hooked in or hooked up.

Professor Ritter: We also have been liaising on that and have appeared—

The Chairman: I see, and you likewise?

Professor Brook: Yes, in specialist areas, yes.

²⁴ She is a full member of the ITRE Committee Chairs the Friends of EIT group of MEPs.

Professor Mary Ritter, Climate-KIC, Professor Richard Brook, AIRTO and John Hill, Growth Accelerator—Oral evidence (QQ 15–35)

The Chairman: Yes, I am so delighted that we are getting this sort of information because we tend to think that nobody is taking the initiative from this country. That is very good. Lord Liverpool.

Q30 Earl of Liverpool: Thank you, Chairman. The European Commission created an impact assessment board in 2006 and the European Parliament recently created its own impact assessment unit. I have two questions. The first is: do these two units or organisations sit happily side by side and complement each other? My second question is: do you believe that they have led to better EU proposals in terms of clearly stated outputs, outcomes and impact, and that old favourite, European added value?

John Hill: The European Commission’s evaluation that you referred to, again talking about SMEs, measured in fact that there was nearly no impact on growth of the SMEs participating in Framework Programme 6 and Framework Programme 7. There was no impact on growth from their activity. It also asked them a reasonable question: is your participation in this EU project strategic to your company? Only 22% said it was strategic to their company so they were participating for reasons that were not to do with growing their company, quite often just to get paid because they like getting paid to do R&D.

The Commission’s 15% that they have achieved of SMEs is fairly well cooked, in that it is not SMEs that are in there as active enterprises in the market. There are a lot of consultants within that 15% that have been measured because simply they hit the criteria of being an SME. They are not a practising enterprise that will create growth though. So the Commission know and the European Parliament evaluation body know that their SME participation is not entirely real at 15%. The Parliament and the Council have said that it must go up to 20% in Horizon 2020. The question is how. The Commission have created a very powerful instrument to allow that. I, and many of my colleagues, suspect that the inertia inside the Commission will stop that happening because to use that instrument requires change and there is a very, very large amount of civil servants in the Commission that do not want change; they want to just keep doing things the way they have always done them. Although this SME dedicated instrument features in the text, in practice the Commission are brilliant at taking text and then interpreting it in a way that they do not implement it.

The Chairman: Are there any other comments?

Professor Brook: I think I have seen the impact statements turn up in various calls for proposals and text. I worry slightly that this, if we are not careful, is a box ticking exercise. “We have to have an impact statement, therefore there will be one”. I believe that it causes them quite a lot of work to produce these impact statements. As far as Framework 7 is concerned, I do not know whether I could say yet that it has produced better proposals or projects. From the time I started seeing them it is too early to tell, but arguably it is good to go through the thought process which you have to go through in producing an impact statement. But whether it produces a better result, I do not know. Interestingly, going back to my contact with Members of the European Parliament, they have been the ones pushing for, “Let us do things differently in Horizon 2020”, and the Commission has struggled with that. I think the Parliament is very keen to do things differently but, as you rightly say, there is always inertia in a civil service bureaucracy that tends to convert the drive for change into something a lot less than it was originally intended to be.

The Chairman: Could you expand on that? If you have had this cry from Parliament, what specifically do they think would assist better than having an impact assessment that does make you think, as you have already said?

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Professor Brook: They were not explicit about that in my conversations with them. They just said, “We want it to be different”, and I do not think they were coming up with solutions.

Q31 Baroness Scott of Needham: Could I just have a supplementary to that? Is there an almost existential problem that if you are working in an area of innovation, that almost by definition it is quite difficult to have box ticking exercises that measure and evaluate things? How do you fulfil the obvious need to see that things are evaluated properly with a real understanding of something being new and therefore difficult to measure?

Professor Brook: Yes, I think there is a problem.

John Hill: With another hat on now as the outgoing president of TAFTIE, which is all the national innovation agencies: the national innovation agencies for years have been running away from impact assessments because it is the last thing you want—an agency that gives away money for R&Ds to be asked to do an impact assessment, particularly around what Governments really want, which is jobs and growth. Not the European Commission but a number of the national innovation agencies—VINNOVA in Sweden, Tekes in Finland—have started doing quite, “I am being held to account here” evaluations, and in fact within TAFTIE we have working groups to share the knowledge of how to measure, so there are ways to measure jobs and growth as impact. It is just that when you do it that will create the need for more radical change and there is inertia in the system that does not want radical change so would love to avoid being held to account or measured on impact.

Professor Ritter: Certainly I agree with the comment that too much of this is anti-innovation, if you like, and there is a lot of the Commission that is squeezing rather than helping innovation. But with the EIT, there is a move towards measuring output rather than input and measuring impact, so we have KPIs that all three KICs are compared on, on an annual basis, and the money we get—part of a third of it in 2013—depends upon your past performance. Each of the three KICs also has their own scoreboards with KPIs. We are run like businesses, which is why we have a CEO and we are a single legal entity.

The Chairman: Yes, you are falling into the trap, Professor Ritter, of giving acronyms. KPIs are key performance indicators.

Professor Ritter: I am sorry, key performance indicators. I hate myself for doing it, I must say.

The Chairman: No, it is just we have them all the time.

Professor Ritter: Yes.

The Chairman: So many of them double up in different industries, it is very difficult. That is very interesting but I just hope that people realise when they are in research and innovation that they too are being funded by somebody and we all have to be held to account for the funds that we use. There is no taxpayers’ money out there, which leads me neatly on to Lady Valentine’s question.

Q32 Baroness Valentine: Yes. Can I just come back on one of the earlier points, which is the culture in the Commission that you were touching on there? I would have thought in the British Government, talking about using procurement as a means to innovate, there is quite a lot of risk aversion because the Public Accounts Committee, when you have innovated and got it wrong, is going to be breathing down your neck and I do not know to what extent that is a European Commission problem as well. Let me ask the question I am

supposed to ask. How have the economic crisis and the atmosphere of austerity in many EU member states impacted on the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

Professor Brook: I think from my contacts that it has affected the other European nations in much the same way as you would expect, and as it has affected us, so my Spanish colleagues are in severe difficulty in terms of funding for their institutions. It has caused people to look at Horizon 2020 in terms of, “If our national programmes are being cut, this is the only place we can now go so please do not cut Horizon 2020”. Therefore, I would have to say that the levels that were originally proposed, yes, were appropriate. It would be a pity to see them cut. Different countries though, have different takes on this, so the French, the Germans, the Italians, Spanish, Portuguese, all have a slightly different perspective given the way that their Governments are managing their difficulties. But they all are saying, “Please preserve European level spending”.

Baroness Valentine: Is there any truth in what one of our earlier witnesses was commenting on: if you were putting in a bid for money it is good to go in with a poor country, because that reinforced your chances of getting your grant? Does that resonate at all?

Professor Brook: That certainly used to be the case. In my involvement in Framework 6, that was certainly a question of going around and looking for a politically advantageous country to get involved with. My more recent involvement is with the space community, which is rather different and with a different kind of collaboration—certainly they are encouraged to involve new countries in software work, for example, as it is much easier to gain entry into that domain. But there are constraints in the way that the community operates, which means that consortia are—because they have maybe been working together with ESA—already preformed, so it is harder for some of the Eastern European new countries to become involved. For that reason, I have not seen as much of this in Framework 7 as I saw in Framework 6, but that may be peculiar to my particular involvement.

John Hill: To answer the first part of the question on the impact of the economic situation, what we have seen—rather boringly I have been involved since FP3—and looking at the negotiations for FP8, is that the impact of recession creates a need to see more of Horizon 2020 deliver growth, rather than being a little bit more stand-back and longer-term and talking about the wonderful greatness of deep science and technology. There is more emphasis on “Can we get growth out of this?” as well as the longer term. To answer the question, “Is 71 appropriate then?”, while it is not 80, it is bigger than 55—meaning that at least we are going forward. It gives us €10 billion a year; 2013 was €11 billion a year. It would have been great if we could have the continuation, but €10 billion a year is not bad; it is good. It is a lot better than €55 billion over 7 years. I think it is good. The real nub of it is what you are going to do radically different to make that money you spend more effective. It is not so much the total number, 71 versus 80; it is the balance of how you fund different instruments to get more out of it.

The question on tokenism: it used to be rife. The big joke was, “You have to have a token Greek in FP5”. You do not see that any more; the evaluation system is much more robust and they really are looking at the merits, both in the business and in the scientific aspects of the proposal. Tokenism really does not swing it anymore, but it used to in the early days.

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Professor Ritter: I agree, it certainly did swing things, but now does not. I think FP7 and the European Research Council have really been pretty impeccable in funding excellence. There are ways of involving the whole of Europe, and I know within quite a few instruments in Horizon 2020 the word “outreach” has infiltrated. Certainly, what in the KICs we are trying to do is not to dilute excellence, but where there are small pockets of excellence in parts of Europe that are not in the north and the west then to involve them. That is where we use our regions, where actually we are not looking for top universities or big business; we are looking for governments, for SMEs, for implementation. There is a lot of excellence of a different type of experience of on the ground and what is needed in terms of climate change—what are the challenges. I think there are quite clever ways of involving the whole of Europe and yet maintaining your academic integrity.

Q33 Lord Kakkar: I just come back on the question of excellence and impact, and the European Research Council having had a very clear focus on that in the current funding programme. Moving forward, and picking up on the point that was made about national tensions, do you think that there is a real risk with austerity in certain parts of Europe being very pronounced that national governments will try to influence the expenditure here to meet national needs, potentially in building local capacity rather than focusing on excellence and impact—as has been done before—and what do you think should be done to insure against that?

Professor Ritter: I fear there will be pressure because, I think, as austerity bites then if countries that are not so successful with these funding instruments see money going perhaps to the countries that are relatively well off, it is going to cause more and more political pressure. I have certainly felt it already in the sense that with the new wave of KICs being proposed to start in 2014, or to be announced in 2014, there have been a series of what are called EIT awareness days, that countries right across Europe have been organising to find out about EIT and future KICs. It is perfectly reasonable: they want to know what they are and whether they can participate. But I can see that there are expectations that are being raised that may well lead to either disappointment or some very difficult decisions.

Professor Brook: Another innovation, if you like, going forward with Horizon 2020, is the view that when money is short Horizon 2020 ought to operate alongside the structural funds. Therefore projects could be funded partly by Horizon and partly by the structural funds. That is an innovation, but it does introduce an interesting potential complication, I think, in terms of how those regions that would be going after the structural funds will also be looking at Horizon, and what effect that may have on how Horizon’s money is used.

The Chairman: I think you are very right on that one. They are already looking at them; I have heard this mooted quite a bit, both here and in Brussels. Raid the funds.

John Hill: I think there are two ways to reduce the national involvement in pulling money into certain countries. Firstly, within the thematic areas of Horizon 2020, leadership and industrial technologies and societal challenges, if you have a majority of academics and business and little government agency participation, then you should dilute the impact of going to national interests within what I call the top-down method of funding, where the Commission define what you are allowed to bid on as a thematic topic. The other really simple one is more use of instruments that are bottom-up. There is no requirement for, “You will give me a proposal on this topic”, which might have a national benefit—aerospace, for instance, only benefits some countries—but if you leave in bottom-up so the companies can propose what they want, then you dilute out completely national interest because you have companies proposing something that is good for them.

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In terms of structural funding, the Eastern European and the new member states will be getting, as we know, the majority of the cohesion funding, and it is very common, if not totally normal, that they will be using that to fund programmes that engage with SMEs in their country. So they use the ERDF to generate more participation in Horizon 2020 by funding programmes on the ground to get interest and to help facilitate them in to Horizon 2020.

Q34 The Chairman: Another heading, in other words. Thank you very much, it has been a really fascinating session. I have one further question for all of you and that is: if you were in my position, what question would you have asked that I did not ask and would you please answer it?

John Hill: I think I would have asked what could be done within the current envelope of €71 billion to make that €71 billion most effective in terms of funding different parts of the programme. My answer to it would have been: fund the new dedicated SME instrument because it will create more growth.

The Chairman: And be more instantaneous, and actually visible.

John Hill: I would not call it instantaneous; it is three or four year, but it is better than a 20 year impact.

The Chairman: Yes, indeed, and would be visible and encouraging to others.

John Hill: Yes.

Professor Ritter: I think I would have asked where I saw knowledge innovation communities going in the future; did I think they were really something revolutionary in bringing different sectors together in the long term, and did I think there should be another tranche of them coming under Horizon 2020.

The Chairman: I think that is a very good question, but I think by your performance today we automatically assumed that would happen.

Professor Ritter: Thank you.

The Chairman: The initiative is for you.

Professor Brook: I think I might have asked whether the Commission's methodology for evaluating projects is effective and properly balanced. My answer would have been that there has, up to now, been a lot of concentration on financial auditing and, to my mind, not sufficient in helping to guide the project to its objectives and evaluating the outcomes and whether they represented good value for money. I think there are some moves within Horizon to try to rebalance that, but that is largely by making the financial auditing simpler. I think the Commission could possibly do more to help projects on the way with maybe a mentor or a monitor or somebody who can stand slightly outside the project and comment on how it is progressing—a project officer, and maybe the project officers could add a little bit more value as they go forward.

The Chairman: I think really you have all come to the same conclusion, which is that people out there in the Commission ought to realise the importance of innovation and research and you will only be able to do that by results. Do not, for goodness' sake, go soft on the financial impact—not in a time of austerity. You want the last word, Lord Brooke.

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Q35 Lord Brooke of Alverthorpe: One of the pieces of evidence we have had is picking up on Professor Brook's point that in fact much of the assessment should be outsourced, rather than left with the Commission doing it.

Professor Brook: Assessment at the level of?

The Chairman: The impact assessment type of thing.

Lord Brooke of Alverthorpe: When the claims are coming in for new projects. More of it, rather than the Commission having so much influence.

Professor Brook: I am not sure about that. There is no easy answer to this. However you do it, the assessment will be a set of opinions with whom the original proposer may or may not agree. You are damned if you do and damned if you do not. I think if the Commission is not involved in the assessments, it is more detached from what is actually happening. There is some value in the Commission being involved because it can then have a first-hand view of what is going on. If you outsource the whole lot, then I suspect the officials would become more detached from that part of the process. I do not know that I can give you a clearer opinion.

Earl of Liverpool: I liked your idea of having project mentors. It seems a very good idea to me: how would you actually arrive at having these people? Would they be employed by the Commission, or would they be somehow self-employed?

Professor Brook: I think you take it from your pool of assessors and experts on advisory groups. In the UK, we have done this in the past with the research councils, where very large projects—multi-university projects that have had large budgets—have been assigned a mentor. The mentor might have come from one of the programme committees within the research council. It is the pool of people that the research council, in that case, was in touch with and when the project was approved a mentor was assigned. I have done it myself in the past, and personally it has been very beneficial both for the mentor and indeed the project.

The Chairman: Again, thank you very much. We have kept just within time, to within one minute. We thank you again. It has been a very useful session.

DARPA (Defense Advanced Research Projects Agency)—Written evidence

DARPA (Defense Advanced Research Projects Agency)—Written evidence

The average time from proposal receipt to contract award for DARPA research programs is 150 to 180 days.

19 March 2013

Design Wales and RAND Europe—Oral evidence (QQ 54–67)

Design Wales and RAND Europe—Oral evidence (QQ 54–67)

[Transcript to be found under RAND Europe](#)

EADS UK and Airbus—Written evidence

Introduction

1. EADS UK and Airbus welcome the opportunity to respond to The House of Lords Internal Market, Infrastructure and Employment EU Sub-Committee Inquiry on the Effectiveness of EU research and innovation proposals.
2. This response opens with an executive summary followed by background information on EADS and Airbus in the UK. It then addresses some of the specific issues raised by Committee.
3. We would be delighted to contribute to any further work investigating a broader range of issues beyond the scope of this present inquiry

About EADS UK

4. EADS is a global leader in aerospace, defence and related sectors. The EADS Group of companies includes Airbus, the leading manufacturer of commercial aircraft, Eurocopter, the world's largest helicopter supplier, Astrium, the European leader in space programmes from Ariane to Galileo, and Cassidian a leading provider of cryptography, border security and other security solutions. EADS is the second largest aerospace and Defence Company in the world and a major partner in many of Europe's largest aerospace projects, including Eurofighter Typhoon. EADS has a major industrial presence in the UK. Over 16,800 highly-skilled jobs are directly employed at EADS' 25 key UK sites, and a further 135,000 jobs are indirectly supported throughout the UK supply chain. EADS invests around £2.8bn annually on research, of which £390m is spent in the UK.
5. EADS Innovation Works is the corporate research facility based in Filton, near Bristol, and Newport, in Gwent, supports over 120 jobs in fundamental research and provides the principal link to the UK's science base.
6. EADS is responsible for the supply of Eurofighter (with BAES and Finmeccanica), A400M, FSTA, Skynet 5, DII (Secure Network), Cormorant, crypto and (through MBDA) Storm Shadow, ASRAAM, FASGW and Brimstone
7. EADS, through its divisions, has a strong presence in the EU Framework Programmes, having participated in more than 350 projects in the major technology sectors of aviation (Airbus, Cassidian), security (Cassidian) and ICT (Cassidian). EADS participation has included basic research, supported by Innovation Works, its research division as well as topics of greater technology readiness level.

About Airbus

8. Airbus is a global company, the world's leading aircraft manufacturer. Airbus consistently captures approximately half of all orders for airliners with more than 100 seats. In 2010 Airbus achieved a 50.7% share of the global civil airliner market.

9. Airbus directly employs around 10,000 highly skilled people in the UK and supports 100,000 further jobs in this country through the company's supply chain and from induced employment in local economies. In total, Airbus and its UK supply chain provide products and services worth nearly £2 billion annually to the UK economy.
10. Airbus invests heavily in research and innovation activities and was named the 'Best European Investor in Europe' at the 10th annual World Investment Conference in La Baule, France. Of the 2 billion euros that Airbus invests annually in R&D&T activities, over 90% of our research investment is made in areas relating to the environment and sustainability of aviation, including reducing noise and fuel emissions.
11. Airbus has two sites in the UK located at Filton, near Bristol, and Broughton, in North Wales. Together, these sites are responsible for the design, manufacture and assembly of the wings of all Airbus aircraft, as well as landing gear and fuel systems integration.
12. The largest factory to be built in the UK in the last 25 years is Airbus' West Factory in Broughton, where the wings of the A380 are made. In October 2011, the Prime Minister and the First Minister of Wales opened Airbus' new North Factory at Broughton where the wings of the next generation aircraft, the A350 XWB, are built.
13. In 2012, 86 new apprentices joined the company together with 57 new graduates joining its "Direct Entry Graduate" scheme. Airbus runs one of the UK's largest apprenticeship programmes and has taken on over 900 apprentices in the last 6 years.
14. The wings are one of the most technically complex parts of an aircraft. They define its overall aerodynamic performance and are crucial in securing excellent eco-efficient solutions. Any audit of UK technological performance would rank the wing technology Airbus has developed in the UK over the past three decades as one of the country's most significant achievements.

About Cassidian

15. Cassidian, the defence and security division of EADS, is a worldwide leader in global security solutions and systems, providing Lead Systems Integration and value-added products and services to civil and military customers around the globe: air systems (aircraft and unmanned aerial systems), land, naval and joint systems, intelligence and surveillance, cyber security, secure communications, test systems, missiles, services and support solutions. In 2011, Cassidian – with around 28,000 employees – achieved revenues of €5.8 billion. Cassidian invested €275 million to R&D activities in 2011.
16. Cassidian has UK headquarters in Newport, South Wales employing around 1000 people at this site. Cassidian personnel are based at other customer sites including the GOSCC in Corsham. Cassidian UK works closely with the Newport branch of EADS Innovation Works - the EADS network of research facilities, scientists, engineers and academia. Innovation Works fosters technological excellence and business orientation through the sharing of competences and means between the four Divisions of the EADS Group (Airbus, Astrium, Cassidian and Eurocopter) and partnerships with world-famous schools, universities and research centres.

17. Cassidian has a wide portfolio and for the UK this includes: IFF (Identify friend or foe) black boxes for UK Armed Forces that prevent friendly fire incidents; Tetra mobile radios and base-stations for the Emergency Services and Secure networks for both businesses and Government.
18. EADS Foundation Wales is established as a not for profit Company limited by guarantee and comprises EADS & the Welsh Government, with Cardiff University representing Welsh academia as an advisory member of the board. The Foundation was established to support R&T projects and EADS and Wales Government fund the agreed forward Research & Technology programme worth around £2M pa on a 50/50 basis. EADS Foundation Wales is committed to extending its reach to the Welsh SME sector and sets aside a considerable fund - £500K - each year.

About Astrium

19. Astrium is the number one company in Europe for space technologies and the third in the world. In 2011, Astrium had a turnover close to €5 billion and 18,000 employees worldwide, mainly in France, Germany, the United Kingdom, Spain and the Netherlands. Astrium has eight sites across the UK, including our two main manufacturing sites, Stevenage and Portsmouth, and owns Surrey Satellite Technology Ltd (SSTL), based in Guildford.
20. Astrium is the sole European company that covers the whole range of civil and defence space systems and services. Its three business units are: Astrium Space Transportation for launchers and orbital infrastructure; Astrium Satellites for spacecraft and ground segment; Astrium Services for comprehensive fixed and mobile solutions covering secure and commercial satellite communications and networks, high security and broadcast satellite communications equipment and systems, and bespoke geo-information (earth observation) services.
21. Astrium is a wholly owned subsidiary of EADS, a global leader in aerospace, defence and related services. In 2011, the Group – comprising Airbus, Astrium, Cassidian and Eurocopter – generated revenues of € 49.1 billion and employed a workforce of over 133,000.

General Comments

22. All of aerospace's major primes are now multinational and EU funding provides a vehicle for organisations to work collectively across borders with the supply chain in a co-ordinated manner.
23. EADS UK and Airbus understand the difficulties surrounding the EU's future budget, especially given pressure on Member States to cut public spending. Europe faces some very tough decisions about its budget for the next seven years and it must make intelligent and efficient investment of European taxpayers' money, whilst not missing the clear priorities for stimulating growth and competitiveness which will determine our future.

24. The R&D component of EU's next seven-year budget is an opportunity to provide a platform for growth and to determine where we see ourselves in a hypercompetitive globalised world.
25. Asia, for example, currently reinvests 3.5% of total GDP in R&T, whilst Europe commits just 2%. China and South Korea top the ITIF (Information Technology and Innovation Foundation) list of countries improving their capacity for innovation, while Europe lags behind way down the table. Placing Horizon 2020 firmly at the centre of Europe's seven-year budget would send a very clear message to taxpayers, to industry, to investors, to partners and to competition that the EU and its member states are committed to fostering innovation and retaining our industrial capacity.
26. The EU and its members must reprioritise the allocation of scarce budgets, to focus funding on the real growth industries and future technologies rather than on legacy sectors of the economy. Our investment in innovation today will dictate our industrial and technological capabilities tomorrow, and the jobs and growth that come with them.
27. Investment in research and technology delivers lasting benefits and opportunities across a huge range of sectors, including energy, education, transport, infrastructure, manufacturing, communications and defence. In aerospace R&T alone, every €100m invested generates another €70m elsewhere in the economy year-after-year.
28. We are not advocating that the EU's overall budget should be increased. But whatever the total figure agreed upon, Horizon 2020 should be placed firmly at its centre. It's an opportunity to define how Europe can work together more effectively, to provide a substantial platform for future growth and to determine where we see ourselves in a new world order, where the currency in which we trade will be innovation, and where this commitment to innovation secures the next generation's future.
29. Airbus is a proud partner of the European Commission's current Framework Programme. The 80 billion euros that the EU Commissioner for Research, Innovation and Science, Marie Geoghegan-Quinn, has proposed to make available for the next FP could be a great boost to European innovation and competitiveness.
30. We believe that the leveraging approach of EU research funding, which matches public and private resources, is an essential tool in stimulating European competitiveness and ensuring the region's technological leadership for years to come. A 100 million euro investment in R&T in the aeronautics sector is estimated by governments and institutions alike to raise GDP by 700 million euros over 10 years, driving as it does real innovation.
31. More could be done to protect Intellectual Property Rights: open access to results poses a significant risk to private industry. Companies will substantially contribute their own financial (and other) resources to Horizon 2020 projects. It is vital that capital investment by partners is reflected in the access rights to project results.

Detailed Response

Q1. What are the essential elements of an effective proposal relating to research and innovation?

32. There are three principles that all proposals relating to research and development should seek to encompass. These are:
- i. Encourage collaborative research between large companies, SMEs and universities;
 - ii. Reduce the overall cost and spread the risk incurred by the private sector of investing in early stage and experimental technologies;
 - iii. Enshrine a target maturity date for technology projects;
33. The Advanced Low Cost Aircraft Structures (ALCAS) project incorporated all three of these principles and has been a great success, helping to maintain and enhance the competitive position of the European Aerospace Industry. The 59 partners drawn from large and small companies and universities, worked together to reduce the operating costs of relevant European aerospace products by 15%, through the cost effective application of carbon fibre composites to aircraft primary structure, taking into account systems integration. The project was a success and the learning and results were applied by Airbus to both the A380 and A400M products.
34. As ALCAS demonstrated, while incentivising the participation of SMEs in research and development is a necessary and positive step, any proposal should not ignore the role large companies play in the commercialisation of new technologies. This is particularly the case in the aerospace sector where long innovation cycles (30 years+), high-risk and capital intensive research, requires the participation of industry to help coordinate the supply chain and mitigate risk.
35. In order to have the confidence to make major investment in research and development, all sectors would benefit from the consistency and certainty that research and technology funding brings with it. The long-term nature of R&D cycles in the aerospace sector means that stable funding regimes are particularly important for businesses in this area.
36. Funding should focus on the early stages of research and development, where Horizon 2020 can help mitigate the above-mentioned risks for companies, universities and individuals investing in experimental technology.
37. Airbus has used a NASA-based Technology Readiness Level scheme to mark the progress of ongoing research and development. These range from 'Basic Technology Research' (TRL1) through to 'Actual system flight proven through successful mission operations' (TRL9). As a general principle, research and innovation funding should target projects between TRL1 & TRL6. This is where public assistance is most valuable to industry.

Q2. Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

38. The EU, its representative organisations and officials, have undertaken considerable efforts to canvas industry and other stakeholder views throughout the development of

the Horizon 2020 proposals and programme. The involvement of ADS (UK based trade association) and ASD (Brussels based) have played a vital role in facilitating consultation.

- 39.** EADS UK and Airbus are content with consultation on these proposals. Given the large number of stakeholders involved, we believe significant effort has been taken - in terms of public consultations, stakeholder events and transparency of the policy development process. The journey towards Horizon 2020 began in November 2011 and encompassed large stakeholder events, as well as numerous smaller industry-specific events, calls for expert testimony and industry consultation.
- 40.** We are particularly pleased that the European Commission has recently launched a Call for Experts, to help develop and advise on the Work Programmes to form the backbone of Horizon 2020. It is essential that key stakeholders (both from the public and private spheres) are involved in this process, to ensure that strategic programme objectives and pathways meet with the realities of the relevant sector, and the thematic programmes in question.
- 41.** Cassidian believe that the mechanisms for effective consultation on security related topics are broadly in place. However, these appear to be employed more successfully with academia and end-user communities more than with industry. The security industry sector is particularly diverse and complex in scope. Earlier engagement with industry bodies on new topics is essential.

Q3. *The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?*

- 42.** EADS UK and Airbus refers the committee to the response provided by ADS on this question and expects that HMG will also comment.

Q4. *Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?*

- 43.** In 2012, in its Partial General Approach, the Council proposed changes to the funding rules for Horizon 2020 projects that will broadly translate into funding levels close to that of FP7: industry could recover 100% of direct eligible costs plus a 25% contribution to overheads. This would be a satisfactory situation for industry, and would hopefully prevent the steady decline of industrial participation in the EU's FPs: from 40% in early FPs, to only 23% in FP7.
- 44.** The Industry, Research and Energy (ITRE) Committee in the European Parliament has modified these proposals to lower the funding rates for large companies. On this basis, major investors in research and technology, such as Airbus, will receive significantly diminished contributions to their total real costs – a reduction of up to 35 per cent for early stage projects and 75 per cent for close to market projects.
- 45.** While the proposed rates are designed to tip the balance in favour of SMEs and academia-financing, this ignores both the reliance of large companies on EU funding, and

46. The objective of increasing industrial participation is supposed to be at the heart of Horizon 2020. Lower funding rates for large companies will act as a disincentive to industry from involvement in the programme likely reducing the programme's long-term economic impact, particularly in consolidated, capital-intensive sectors like aerospace.
47. The original positions of the Council and Commission, by contrast, would do more to contribute to the delivery of European - as well as UK - strategic aims in the aerospace sector.
48. The EU must encourage local innovation initiatives. For example, Cassidian Ltd as a Welsh Anchor Company has submitted papers to the Welsh Government (WG) on Innovation and how WG funding can support such activity. This has supported the WG business case to allocate funding for the development of Open Innovation activities to Welsh Anchor companies. The WG called a competition for innovation concepts that could achieve up to 100% of the costs incurred by participating companies in implementing or extending a framework for Open Innovation activities, enabling collaborative working with smaller companies based in Wales on commercially exploitable projects. The WG will fund the best proposals that add value to the participating companies and assist them to help smaller Welsh companies bring products and ideas to market. Of the participating companies that submitted proposals Cassidian Ltd scored the highest and will be awarded a £300K per year funding contract. The Award will cover the setting up of an Innovation company and an initial innovation pilot project.

Q5. Do EU proposals clearly state their desired outputs, outcomes, impacts, and 'European added-value'? Do you think the European Commission's Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

49. The RTD proposal must include a section on impact in the technical and management section (Part B). The impact is generally stated clearly. However this is aspirational and, while impact is reviewed during the lifetime of a project, it is difficult to make a realistic, useful and accurate assessment of the actual impact achieved, especially if this would take several years to materialise, or have its main effects in an unexpected way. In spite of these difficulties, IAB assessments are helpful.

Q6. Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

50. For large organisations like EADS UK and Airbus the EU's monitoring obligations can represent an unnecessary burden that can significantly drive up the cost of investment in research and development.
51. EADS UK would like to see a reduction in the amount of administration required by the monitoring process. For example there is significant scope for automating the collection of information to support and validate this process, e.g. using the tools provided by EMDESK at proposal development stage.
52. Concerning evaluation of proposals and review of active projects, the process is well established and transparent. However it is dominated by academic experts, whose priorities while valid are more focussed on novel research, not industrial innovation. Industry experts are often rejected through claims of conflict of interest. Their employers are no longer recompensed for their time. The conflicts of interest are too generic and vague, and the mechanism for reimbursing the employers of industrial experts should be reviewed.
53. The Commission has promised a “strengthened steering, monitoring and evaluation” of Horizon 2020 and progress will be tracked through a set of indicators every two years. Airbus understands the need to ensure coherent implementation across the programme, especially of SME participation and international co-operation, but some of the particular reporting required can necessitate substantial expenditure of auditors. This money could be put to better use in the research programmes being undertaken.

Q7. In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

54. EADS UK and Airbus are content with the support provided by the EU, as long as the policy is consistent, technically appropriate and managed with minimum bureaucracy. Other nations outside of the EU use a variety of different to provide support which vary according to local needs and Airbus ensures that it acquires good local market and regulatory knowledge in order to work with the systems effectively.
55. The exploitation of RTD outputs is very effective in many areas but its economic contribution is difficult to assess because it may take several years to materialise, or manifest itself in unexpected ways. One key area is mobile communications, where Framework Programme project outputs have underpinned the development of standards and technologies for UMTS and LTE, LTE-Advanced and reconfigurable, cognitive, communications.
56. It is also possible to identify areas where other countries achieve more, in particular the USA. The funding of RTD in the USA is quite closely tied to tangible achievements of an agreed scientific work programme: when the programme fails, funding will be cut but, more importantly, it might also be increased when successful or when significant new potential is discovered and an experienced team can be usefully reinforced.

Q8. How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national

and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

- 57.** Airbus understands the difficulties surrounding the EU's future budget. We recognise that the UK government does not wish to see an overall increase in the UK's contribution to this EU budget. This said, there are clear economic and social benefits that flow from maintaining investment in research and development. Not least, investing public funds in research has a leverage effect (on growth, employment, industrial success) that very few other activities are able to secure. Cutting research budgets at EU level is a false economy.
- 58.** Assuming the overall ceiling for Horizon 2020 remains unchanged at €87.74 billion, the European Parliament's ITRE proposals would entail a reduction of 21.27 per cent in the Transport research budget (which includes aerospace) compared to the Commission's initial proposals.
- 59.** This reduction does not reflect the continuing growth in air passenger traffic round the world and, therefore, the potential of the industry to deliver economic growth and enhanced employment opportunities. Global demand for passenger aircraft from now to 2031 is set to hit the £3.7trillion mark. The UK is in a position to make a major contribution to satisfying that demand. We currently have Europe's largest and the world's second largest Aerospace sector.
- 60.** The potential reduction in funding for the aerospace and security sectors does not properly reflect public or political pressure on the industry to invest in urgent research into energy efficiency, CO₂ and noise reduction, in the context of the market growth highlighted above.
- 61.** It will be increasingly difficult for UK Aerospace companies to maintain their R&D expenditure in the face of the loss of a vital and effective source of funding. In addition, a reduction in the Transport research budget would have a detrimental effect on the ability of Clean Sky and SESAR (two European Programmes essential to maintaining the EU's leadership role in the sector of aviation) to improve the EU's industrial capabilities and its environmental record.
- 62.** Investing in a strong, innovative industrial base is necessary to achieve the UK's potential in these areas. As such, and notwithstanding a reduced EU budget overall, we believe there is a case for the UK to prioritise the Horizon 2020 budget, and in particular, the Transport and Security budgets within the EU's research programme.

Q9. What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?

- 63.** Other than the important issues listed above (notably on industry funding rates and the specificities of the aeronautics sector in terms of SME participation in research), Airbus would also like to request the UK's support on the following two issues of concern to the sector:

- 64.** Firstly, every effort should be taken to protect Intellectual Property Rights: open access to results poses a significant risk to private industry. Companies will substantially contribute their own financial (and other) resources to Horizon 2020 projects. Continuous shareholder investment in know-how generation is a pre-requisite for innovation. Moreover, this innovation is built on pre-existing knowledge (“background”) which is part of any industry’s capital. In these circumstances, it is normal and reasonable practice that access rights to project results (which are defined to include intellectual property) are balanced between (a) the reasonable needs of public authorities and (b) the requirement of shareholders that capital investment is remunerated. For public purposes it is sufficient to provide authorities with information (as opposed to results) on the outcomes of research; where authorities propose to conduct further research on pre-commercial procurement, terms can be agreed for the use of results, taking into account Union funding. Though this position has been maintained in previous FPs, there are concerns relating to the lack of IPR protection in the new rules for project participation in Horizon 2020; this creates a significant risk of IP dissemination on sensitive, European-developed, technologies.
- 65.** Secondly, sufficient flexibility should be maintained for those successful EU programmes such as Clean Sky; which seeks to involve the supply chain in developing a range of breakthrough technologies to support a more innovative, competitive and environmentally friendly air transport system. Such Programmes (known as Public-Private Partnerships or PPPs) require specific rules adapted to their unique operating needs.
- 66.** For example, the ‘mono-beneficiary option’ which existed in FP7 has allowed mono-beneficiaries (single legal entities) to respond to Calls for Proposals for project participation, and thus to become grant beneficiaries under Clean Sky. This is considered one of the main reasons for Clean Sky’s success in terms of SME participation - greater than 40% in recent Calls, The EP’s ITRE Committee’s decision to remove any such future flexibility for ‘funding bodies’ (such as Clean Sky) to benefit from this option would inevitably prevent smaller companies and actors from responding to Calls for Proposals under a Clean Sky 2.

February 2013

EADS, Airbus, Rolls-Royce, and Pfizer—Oral evidence (QQ 36–53)

EADS, Airbus, Rolls-Royce, and Pfizer—Oral evidence (QQ 36–53)

[Transcript to be found under Airbus](#)

EURADIA, the Alliance for European Diabetes Research—Written evidence

Questions

1. What are the essential elements of an effective proposal relating to research and innovation?

- 1.1 Proposals may be in response to a specific request for funding applications ‘specific call’ by a grant awarding body (e.g. EU), or they may be submitted on topics that have not specifically been requested by the grant awarding body. Proposals are submitted by individual scientists or a group who may work in an academic or an industry setting. The essential elements of any proposal will vary initially according to the specific interests of the person/group drafting. In all cases, to be considered as viable, the proposal should satisfy the area defined in the call for research applications, which may not always be what the investigator believes to be crucial or achievable with the resources being made available within the confines of the call.
- 1.2 In any case there is a distinction between what is considered ‘research’ and what is ‘innovation’: research does not necessarily guarantee that anything will be ‘discovered’ even if it advances knowledge in the field. Most grant funders will recognize that it may not be possible to find anything given the resources available. ‘Research’ looks at something to which there is no known answer, in this case the research question may be very novel with a large risk that nothing will be found and a questionable return on investment for the funding body depending on expectations.
- 1.3 ‘Innovation’ on the other hand usually takes a concept that has already undergone the scrutiny of the initial research process; it is an established concept but the investigator (the innovator) wishes to develop it further for a particular purpose, which may have commercial implications. Innovation moves in a stepwise direction towards a more defined conclusion.
- 1.4 Within the confines of a research proposal a compromise may be needed, a trade off, between research novelty and a novel application of methodology for which there may be a more likely return on the initial investment.
- 1.5 In all cases, an effective proposal should obey the rules set by the grant giving body:
 - The proposal must have a hypothesis based on a foundation of either a pilot study, or a literature search
 - The proposal must be ethical and obey all ethical rules that apply in that environment.
 - The proposal must be realistic and achievable in the given timeframe
 - The research must be carried out by appropriately qualified individuals

2. Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

- 2.1 With regard to the EU consultations in Research and Innovation, it is probably impossible to fully inform/consult/ and take into account the opinions and wishes of all the possible groups of stakeholders at all levels in a Europe-wide manner. That being said, the Commission and DG Research in particular have not been particularly successful in this regard and the process for selecting topics for future calls for applications is far from transparent or equitable. Rather than relying on input from groups of experts, the process is guided by national representatives to the Programme

- Committee that are themselves not necessarily well informed, and frequently influenced by individual academics lobbying in their own personal interests.
- 2.2 To be fair to all stakeholders, but in order not to complicate the process, the EU should ensure that there is sufficient information available about the consultation, the background to the issue, and a justification for the consultation to take place. It would be important to bring the consultation to the attention of the stakeholder groups who could provide a meaningful and knowledgeable contribution. The EU could make more concerted effort to understand the stakeholder groups in different areas. The consultation should be targeted at the relevant groups or individuals within a narrow band and their participation should be actively encouraged.
 - 2.3 If contributions are sought from too many groups this may have the undesirable effect of encouraging responses to consultation from individuals who may find the process discouraging because they do not have the level of expertise and understanding required (and their input may be ignored) and worse they could be discouraged from future activities where their knowledge and input would be of great value.
 - 2.4 As an example from the field of diabetes research, the organization **EURADIA, the Alliance for European Diabetes Research**, has access to all the relevant stakeholders that have an interest in diabetes research especially at the European level. It would be possible to use an entity such as EURADIA to coordinate a multi-stakeholder response, as was the response of EURADIA to the initial consultation on Horizon 2020 [1]. This response was based on the **DIAMAP Road Map for Diabetes Research in Europe** [2], which itself was a multi-stakeholder collaborative project.
 - 2.5 To apply this successful approach more generally, in the field of health research, expert groups should be created in the major areas of research to be supported by a research Framework Programme such as Horizon 2020. These groups should be comprised of academics and health professionals, researchers from industry as well as representatives of patients and should help the Commission draw up more relevant calls for research funding. They could serve as advisory panels to the Research Programme Committee with its national representatives.
3. **The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?**
 - 3.1 Different Member States are at different stages in their research, health, and scientific development and have different priorities for their national budgets. This is especially evident in relation to research and more so health research. However, it is necessary for the EU to investigate fully the research areas intended to be funded, and to develop strategies for research that have the potential to create pan-European collaborative projects. The EU then needs to translate such strategies into coordinated calls for funding that result in effective Europe-wide research. It will also be most important to put in place an umbrella organization to coordinate health research across Europe in order to ensure that regional and national efforts are synergistic and effective, not redundant or duplicative. For example the Alliance for Biomedical Research in Europe has proposed a European Council for Health Research for this purpose [3].
 - 3.2 Such strategies could make use of the example of research road maps such as the EURADIA coordinated DIAMAP Road Map for Diabetes Research in Europe, which is a good example of a template that has been used to identify priorities from which calls for research funding applications have been developed.

- 3.3 DIAMAP is a European Commission funded project (FP7 Health 200701) with the mission to undertake a wide survey of the current European diabetes research landscape, from which expert opinion can identify gaps and highlight strengths, to guide a Road Map strategy for diabetes research in Europe [2].
 - 3.4 High-level expert groups are effective, but only up to a point as they contribute much to the discussion in the field by preparing a ‘menu’ of ideas but not a procedure for implementing these ideas. If there is no key research infrastructure in place there is the risk that the ideas not achieve fruition.
 - 3.5 An example may be the proposed European Platform for Clinical Research in Diabetes (EPCRD). The DIAMAP project charted road maps for successful innovation strategies to tackle the growing problem of diabetes, and clearly identified the need for registries patients, networks of specialist researchers, access to biobanks and human biological material, and the need for more standardised evidence-based treatment guidelines. This project provides an important example of a first step towards a sustainable effort to promote a healthier population in Europe, but it requires a foundation structure to convert research into innovation. Diabetes illustrates the need for a European Platform for Clinical Research. Such an initiative could, for example, support the provision of a centralised infrastructure to ensure quality assurance and educational back-up for diabetes research, and facilitate access to data and biological samples by providing a uniformly agreed and ethically approved infrastructure to permit sample and data-sharing. [3]
 - 3.6 Because there are too many differences across the Member States, lack of conformity is inhibiting progress. Although total harmonization may not always be necessary or indeed desirable, at the very least agreements are needed (for example: professional recognition, taxation) to ensure effective cooperation.
- 4. Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?**
- 4.1 The EU does recognize the importance of research and innovation in the private sector. However, there is a limited understanding of how venture capital works in this research sector and very limited understanding of contractual variability between the Member States.
 - 4.2 There are also problems of transferring intellectual property between countries, and registration of Intellectual Property. Likewise, there are huge differences in the way that tax liability operates in different countries for example methods of claiming for work travel and expenses differ widely. Because of such differences this makes it difficult to engage the private sector in the same way in different countries and to encourage a collaborative environment.
 - 4.3 It will be critical under horizon 2020, the next European Research Framework Programme to ensure that the private sector is fully integrated into research projects without compromising these projects as can on occasion be the case today. Under FP7, there was a formal commitment to invest a fixed percentage of the overall budget in SMEs. This has led to calls for applications for research funding under FP7 imposing rigid requirements for involvement of SMEs. This is misguided and creates a situation that is ultimately unhelpful to investigators, stifling creativity and research effectiveness. SMEs often find themselves “parachuted” into projects for the wrong reasons, with little impact aside from public funds that may increase employment albeit in a non-sustainable fashion.

- 4.4 As this area is so complex it is unlikely to ever be addressed sufficiently comprehensively to enable increased effectiveness.
- 5. Do EU proposals clearly state their desired outputs, outcomes, impacts, and ‘European added-value’? Do you think the European Commission’s Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?**
- 5.1 Such a question is extremely difficult to evaluate without recourse to, and evaluation of, at least a large selection of funded EU proposals. In itself such an examination would not prove any benefit without a parallel examination of the ultimate outcome of those same projects.
- 5.2 While some of the requests for research funding (the call) clearly define the outputs that are required and provide examples of what may be expected, others do not, and indeed cannot because of the nature of the call. At the time of the proposal it may be impossible to predict the outcome of ‘research’ oriented proposals, rather than ‘innovation’ proposals (see response to question 1).
- 5.3 The impact and European added value cannot always be evaluated in one step at the end of the initial research investigation, because it may take a number of years for the impact to be seen. This is particularly the case in highly complex research areas such as genetics, where only now is the impact is resulting in a potential benefit whereas the initial research was undertaken around 20 years ago and in the meantime many different investigations have been required to reach the intermediate milestones leading to the ultimate goal; which may still be far off.
- 5.4 Another example is the field of obesity research and its potential impact on the diabetes epidemic; because there are generational issues and because of the time taken for changing lifestyles to take effect, at least 20 years would be needed and this far exceeds the lifespan of the average research grant. The period of time needed for impact may not be known and could not be estimated at the time of the initial research proposal and the impact could come in an entirely different field. Thus, the added value cannot be accurately assessed and can often only be speculated upon at the time of the initial research.
- 5.5 As for previous questions, a framework such as the DIAMAP Road Map for Diabetes Research in Europe would be an extremely helpful template here as it shows how experts and non-experts can work together to make progress towards research goals.
- 5.6 That being said, projects such as DIAMAP can only be useful for this purpose if supported in the longer term. Sustained support that is currently not offered by the EC would be essential for evaluation of the impact of research on the health and wellbeing of European citizens, and the contribution of the EC and of national research efforts to this end.
- 6. Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?**
- 6.1 The EU provides considerable information on the monitoring and evaluation process but little attempt to justify the reasoning. As mentioned above, evaluation must be considered in the long term and requires sustained investment currently not provided by the EU. The process in place today is therefore not as effective as it could be.
- 7. In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?**

- 7.1 To respond to such a question there should be direct comparators available for analysis otherwise this is almost impossible to answer. What is known is that some other countries (outside of the EU) borrow the research outputs from EU-funded programmes. They then use their own commercialization opportunities to exploit the research because labour is cheaper and the ethos is towards translation rather than basic research.
- 8. How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?**
- 8.1 Research is very often one of the first areas to suffer in commercial and national budget cutbacks at times of austerity. However, when the economy does eventually pick up there will be a lag time between the generation of research outputs and their translation into new innovations and products. A longer-term approach to funding would pay greater dividends especially because of the long-term nature of research and innovation (see question 5 above).
- 8.2 Health is a good example of where continued EU and national funding should be maintained as the cost of health care, especially in the growing and expensive epidemic of chronic conditions far outweighs the cost of the initial research. The chronic disease epidemic shows no sign of decreasing and requires a higher level of investment in both research and innovation.
- 8.3 Likewise a reduction in spending on research projects also contributes to a 'brain drain', where researchers are more likely to see a better environment elsewhere and they then take their skills with them. This again contributes to a lag in research development and a lack of trained professionals when the economy picks up at a later stage.
- 9. What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?**
- 9.1 More effort to provide background and rationale to the different requests for research funding applications would be welcome. An explanation of why certain information is required would be helpful in both the proposal and for a greater depth of knowledge at national level to encourage more applicants to view EU funding as practicable and relevant.
- 9.2 Most specifically, the UK could most usefully support the creation of a European Council for Health Research [3], perhaps offering to house the Council. The UK is uniquely well placed to take the lead in this enterprise, with its distinguished history in the field that continues to this day.
- 9.3 More information should be available on current and past proposals and project outcomes would be helpful to be able to evaluate what is expected especially in terms of eventual outcome. This would also act as an inspiration for researchers and a hub for collaborative partnerships. (We acknowledge that there is some information available on EU funded projects, but this is limited especially when it relates to previous research framework funding programmes).
- 9.4 The use of templates such as research road maps would be welcome and also provide a useful indicator of the situation of research progress. As with any large bureaucracy the guidelines should be:
- As simple as possible
 - Made as generic as possible for all Member States

- The Framework for undertaking the research should be harmonized

References

1. EURADIA response to European Commission Public Consultation on the Common Strategic Framework (May 2011) Available from the website of EURADIA the Alliance for Diabetes Research in Europe www.EURDIA.org
2. DIAMAP A Road Map for Diabetes Research in Europe (2010) Available from www.diamap.eu
3. European Union Council for Health Research – Illustrating its impact on European Health Research (2012) Available from the website of the Alliance for Biomedical Research in Europe (www.biomedeuropa.org)

18 February 2013

European Commission—Written evidence

EUROPEAN COMMISSION RESPONSE TO THE CALL FOR EVIDENCE ON

I. What are the essential elements of an effective proposal relating to research and innovation?

Proposals for effective policies to support research and innovation should:

- contribute to the EU's objectives,
- be based on sound analysis supported by the best data available,
- draw lessons from evaluations of any previous initiatives,
- make use of forward looking studies
- have a clear intervention logic,
- take account of the needs of stakeholders, and as far as possible have their support,
- have a clear EU added value,
- be effective and efficient in achieving the objectives,
- involve the simplest possible administrative procedures, and
- make concrete provisions for future monitoring and evaluation.

Impact assessment is the tool the Commission uses to ensure that its political decision making is based on solid evidence, that external stakeholders are listened to and their views taken into account, and that a clear explanation is given as to why EU action is needed and what it is expected to achieve.

2. Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

Consultation with the stakeholders affected is vital. It increases transparency, generates essential input and helps to improve the quality of impact assessments and proposals. This is why the Commission consults widely, in line with rigorous consultation standards²⁵, when preparing new proposals.

EU proposals on research and innovation are prepared in accordance with these requirements. Public consultations in this area can be found on the 'Your Voice in Europe' website²⁶.

As part of the preparation of Horizon 2020, an extensive public consultation on the future EU research and innovation funding was carried out in 2011²⁷. There was a large response to the consultation, with 775 position papers received, including 247 from the UK, and

²⁵ COM(2002) 704 Final, 'Towards a reinforced culture of consultation and dialogue - General principles and minimum standards for consultation of interested parties by the Commission'
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2002:0704:FIN:EN:PDF>

²⁶ "Your Voice in Europe" website: http://ec.europa.eu/yourvoice/consultations/2012/index_en.htm

²⁷ Public consultation on Horizon 2020: http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=public-consultation

more than 1300 responses through the online questionnaire. The consultation website was visited nearly 90 000 times by over 38 000 unique visitors from 152 countries. Contributions were received from a wide range of stakeholders, the highest numbers coming from the research and higher education sectors, followed by the business sector and public administrations. The consultation provided an extremely valuable input and helped the Commission to design a programme that will benefit EU citizens, improve lives and create jobs over the coming years.

The Commission also carried out a public consultation on the future of the actions under the Competitiveness and Innovation Framework Programme (CIP 2007-2013) which consisted of an online survey (676 replies and 76 written contributions), a public conference which was attended by more than 550 participants) and meetings with stakeholders and representatives of Member States dealing with competitiveness and innovation²⁸.

Stakeholders are also consulted via advisory groups such as the Information Society Advisory Group, which brings together high-level representatives of industry, research, academia and civil society to advise the Commission on Work Programmes orientations.

Details of how consultations have been carried out, who was consulted and on what issues must be included in all impact assessment reports which accompany the Commission's legislative proposals. The different positions of stakeholders must also be set out, along with an explanation of how they were taken into account. Since the beginning of 2012, the Commission has further strengthened the voice of stakeholders by extending the minimum period for public consultation from eight to twelve weeks²⁹.

An audit by European Court of Auditors found that consultations with stakeholders are widely used by the Commission and that the minimum consultation periods were generally respected³⁰.

A review of Commission consultation policy, carried out in 2012, confirmed the validity of the Commission's consultation policy and tools, as well as the progress made over the years. Nevertheless, it pointed to areas for further improvement. As a follow-up, the Commission announced a set of measures it plans to take to further strengthen consultations³¹ such as extended reach of consultations, update and clarification of the minimum standards by including clearer operational criteria, and strengthened internal control and support mechanisms.

3. The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups,

²⁸ Public consultation on a possible successor to the Competitiveness and Innovation Framework Programme (CIP): http://ec.europa.eu/cip/public_consultation/index_en.htm

²⁹ "Commission extends public consultations to 12 weeks", Press Release 3/1/2012 http://europa.eu/rapid/press-release_IP-12-1_en.htm?locale=en

³⁰ European Court of Auditors, Special Report No 3, 2010, 'Impact assessments in the EU institutions: do they support decision-making?' (<http://eca.europa.eu/portal/pls/portal/docs/1/7912856.PDF>).

³¹ Review of the Commission consultation policy, SWD(2012) 422 (http://ec.europa.eu/governance/better_regulation/documents/document_travail_service_part1_en.pdf).

associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?

The EU facilitates the cooperation on research and innovation between EU Member States via a range of instruments which complement and support each other.

Policy mutual learning activities are supported through the European Research Area Committee which advises the Council, the EC and the Member States on research and innovation policy issues. It allows national policy experts to identify and discuss best practices, notably in the context of the implementation of the European Research Area, the Innovation Union and the Europe 2020 strategy. Mutual learning seminars are organised each year to discuss specific policy issues, and peer reviews of national research and innovation systems are conducted regularly on a voluntary basis. The results of such activities feed into Member States' processes for reviewing and adapting national innovation strategies, as has recently been the case in Slovenia (2010), Estonia (2011) and Denmark (2012). ERAC also sets up ad-hoc working groups and organises annual surveys on public investment in R&D.

In addition high level expert groups - such as the European Research and Innovation Area Board, the Innovation for Growth Expert Group and the European Forum for Forward Looking Activities - allow the EC to identify new trends and ideas with regard to science, research and innovation. They provide a forum to test out new ideas and approaches. These groups provide a well-balanced representation of stakeholders, and, given their advisory role, are able to speak without the restrictions attached to more formal set ups.

Some new approaches have been tested under the Science in Society line of the 7th Framework Programme. Mobilisation and Mutual Learning Action plans invite different kind of stakeholders (industry, researchers, civil society organisations, policy makers) to join their forces in order to develop research and innovation agendas of their own on various subjects (e.g. fisheries, human enhancement)³². This approach favouring the involvement of all societal actors around societal issues and challenges is termed Responsible Research and Innovation. It is a cross-cutting issue in the European Commission proposal for Horizon 2020, the Framework Programme for Research and Technology Development for 2014-2020.

Policy learning for 'SME innovation' and the developing and testing of new tools for SME innovation support were the focus of the PROINNO Europe Initiative in the Competitiveness and Innovation Framework Programme (CIP 2007-2013).

Coordination of Member States research and innovation efforts is also encouraged through the joint programming process³³, which helps to pool national research efforts in order to make better use of Europe's precious public R&D resources and to tackle common European challenges more effectively in key areas. For example, the Neurodegenerative Disease Research joint programme³⁴ is the largest global research initiative in this area. It brings countries together to coordinate their investment in research aimed at finding causes,

³² Science and Society website: <http://ec.europa.eu/research/science-society/>

³³ Joint programming website: http://ec.europa.eu/research/era/joint-programming_en.html

³⁴ For more information about Joint Technology Initiatives see: http://ec.europa.eu/research/jti/index_en.cfm?pg=about

developing cures, and identifying appropriate ways to care for those with neurodegenerative diseases.

The modes of cooperation described above have contributed effectively to EU policy development and implementation. Their adequacy and cost-effectiveness is regularly reviewed. In order to further support the coherent development of research and innovation policies across the EU and strengthen the cooperation between Member States, the EC has proposed to set up the *Policy Support Facility* under Horizon 2020 to offer extended services to research and innovation policymakers throughout Europe.

4. Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

Business is the engine of innovation. To help Europe generate future growth and jobs, businesses and other actors involved in research and innovation need to collaborate.

The EU has been successful in engaging the private sector in research and innovation projects. Private sector participation in the EU Framework Programme for Research and Technological Development (FP) has steadily increased in recent years.

This is especially true in the Cooperation specific programme which supports technologically oriented projects with a strong research and innovation component (with the exception of the 'Socio-economic sciences and humanities' area). The private sector represents 32.6% of all participations in the Cooperation programme, and 30% of the budget. The corresponding figures for FP6 are 31.4% and 28.3%. The SME budget share in the Cooperation programme has reached 16%, for the first time exceeding the target of 15% set at the beginning of FP7. The corresponding SME budget share under FP6 was a little over 11%.

The industry-led European Technology Platforms have also helped to take industry's needs into account. Their input enabled the Commission to establish a stronger partnership with industry, including through Joint Technology Initiatives and Public-Private Partnerships³⁵.

Joint Technology Initiatives combine private sector investment with European public funding. They help industry to set strategic research agendas, pool resources and achieve the critical mass required for breakthrough research. So far, five JTIs have been set up: the Innovative Medicines Initiative, Aeronautics and Air Transport (Clean Sky), Fuel Cells and Hydrogen, Embedded Computing Systems (ARTEMIS) and Nanoelectronics Technologies 2020 (ENIAC). For example, Clean Sky aims to reduce the environmental impact of aviation (i.e. emissions and noise reduction but also green life cycle) while safeguarding the competitiveness of Europe's aeronautics sector; Innovative Medicines supports collaborative research projects and builds networks of industrial and academic experts in order to boost pharmaceutical innovation in Europe and speed up the development of better and safer medicines for patients; and ARTEMIS aims to help European industry consolidate and reinforce its world leadership in embedded computing technologies.

³⁵ Impact Assessment Accompanying the Horizon 2020 Proposal:
http://ec.europa.eu/research/horizon2020/pdf/proposals/horizon_2020_impact_assessment_report.pdf#view=fit&pagemode=none

As part of the European Economic Recovery Plan, three contractual public-private partnerships were launched in 2009 in the areas of Energy-efficient Buildings, Factories of the Future and Green Cars. Their aim is to develop new technologies for the vitally important manufacturing, construction and automotive industries, which have experienced significant downturns in demand as a result of global financial turmoil. The initiatives will also assist the transition to a more sustainable economy³⁶. A further public-private partnership on the Future Internet was launched in 2011. It aims to advance Europe's competitiveness in this field and address the need to make public service infrastructures and business processes significantly smarter.

The positive effects EU programmes on business were also cited in a recent UK evaluation of the 6th and 7th Framework Programmes, with a majority of UK business participants indicating that their involvement in the FP had yielded important commercial benefits, including, in some cases, significant contributions to the development of new products and processes and increased income and market share³⁷.

The proposals for Horizon 2020 (2014-2020) aim to build on these achievements, while focussing more than ever on supporting businesses to transform scientific breakthroughs into new products and services. Stronger support will be provided to enable market uptake through funding activities that operate closer to the end-users and markets, such as prototyping, testing, demonstrating, piloting, large-scale product validation and market replication. The programme will help European industry to strengthen its capabilities in key enabling technologies such as photonics, biotechnology and advanced materials. It will also expand the use of financial instruments to leverage lending to industry from private financial institutions in order to stimulate the sort of private investment in innovation that can create future growth and jobs. The programme also foresees further Public Private Partnerships to implement key strategic research agendas.

For small businesses, Horizon 2020 proposes, actions to target early-stage, high-risk research and innovation by SMEs, along with a new SME instrument, building on the Small Business Innovation Research model, which will be used across all societal challenges as well as for the enabling and industrial technologies. The instrument will allow SMEs to put forward their most innovative ideas for addressing Union-level challenges. The instrument will meet the needs of all SMEs providing innovative solutions to specific challenges, irrespective of whether these are high-tech and research-driven or social and service-driven innovations.

The European Institute of Innovation and Technology (EIT) is a successful example of engaging the private sector in innovation driven projects. After a positive external, independent evaluation, the EIT is now part of the Horizon 2020 proposals.

The Competitiveness and Innovation Framework Programme (2007-2013) has proved very successful as confirmed by evaluations. The Entrepreneurship and Innovation Programme, the innovation-related parts of which will be continued under Horizon 2020, has been

³⁶ Contractual Public-Private Partnerships: http://ec.europa.eu/research/industrial_technologies/ppp-in-research_en.html

³⁷ Technopolis (2010), The Impact of the EU RTD Framework Programme on the UK, An independent report for the Office of Science and Technology by Technopolis Ltd.

especially successful in reaching innovative SMEs: by end-September 2012, 202,250 SMEs were reached by financial instruments. 202,000 were assisted with the SME Guarantee Facility, through 235,000 loans provided to business, with underlying debt financing of € 12.5 billion. 250 companies have been helped by venture capital (High Growth and innovative SME Facility).

If adopted as proposed by the Commission, Horizon 2020 will also drastically cut red tape, with simpler rules and procedures aimed at attracting a broader range of private sector participants, and SMEs in particular.

5. Do EU proposals clearly state their desired outputs, outcomes, impacts, and ‘European added-value’? Do you think the European Commission’s Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

The Commission impact assessment (IA) system looks at alternative policy options in a transparent manner by comparing both potential benefits and costs in economic, social and environmental terms. An IA is carried out for any proposal with significant direct impacts, and the results of this assessment are set out in a report which accompanies the proposal itself. The Commission IA Guidelines also require Commission services to assess whether the EU is better placed than Member States to tackle the problem in question – i.e. the European added value of the proposal. This assessment is also included in a specific section of the IA report.

The recent IA carried out for the Horizon 2020 proposal³⁸ gives a good example of how these issues are addressed in the field of research and innovation.

Regarding the Impact Assessment Board, independent studies show that the scrutiny by the Board enhances the quality of impact assessments. A comprehensive audit of the Commission IA system carried out by the European Court of Auditors³⁹ concluded that the IA system has been effective in supporting decision-making within the EU institutions and the Board was found to contribute to the quality of the impact assessments. A study by the European Parliament comparing the IA systems of eight Member States and the European Commission⁴⁰, found that "the EU system is comparatively well-developed with both internal and external checks and balances" and "there is general consensus that the IAB contributes to improved quality of impact assessments". In addition, the findings of the Centre for European Policy Studies/University of Exeter analysis⁴¹ confirmed that the European Commission has successfully institutionalised its assessment system, and that the

³⁸ European Court of Auditors, Special Report No 3, 2010, 'Impact assessments in the EU institutions: do they support decision-making?' (<http://eca.europa.eu/portal/pls/portal/docs/1/7912856.PDF>)

³⁹ Comparative study on the purpose, scope, and procedures of impact assessments carried out in the Member States of the EU (<http://www.europarl.europa.eu/committees/en/URI/studiesdownload.html?languageDocument=EN&file=36288>).

⁴⁰ CEPS/University of Exeter, 'Regulatory quality in the European Commission and the UK: Old questions and new findings' (<http://www.ceps.eu/book/regulatory-quality-european-commission-and-uk-old-questions-and-new-findings>)

⁴¹ Search facility and links to DG specific evaluation web pages are provided on Europa web page: http://ec.europa.eu/dgs/secretariat_general/evaluation/index_en.htm

quality of EU impact assessments seems to be positively affected by the creation of the Board.

6. Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

The Commission makes the results of evaluations available to the public on the Europa web pages of the Commission⁴². It also disseminates the results of its evaluations in the form of Communications by the Commission and as staff working documents, as well as organising stakeholder conferences with specific target groups. The Commission publishes a yearly report on the evaluation of the Union's finances based on the results achieved to Parliament and Council following Art. 318 of the Treaty for the European Union.

In the field of research and innovation, the European Commission monitors and evaluates the EU Framework Programmes for Research and Technological Development and the Competitiveness and Innovation Framework Programme (CIP 2007-2013), and puts the results on the EUROPA website⁴³.

The key results for the 7th Framework Programme (2007-2013) are the following:

- Annual monitoring⁴⁴
- Progress report on FP7 in 2009⁴⁵
- Interim evaluation of FP7⁴⁶
- Ex-Post Evaluation of FP7 – final report in 2015 based on the evidence provided by a range of thematic evaluation studies and a number of dedicated horizontal analytical studies.

Similar reports are produced for the CIP and its three sub-programmes.

In addition, as of this year the Commission's in-house science service, the Joint Research Centre, is developing a Research and Innovation Observatory to support the monitoring of R&I policies in the Member States and beyond. This new activity will deliver analyses and research and innovation data to enhance our understanding of such activities as levers of growth. It complements the JRC's direct research role which provide science in support of EU policy making and which is conducted with extensive cooperation with scientific organisations throughout the EU Member States.

In order to support information exchange and the sharing of best practice between evaluation experts in Members States, Accession States and Associated States, the Directorate General for Research and Innovation organises twice-yearly meetings of the European RTD Evaluation Network⁴⁷.

⁴² EU Framework Programme Evaluation and Monitoring website:

http://ec.europa.eu/research/evaluations/index_en.cfm?pg=home

⁴³ Framework Programme Monitoring: http://ec.europa.eu/research/evaluations/index_en.cfm?pg=monitoring

⁴⁴ Progress report on FP7 in 2009: http://ec.europa.eu/research/evaluations/index_en.cfm?pg=fp7

⁴⁵ Interim evaluation of FP7: http://ec.europa.eu/research/evaluations/index_en.cfm?pg=fp7

⁴⁶ European RTD Evaluation Network: http://ec.europa.eu/research/evaluations/index_en.cfm?pg=network

⁴⁷ Impact Assessment Accompanying the Horizon 2020 Proposal SEC(2011) 1427 final (see Annex 1, page 25)

http://ec.europa.eu/research/horizon2020/pdf/proposals/horizon_2020_impact_assessment_annexes.pdf#view=fit&pagemo de=none

When producing an impact assessment of a new proposal, the Commission also sets out clear evaluation and monitoring arrangements for the new initiative, including a set of key performance indicators related to SMART (Specific, Measurable, Achievable, Realistic and Time-dependent) objectives.

Looking to the future, the ambition for Horizon 2020 is to have a comprehensive evaluation and reporting system regarding its implementation and impacts. The system should focus on delivering timely and reliable evidence, and allow for a proper assessment of Horizon 2020 in terms of achieved objectives, with a strong focus on outputs, outcomes and impacts.

This should be achieved without increasing the administrative burden for the applicants and participants, but through a simpler and more efficient reporting system.

7. In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

The results of EU research and innovation projects help to support public policy making. From fields as diverse as security, climate change, food and health, EU research has provided invaluable information to policy makers⁴⁸.

When it comes to using the outputs of research for generating economic growth, there is still scope for improvement in the European Union. Currently there is too much fragmentation and duplication, including barriers that prevent the mobility of researchers and the circulation of knowledge. The creation of the European Research Area (ERA) and the building of an Innovation Union, supported by the new Horizon 2020, will enable the EU to make a better use of its scarce resources, to stimulate innovation and to create growth and jobs. Completing the ERA would create in Europe a knowledge-market comparable in size to the US and China.

The EU is also promoting a more effective use of research outputs through actions to facilitate knowledge transfer. A strong effort has been made on enhancing public-private cooperation, cluster creation and knowledge transfer offices and platforms. Over the period 1995-2006, public research institutions nearly tripled their European Patent Office patent applications thus increasing access to research output for business⁴⁹.

However, the EU's research and innovation system does not operate in isolation and it gains from establishing strong interaction and cooperation with other countries and regions. This is why international cooperation is a key aspect of the Union's research and innovation policy and why the Commission has recently adopted a new strategy in this area⁵⁰, in particular with a view to the launch of Horizon 2020. Within this new strategy, international cooperation is geared towards raising the excellence of European research and the competitiveness of its industry, tackling societal challenges and contributing to the Union's external policies.

⁴⁸ IUC report 2011: <http://ec.europa.eu/research/innovation-union/pdf/competitiveness-report/2011/iuc2011-full-report.pdf>

⁴⁹ Innovation Union Scoreboard: http://ec.europa.eu/news/science/120208_en.htm

⁵⁰ Communication on 'Enhancing and focusing EU international cooperation in research and innovation: A strategic approach' COM(2012) 497
http://ec.europa.eu/research/iscp/pdf/com_2012_497_communication_from_commission_to_inst_en.pdf

Finally, to maximise the economic impact of research, the EU is engaged in transforming the business environment in Europe to make it more innovation friendly and to remove barriers that slow down or prevent ideas from reaching the market. The European Commission proposed a set of Single Market measures, such as the unitary patent, faster standard-setting, modernised EU procurement rules and a European passport for venture capital funds. In addition, several European Innovation Partnerships have been launched to pool resources and bring closer together supply and demand-side measures around key societal challenges.

The efforts made have already started to bear fruit. Since 2008, the EU has continuously improved its innovation performance as benchmarked by the Innovation Union Scoreboard⁵¹. The latest figures show that the EU has closed almost half of its innovation gap with the US and Japan while expanding the lead over partners such as Canada and Australia.

Looking ahead, the Horizon 2020 proposal sets out a number of measures to help EU industry and innovators bridge the 'valley of death' between research results and marketable products. This includes public-private partnerships, but also a much stronger focus on supporting innovation through new instruments such as pilots, prizes, specific support to SMEs, pilot lines and financial instruments.

8. How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

The economic and financial crisis has led to a scarcity of public and private resources that affects all areas. Nevertheless there is widespread recognition among business and governments that spending on research and innovation is an investment in future economic growth and jobs and that it will pay off in the long term in terms of high public and private returns. That is why the majority of Member States have implemented the principle of 'smart fiscal consolidation' advocated in the context of the Europe 2020 strategy: when consolidating their public finance, most Member States have protected their education, research and innovation budgets. At the same time they are launching reforms to increase the efficiency of spending and the effectiveness of research systems.

Nevertheless in eleven Member States the public budget for R&D has grown less than GDP since the beginning of the crisis and a few countries have even decreased it in nominal terms. If not compensated by increased levels of private investment in R&D this presents a clear threat of hollowing out the innovation performance of these countries and endangering their future competitiveness, resulting in lower economic growth and lower tax revenues in the long term.

Turning to the business sector, enterprises have, on average, continued to increase their expenditure on R&D during the crisis. In 2011 the total business expenditure on R&D in the EU amounted to 1.27% of GDP compared to 1.18% in 2007. This is the result of a sustained level of R&D investment by many European firms, as well as by foreign affiliates which

⁵¹ 'Internationalisation of business investments in R&D and analysis of their economic impact', European Commission, 2012: http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=other-studies

continue to see Europe as an attractive place for R&D investment⁵². EU enterprises expect their worldwide investments in R&D to grow by an average of 4% annually over the period 2012–2014⁵³. However, there are considerable differences between Member States and between economic sectors, as well as between large companies and SMEs.

Investing in research and innovation is vital for exiting the current economic crisis and for creating the future high quality jobs and growth Europe needs. The EU has a key role to play here. Strong investment in research and innovation strategically focussed on creating sustainable growth and jobs - as foreseen in the Horizon 2020 proposal - is essential if Europe does not want to be outpaced in strategic technologies and markets by fast growing countries (e.g. BRIC countries, South Korea) and its traditional competitors (e.g. US, Japan), and if it wants to strengthen the EU's leadership in science and tackle the major issues affecting the lives of European citizens.

11 February 2013

⁵² The 2012 EU Survey on R&D Investment Business Trends , European Commission, 2012

European Molecular Biology Laboratory – European Bioinformatics Institute (EMBL-EBI)—Written evidence

What are the essential elements of an effective proposal relating to research and innovation?

1. *Effective EU research and innovation proposals can only be developed following an extensive and thorough consultation of stakeholders' needs. To be effective, proposals must take into account the current state of play within Member States, building on national strengths where they exist and seeking to make structural improvements where there are weaknesses. They should focus on the areas where the EU can achieve the most substantive impact and include actions and policies where there is real added value in cooperating at the European level. EU proposals for research policies and programmes should be supported by appropriate and reasonable deliverables, which can be measured over time.*

Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

2. *EU policies and programmes are developed by the European Commission on behalf of EU Member States. It is therefore imperative that the views of stakeholders are taken into account. The European Commission does hold regular consultations. However, the stakeholder community interested in EU research and innovation policies is so large that it can be difficult for any single organisation to see what it has achieved through its input.*
3. *The key stakeholders in research and innovation include academia, research institutes, learned bodies, charities, industry, industrial associations and patient groups. The views of these stakeholders are not always convergent and so often EU research and innovation proposals are based on compromise and middle ground, rather than following the most effective route.*
4. *There is room for improvement in the way the European Commission designs its consultation documents. All too often, consultation documents consist of poorly written questions and offer no opportunity to put forward novel ideas and suggestions. A recent example includes the consultation on a proposed Public Private Partnership for health research in Horizon 2020, which contained a series of leading questions with little scope to add qualitative responses.*
5. *The European Commission regularly holds workshops, usually in Brussels, to seek the views of experts on a specific consultation topic. These workshops usually take place before a formal consultation is launched. Whilst EMBL-EBI is usually aware of such events and therefore has the opportunity to participate, the same will not necessarily be true for other organisations, especially smaller companies. One way to solve this would be to hold more of the workshop events throughout Member States, rather than in Brussels.*

The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?

6. *With the exception of certain ‘bottom-up’ programmes such as the European Research Council (ERC) and the Marie Curie schemes for training and mobility, the majority of EU programmes are focussed on addressing and attempting to solve pre-determined scientific problems and research agendas. As this is the case, it is natural that the European Commission should consult with the appropriate experts from within Member States and the scientific community.*
7. *EMBL-EBI has a very successful track record in accessing EU funds for research and innovation and a sound understanding of how to engage in the shaping the development of such programmes. However, the reality is different for many other organisations, especially Small to Medium Sized Enterprises (SMEs), which don’t have the same levels of awareness of these high-level groups, associations, networks and councils.*
8. *Information on European Commission websites about how programmes and policies are formulated and the bodies which are involved in developing them is almost non-existent. This helps to fuel the feeling that programmes and policies are developed in a non-transparent manner.*

Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

9. *In FP7, the European Commission launched several high-profile Public Private Partnerships (called Joint Technology Initiatives). In EMBL-EBI’s view, the results of these have been mixed. Whilst the Innovative Medicines Initiative (IMI), which is the PPP in the field of life sciences, has undoubtedly funded many excellent collaborative projects, there are many areas where improvements could be made. For academia, the submission process is considered to be non-transparent, there is a feeling that IPR provisions favour industry and that reimbursement rates are less beneficial than for the rest of FP7. For industry, there is a frustration that despite providing match-funding, IMI still can’t deviate away enough from the bureaucracy of FP7.*
10. *In terms of the level of private sector engagement in other EU programmes such as FP7, participation is far lower than the European Commission and Member States would wish. The single biggest reason for the lack of engagement from industry and SMEs is the difficulty involved in finding, submitting and managing EU grants. Simplification is needed if industry is to participate more.*

Do EU proposals clearly state their desired outputs, outcomes, impacts, and ‘European added-value’? Do you think the European Commission’s Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

N/A

Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

N/A

In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

- 11. The results of EU research and innovation often do feed into public policy, but this tends to happen more in certain scientific domains than others, and the success to which this happens can vary from project to project. Research fields such as public health, environment, energy, nano-safety and social sciences, for example, lend themselves to feeding into policy formation more than other research domains. The European Commission will also often fund specific projects where it is clearly stated that a desired impact of the project is to shape policy formation.*
- 12. In terms of using EU research and innovation outputs to drive economic growth, it is clear that more could be done. A recent study showed that only half of EU funded projects in the field of health ever result in a publication. Moreover, the number of patents that derive from EU funded research is lower than Member States would wish for. Overall industry involvement in EU programmes is lower than hoped.*
- 13. In recent years, there has been a clear drive to commit more EU funds on innovation and support more applied research topics. It is important to remember that it is not only applied research which leads to innovation. By maintaining high-levels of funding in basic research and on programmes such as research infrastructures, which act as key enablers for scientists to make discoveries and exploit knowledge, the EU can also playing a role in ensuring some of the framework conditions are in place to enable economic growth.*
- 14. It should also be said that EU policies and programmes cannot alone achieve major economic growth for the UK. Throughout Europe, the vast majority of science funding takes place at the national level and in terms of legislation, the EU has no authority over Member States in the fields of research and innovation.*

How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

- 15. The UK has maintained a relatively high level of spending on science despite the economic crisis and austerity measures, and this is to be commended. However, across Europe, there*

has undoubtedly been a cut in science investment in many Member States. Equally, private sector investment in research, which in Europe during pre-crisis times was already lower than in the US and Japan, has suffered drastically as a result of the current economic climate.

16. Europe lags behind other world leading economies in R&D spending. This is witnessed by repeated failure to meet the Lisbon target of 3% investment in R&D. The economic crisis has had the effect of exacerbating the problem.

17. Whilst the European Commission's budget proposal for Horizon 2020 of €80 billion represents an increase from the current FP7 budget of €52 billion, this should be set against the fact that Horizon 2020 is broader programme, which will incorporate other activities currently funded outside FP7. The view of EMBL-EBI is that this proposed budget of €80 billion for Horizon 2020 should be preserved and maintained and attempts to reduce it this resisted.

What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?

18. Due, principally, to its strong academic base, the UK receives a high-return on its participation in EU research and innovation programmes, especially compared to the Common Agricultural Policy and the EU Structural Funds - the EU's other major programmes - where the UK is a net contributor. It is EMBL-EBI's view that in order to preserve this high return and drive competitiveness the UK should seek to preserve current proposals for EU research and innovation programmes and ensure that a larger overall percentage of the EU budget is spent on research and innovation than at present.

19. The European Commission could do more to ensure that data generated through EU-funded research and innovation programmes is deposited with appropriate repositories, so that other researchers, including within the UK, can make appropriate use of them.

11 February 2012

Professor JCT Fairbank, MA, MD, FRCS, Dr Jill Urban, PhD, and Professor Sally Roberts, PhD—Written evidence

Professor JCT Fairbank, MA, MD, FRCS, Dr Jill Urban, PhD, and Professor Sally Roberts, PhD—Written evidence

[Submission to be found under Dr Jill Urban, PhD](#)

The Federation of Small Businesses—Written evidence

Further to evidence given to the Internal Market, Infrastructure and Employment (Sub-Committee B) on 11 February, which referred to the Federation of Small Businesses, I wanted to clarify our position.

The FSB has a professional EU team that meets regularly with officials and MEPs in Brussels and Strasbourg and engages with Brussels-based civil servants in the different Government departments. We monitor and lobby on a wide range of dossiers throughout the legislative process.

The FSB believes that the burdens of EU legislation fall disproportionately on the smallest of firms. Therefore, we work hard in Brussels to influence the Commission's Smart Regulation Agenda and to make sure legislation is made according to the 'Think Small First' principle. The Commission's efforts to reduce the burdens on micro businesses are particularly crucial for our members.

With regard to the European Parliament, while an increasing number of MEPs are aware of the importance of small businesses to the European economy, there is always room for improvement. Legislation that is genuinely small business-friendly is unfortunately still rare, but our advocacy and lobbying work is very active on a range of issues, with the successes and challenges that come with it. The Federation of Small Businesses is the founding member of the European Small Business Alliance, our umbrella organisation at EU level, with whom we frequently lobby jointly.

15 March 2013

Vicky Ford MEP—Written evidence

Thank you for your email of 17 January informing me of the inquiry into the effectiveness of EU research and innovation proposals. As the shadow rapporteur for the European Conservatives and Reformists group I have been following the build-up to the Horizon 2020 proposals since 2009. I have met many scientists and researchers from across the UK and back in 2010 I met with a working group of previous participants from the East of England in order to feed into UK BIS consultations. I tabled over 170 parliamentary amendments, liaising closely with UK officials and UK organisations. I enclose a copy of a booklet which we collated on the impact of EU funding programmes on UK research and industry.

I welcome your inquiry, but given that MEPs had to submit amendments to Horizon 2020 - The Framework for Research and Innovation (2014-2020) in June 2012, and that the Council's negotiating position has also been approved by the members of the Competitiveness Council, the timing of this inquiry seems a little too late. We are already in the process of negotiating the Horizon 2020 package with the Council and the Commission.

In terms of my priorities for EU research and innovation, simplification is number one. The Commission's proposal to have a single set of rules for all projects is a step in the right direction, but I believe there is more that can be done to ease the administrative burden on participants. For that reason, I have proposed a Code of Best Practice for the Commission to follow, which includes provisions to speed up time to bid, time to grant and time to pay and to improve the redress procedure and communication links between participants and the Commission. The Code of Best Practice is currently under discussion between the Parliament, Council and Commission. I am enclosing a copy of the text for your reference.

I am very concerned about the budget for Horizon 2020. Firstly, it is extremely important that we secure a sufficient budget for EU R&I within the context of an overall reduced EU budget. The Horizon 2020 budget is currently under threat in the negotiations on the MFF and, assuming the principle of excellence is not undermined, I do not want to see money for R&I, which could make a positive impact, be re-directed to other areas where there is significantly less EU added-value. Secondly, I am concerned about the budget breakdown within Horizon 2020. The European Parliament has proposed to change many of the figures from the original Commission proposal, which would see a cut in the budget for areas such as the ERC, health research and crop science, to name but a few. The Parliament did not do an assessment of the impact of changing the budget lines calculated by the Commission and these changes could have a detrimental impact on many vital areas of research.

There are several other points of controversy in the negotiations on Horizon 2020. A major issue is that of "Spreading excellence and widening participation". The Parliament have proposed a new heading to specifically address this issue including measures such as twinning and networking schemes, establishing ERA Chairs and offering return grants to academics currently working outside Europe. The Council, on the other hand, is proposing a system of "additional remuneration" for researchers of up to 8,000 euros per year. I am concerned about the impact this bonus payment could have on the number of projects which could be funded or indeed it could dumb down the quality of research.

Vicky Ford MEP—Written evidence

I would be very happy to give official evidence for your inquiry if you would like me to. There is an excellent video link between the House of Lords and the European Parliament which I have used before.

4 February 2013

Dr Michael Galsworthy, PhD and Professor Martin McKee CBE MD DSc MSc FRCP FRCPE FRCPI FFPH FMedSci—Written evidence

Four key issues: Bureaucracy, Transparency, Open Data and Eastern Europe (EU-12)

As scientists who have been researching the nature and effectiveness of EU-funded research (from financial allocation to project structure to harnessing of output), we would like to provide evidence to the Select Committee on the European Union on the current state of play and future plans with regard to European investment into scientific research & innovation. Herein we cover what we believe to be positive progress, but also what is being overlooked. Areas addressed are firstly bureaucracy and transparency in funding – then the two key issues which we believe need the most attention: i) a central repository for all research data gathered under EU funding, and ii) redressing EU-12 drastic underinvestment and brain drain simply and fairly by giving EU-12 researchers equal pay to EU-15 researchers. These measures will interact with measures already planned and strengthen the European Research Area (ERA) considerably. Our suggestions are most pertinent to questions 4-7 and 9 of the “call for evidence”. The key arguments presented here are based on our recent writings in a letter to *The Lancet* (Galsworthy et al., 2012) and an invited “Perspectives” piece due out shortly in the *Journal of Health Services Research and Policy* (Galsworthy et al., 2013) in addition to other experience and writings by ourselves relating to these matters.

(1)

Context: increasing investment and integration

Over the last 15 years, the EU has spent around €80 billion on science research via its latest three “Framework programmes” (FP5, FP6 and FP7). In 2014, a new and more integrated programme, Horizon 2020, will increase investment with potentially another €80- €100 billion over six years. Such investment is good for Europe and good for the UK and we strongly support it. We note the ample evidence for robust return-on-investment offered by scientific research and the strong support for this investment by the scientific community (noting the open letter of 44 European Nobel Laureates and the associated petition with over 150,000 signatures: <http://www.no-cuts-on-research.eu>). From our own research on health-related projects (academic paper under review), we also attest that under FP5 and FP6, the UK participated in and coordinated more health-related projects than any other EU country. Central EU funding has forged strong scientific networks across Europe and UK institutions regularly play leading roles.

(2)

Benefits of the European Research Area (ERA) and a centralised funding scheme are manifold. As these have already been articulated eloquently and in depth in the many European Commission documents focused on the ERA and the Horizon 2020 programme, we will only summarise them briefly here. Firstly, there is the issue of research duplication. By investing taxpayer money in a scheme that spans Europe and integrates its research capacity, expertise is pooled rather than the proverbial wheel being reinvented in parallel in

multiple countries. Secondly, there is the issue of scale. Large scale is important for many areas of science and cross-national collaboration makes that possible. As an example in health, the research on rare diseases benefits hugely from pooling cases across multiple countries. Thirdly, there is the circulation of expertise associated with multinational collaboration and expert mobility (both also make the vocation of scientist more exciting and culturally rich). Fourthly, cross-country comparisons in social and organisational disciplines (such as health services research) provide natural experiments for well-informed policy development.

(3)

Finally, and very importantly, such an over-arching system provides the framework by which great changes in scientific behaviour can rapidly transmit across Europe. The Open Access initiative (ensuring all scientific papers are accessible to all scientists and public) forged in the UK and now adopted as EU policy, is a prime example, although obviously it is essential that this is adequately funded and is implemented in ways that do not penalise junior researchers and those with limited research funding. This is why the issues of science and innovation management that we lay out here could have colossal impact across the entire European Union, providing a much more healthy and dynamic system within which UK research can function.

(4)

Changes in Bureaucracy

Bureaucracy drives researchers out of science, out of countries, hampers acquisition of resources, shackles innovation and chokes up capacity for industry and academia to interact and collaborate dynamically. In 2004, Time magazine attributed the nearly 400,000 European researchers in the US to two key factors – funds and bureaucracy.

(5)

The bureaucracy in European science funding has been slammed so often that it seems the message has finally seeped through. In particular, concerns about the adverse impact on smaller research institutes and small and medium enterprises (SMEs) have been accepted. The Commission intends to reduce administration costs by 15-20% in future. Submissions will be faster, lighter and follow standardised practices. Additionally, meaningless timesheets for those who employed full-time on EU projects will be abolished. Finally, reimbursement of indirect costs will be simplified. These are welcome steps.

(6)

Given the stated desire of Horizon 2020 to foster innovation and public-private partnerships (PPP), the Commission could also simplify its sub-contracting rules to encourage entrepreneurial dynamism. Scientific research increasingly requires partnerships with innovative SMEs, an interaction which stimulates niche developments in European industry. Yet the tendering process can be burdensome for all concerned. Many small companies waste scarce time compiling bids which fail and investigators are bound to strangers who present the lowest bid regardless of passion or competence beyond fulfilling minimal requirements. In addition, fears over being swamped by proposals and increasing rates of complaints mean that it is simply not in the interests of projects and SMEs to engage in open discussion with many parties. This runs very counter to exploration and innovation.

(7)

For this reason, we have recommended that sub-contracting should not require compulsory tendering where the sums fall below one of the EC procurement thresholds for public sector contracting authorities (€130,000 / €200,000). Investigators have already had their projects approved, including the budget breakdown, and the investigators themselves are best placed to know the properties of partners, financial and otherwise, which would make their projects most successful. We strongly recommend the EU establish a science & business online marketplace where projects can list their needs and companies list their capacities and all parties are encouraged to engage in discussion. The project leaders are then empowered to hire services as they need, using their allocated budget, without tendering (unless of course they wish to) – much as an SME would hire another SME. The supposed “risks” associated with trusting research teams to themselves choose business partners are far outweighed by the speed, effectiveness, dynamism and opportunities gained.
(8)

Transparency

In our EU-funded Health Research for Europe (HR4E) project we manually classified the 29,000 projects funded under FP5 & FP6. As we report in *The Lancet*, the projects database summed to €29.9 billion whereas the amount declared to be spent under these two programmes was some €34 billion. In a reply from an EU spokesperson in *The Lancet*, other issues in our article were addressed (academic output, data repositories), but not this figure. Neither have we had a personal reply. We have since found out via a Spanish investigative journalist that the difference apparently was attributable to not all FP5&6 projects being in the projects database (even now – and the last projects were funded in 2006). The journalist was assured that this was not the case for FP7. Additionally, during the HR4E project, we encountered a refusal to hand over the projects database despite this being what they themselves had funded us to do. A bizarre “data protection” claim was made pertaining to the information about project coordinators. Eventually, there was capitulation when we threatened to sue for withholding of public information.
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Another problem with the way the EU records the project it funds concerns the poor classification system and mechanisms of availability that would allow third-party mapping of their activity. We contrast this with the US National Institutes of Health’s RePORTER website, which has an online interface detailing the \$30bn per annum of research funded. It is possible to drill down by geography, year or subject area to access what is funded. Then download tables of information. The projects are also automatically linked to their academic outputs. The EU had no such well-developed interface for its science funding and we had to acquire our project to output links by novel methods of mining the internet.
(10)

Lastly, our analysis of all health-related research funded by the EU under FP5 & FP6 found that some 50% of research projects had no detectable academic output (Galsworthy et al., 2012). This is not as shocking as it first sounds as this 50% has been encountered in many other forms in terms of the proportion of science making its way through to full publication. In fact, we broke this 50% figure down by funding band to show that those projects funded over €1.45 million produce publications 88% of the time – thus supporting the EU drive to mega-projects (in terms of leaving some literature footprint). There are many other facets

of consideration that we do not have space to discuss here. The main issue is the EU's ability (rather, lack thereof) to track its own projects and their outputs. As we detail in papers elsewhere, the technology is available (Galsworthy et al., 2013), but in all the Horizon 2020 documents there is a dearth of discussion on how the EU should be harnessing its own scientific innovation (e.g. the EU-funded OpenAIRE+ project) in order to deliver a state-of-the-art system that would then be fully transparent and thereby invite research scientists and other interested parties to monitor and contribute debate to the EU's research direction. Comparing current funding with economic burden of disease, societal/technological need, research prioritisation exercises from various domains of science, or the funding profiles of other funders allows identification of overlaps and gaps for future funding. Transparency and solid informatics concerning current funding and outputs is the key to this capacity.

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Our call for an EU repository for research databases

We have begun campaigning that the European Commission should mandate that all projects which it funds provide any collected research data as a key project deliverable. The funder should check the quality and annotation of those data before storing the project database in a repository of databases, complete with appropriate search terms and text for discovery and re-use by third parties. These collected databases should be made public after an appropriate delay to ensure that those investing efforts in collecting the data have sufficient time to produce primary outcomes. The raw data then become a findable, citable and re-useable scientific resource.

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The case for open data from publically-funded research has been advocated frequently; often citing validation of results, use in meta-analysis, novel unforeseen exploitation, and mitigation of publication bias. The idea that raw data from publically-funded research are a public good has led funding bodies such as the MRC and the Wellcome Trust actively to advocate for open data. Much of this was influenced by the OECD Principles and Guidelines for Access to Research Data from Public Funding (2007), which states: "Databases are rapidly becoming an essential part of the infrastructure of the global science system. The international Human Genome Project is but one good example of a large-scale endeavour in which openly accessible information is being used successfully by many different users, all over the world, for a great variety of purposes. Besides, access to research data increases the returns from public investment in this area; reinforces open scientific inquiry; encourages diversity of studies and opinion; promotes new areas of work and enables the exploration of topics not envisioned by the initial investigators."

(13)

However, despite all the encouragement for open data over recent years, progress has been limited to patchworks of academic journals that publish "data papers" or "executable papers", or scientific areas where there is some form of standardised data format and collaboration for open data (genetics and geology appear to lead the way). Still the vast majority of scientific research remains on personal computers of scientists and does not make its way to data repositories to be validated or re-used. Combining this with our above findings of a large number of projects which do not produce academic papers – and factoring in the understanding that databases which result in papers are not fully exploited

(but may hold many future uses), we have called for the EU to mandate the delivery of research databases back to the EU in order to be made publically available.

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Ensuring the quality of data is a key step in assuring the quality of science. Open access to collected data does much to ensure that quality. A key part of our call is not that the research results are deposited “somewhere, anywhere”, but rather that the EU takes responsibility for their quality assurance and digital curation, which involves making the data are findable to any researcher who wishes to know what data are available on the topic. This would provide a new global gold standard for funders. It is certainly the future direction of science and the Horizon 2020 programme should take the lead.

(15)

Is this step technologically feasible before 2014? Absolutely. The EU itself has funded a project, APARSEN, which has explored issues of data curation, quality assessment of datasets and peer review of research data. Well-developed flexible data repositories (with which the EU could partner) already exist. Examples include DataCite and FigShare. Thanks also to the EU’s drive for open access (to publications from research projects), it has funded the project OpenAIRE+ (which follows OpenAIRE, DRIVER & DRIVER II), which will soon be capable of linking EU-funded projects (via a search interface) not only to the publication outputs of its projects, but also any databases that have been made available. Therefore the Horizon 2020 programme is in a unique position to harness the capacity it has funded itself and take a global lead on the next major development in science.

[We declare we have had no participation in the projects mentioned here and therefore no conflict of interest in highlighting their importance.]

(16)

Eastern European underinvestment – and a new approach

The EC’s Impact Assessment of Health Research Projects supported by DG Research 2002-2010, published in November 2011, produced alarming findings. The bottom of the table from Annex 4 of the document is replicated below (Table I), showing the participation rates (representation on projects) and the percentage of total EU research funding each region receives.

(17)

	FP6 LifeSciHealth		FP7 Health	
	Participation	EU contribution	Participation	EU contribution
EU-15	83.3%	88.4%	78.1%	85.0%
EU-12	6.2%	3.0%	5.8%	2.5%
Associated Countries	6.8%	6.6%	6.9%	7.0%
Rest of the world	3.7%	2.0%	9.2%	5.5%
Total	100%	100%	100%	100%

EU-15 = original 15 member states, EU-12 = newest member states, Associated Countries = Switzerland, Israel, Norway, Iceland – who contribute to the science budget according to their GDPs.

Rest of the World = all other countries (note: they can participate, but cannot lead projects and do not contribute financially).

According to the EC's own data, the original 15 member states have received a staggering 34 times more health research funding under FP7 than the 12 newest member states. By our calculation using 2007 data (the year when FP7 started), that 34 times difference cannot be explained by the 3.8 times larger population of the EU-15 members, nor their 13.3 times greater combined GDP, nor even their 12.8 times greater contribution to the EU budget. The difference represents dramatic underfunding. Worse, both the participation rate and the funding have dropped since FP6, and the EU-12 gets less money per participation than the “rest of the world” group (which includes Africa, Asia, etc.), despite contributing financially to the common pool.

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So who is to blame for this state of affairs? It could be that research infrastructure in these countries is still extremely weak. This is supported by their lack of participation in major conferences. However, from personal experience, we note another powerful factor. The net salary earned on an EU project in Slovenia (where MJG worked on two consecutive EU projects) is almost one third of what the same researcher would receive for doing precisely the same work, on precisely the same project, in London. Each time project proposals are written, all researchers must use local salaries, and the bulk of the budget moves to Northwest Europe, pursuant to the higher salaries there. To believe the differences reflect “living costs” is naivety or wilful blindness to the financial hardship of Eastern European researchers. The truth is that EU project salary compensation offers no respite, rather it reinforces the tilted playing field and fuels brain drain. The participation to money ratios above are substantially explained by this salary difference.

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Although in March 2012 the EU regional policy commissioner announced the need to prioritise the issue of east to west brain drain, this is not even mentioned in any of the Impact Assessments or proposals for Horizon 2020. It is however addressed in the Final Report of High Level Panel on the Socio-Economic Benefits of the European Research Area, stating (p21): *“There is no reason whatsoever for arguing that a scientist living in a poor region should be allowed to perform science according to more relaxed quality criteria. Research policies at European level should be independent of geographic criteria.”* Despite the patronising tone concerning quality, we thoroughly agree that policies should be independent of geographical criteria – and those policies should include salary. The document continues: *“While the allocation of funding for research at European level must follow quality criteria without consideration for geographic factors, ... governments may use Structural Funds to build up the structural and organizational conditions for their best researchers to stay home.”* We strongly stress that Structural Funds are comparable to swimming against a strong tide if western institutions continue to suck out more finances from eastern institutions on each and every project despite matched amount of academic input. That is simply protectionism, it is not fair competition and Structural Funds alone will never fix it. This will be to the detriment of the entire EU as bright Eastern European scientists not only go west within the EU – but also i) elsewhere geographically, and ii) out of science altogether.

(20)

Our proposition is to pay researchers in New Member States the same salary as in Western Europe. Paying equitably would let Eastern Europe use its competitive advantage of

marginally lower living costs to retain and even attract top researchers, so that Principal Investigators can assimilate critical masses of young eager talent. Additionally, it encourages many more applications to EU projects and forces local funders to match those compensation rates. This is what EU science stimulation should be. And what is the cost? The table above suggests that doubling all salaries to Eastern European researchers would increase the budget by a paltry 2.5%. It is time to remove insulting salary differences and allow Eastern Europe to compete.

(21)

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11 February 2013

Growth Accelerator—Written evidence

Introduction

GrowthAccelerator is a partnership between the UK government and the private sector designed to help High Growth businesses in England achieve their ambition and potential.

It is a programme that brings proven business experts together to work with companies to identify their barriers to growth and how to overcome them. This includes tackling problems such as:

- Commercialising innovation.
- Securing finance.
- Developing leadership.
- Management capability.

John Hill is the Growth Accelerator lead on Commercialising innovation.

Inquiry Question 1.

What are the essential elements of an effective proposal relating to research and innovation?

In our view, the primary essential element going forward is to recover and increase the amount of business participation. In addition to modify the instruments and the way that budgets are allocated so that more participation leads to exploitation, increased competitiveness and economic growth.

‘As Europe faces the challenges of the 21st century, SMEs will play a vital role as engines of growth and jobs.’ This view, articulated here by the Small Business Act Review, was also represented in the Framework Programme-7 (FP7) interim evaluation, which highlighted the issue of business and SME participation and why the needs of fast-growing innovative enterprises deserve particular attention.

The European Commission’s Innovation Union publication also contributed to the debate on SMEs and innovation by setting out a broad concept of innovation which encompasses non-technological innovation. There is now a convergence of opinion between business organisations, national agencies and the European Commission which recognises that fast-growing innovative SMEs are capable of transforming Europe’s economic performance and that SMEs in general are key drivers of innovation. There is also consensus that, in line with thinking behind the Innovation Union, for the vast majority of SMEs innovation is not driven by research but by market demands, coming either from final users or customers in their value chains.

Ambitious and innovative small companies are disproportionately effective in stimulating economic growth; these so called High Growth Businesses are found in almost all sectors of the economy. Whilst it is difficult to identify the most successful individual companies before they achieve success, the policy challenge appears to lie in creating the conditions to

encourage such companies to thrive⁵⁴. Evidence now strongly indicates that rather than stimulating the formation of start-ups or providing a wide range of research, innovation and entrepreneurship support to the general population of small businesses, greater economic impact can be gained from creating the conditions in which high growth potential SMEs can be identified and provided with focused support, to overcome specific barriers and realise their growth potential.

Two key elements are needed to facilitate such a radically different approach and ecosystem. Firstly, more commercial and strategically focused relationships with the research base are needed to support the development of the brightest market, product and service ideas from SME entrepreneurs. Secondly, this must be complemented by coaching from experienced and previously successful entrepreneurs to help business leaders within SMEs apply R&D and innovation strategically and commercialise it successfully with efficient and effective access to finance. The significant body of evidence debated within Taftie (the European Network of Innovation Agencies) has produced **10 key points for stakeholders within RD&I to consider:**

1. High Growth SMEs generate the majority of growth in employment and GDP in the UK and Europe.
2. High growth is strongly linked to innovation, but the link to research performed in the main themes of Framework Programme, defined ‘Top-Down’ by committees and working groups is weak.
3. Few High Growth SMEs have continuous, in-house R&D capabilities, but instead reside in sectors that are more often medium, low or even no-tech, where continuous, in-house R&D is ineffective in creating growth.
4. Continuous, in-house R&D yields no better returns for High Growth SMEs than other innovation approaches, and the biggest investors in R&D among SMEs are not more likely to be the fastest growing companies.
5. The percentage of High Growth SMEs within a sector appear to be independent of the level of SMEs with in-house research capability within that sector.
6. SMEs that have a continuous, in-house research capability are no more effective in creating growth than Intermittent Innovators, who sub-contract their research capacity, and which are twice as prevalent amongst High Growth SMEs.
7. At EU level, research-funding support for SMEs has failed to focus resources onto High Growth SMEs. Instead funding has tended to be focused on SMEs with continuous in-house research activities. FP7 has provided over 75% of its funding for such SMEs through the Cooperation Programme in which SMEs carry out R&D in-house and less than 25% to Intermittent Innovators commonly found within the Capacities Programme.

⁵⁴ The majority of the evidence in this answer is taken from: Small Business Innovation Stimulating Entrepreneurship and Growth: Taftie Conference Proceedings and Conclusions 2012

8. Intermittent Innovators innovate around market opportunities as, and when, they arise, and hence more commonly outsource their R&D. These Intermittent Innovators are twice as prevalent amongst High Growth SMEs than the Continuous Innovators with permanent in-house R&D capabilities, and are more effective at generating growth from lower investments in R&D, thus representing a far greater potential return on public investment in R&D.
9. Based on the economic evidence presented, it was concluded by the national agencies at the 2012 Taftie Conference that much greater participation of High Growth SMEs would be enabled through much greater emphasis on Intermittent Innovators, who typically operate closer to market and commonly outsource R&D.
10. For this reason the Dedicated SME Instrument proposed in Horizon 2020, which enables R&D outsourcing was welcomed, although it is unclear whether this instrument will be funded sufficiently well to improve the current ineffective balance of funding.

Inquiry Question 4.

Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

Participation by the business community in the sixth and seventh Framework Programmes has decreased steadily and significantly to 25%⁵⁵. It is imperative, given the goals of the Innovation Union and Europe's renewed ambition to generate a more innovative and faster-growing economy that this situation is not allowed to persist – or worsen. We would argue strongly for a programme design more conducive to business-driven innovation. An innovative economy is best served by a programme that strikes a balance between measures allowing the business community to innovate within their strategic direction (bottom-up) and those based on priorities defined at a European Commission level (top-down) aimed at solving, for instance, grand societal challenges. Balancing the needs of businesses and the economy with those of citizens and society is a critical challenge for any future Common Strategic Framework. To ensure Europe rises to this challenge, we advocate that the following recommendations inform the next phase of DG Research & Innovation policy and funding:

1. Dedicate a significant part of the pillars of 'Leadership in Enabling Industrial Technologies' and 'Societal Challengers' to innovation projects involving a considerable share of business participation, especially SMEs.
2. Ensure that there are open or bottom-up projects through which the business community can channel its strategic R&D and innovation efforts.

To enable the budgetary provision for this, we recommend that the European Commission embarks on this task by being held to The European Parliament's and Competitiveness Council's demands for SMEs (that are high-tech and research capable) to

⁵⁵ The majority of the evidence in this answer is taken from the Taftie (www.taftie.org) recommendations to The European Commission 2012 on Horizon 2020: Innovation for Europe's Future: Business is Key for European Innovation.

make up at least 20% of the high level research activity within the pillars of ‘Leadership in Enabling Industrial Technologies’ and ‘Societal Challengers’. In addition, the Commission should also be required, as proposed by Mrs Carvalho MEP⁵⁶, to allocate a further 4% of the total Horizon 2020 budget to innovative SMEs, without research capabilities who use universities and institutes to provide the research to fuel their innovations.

To enable the idea of bottom-up projects for SMEs, we support the creation of a Dedicated SME Instrument to meet the demands of business by creating, ‘a clearer recognition of the pivotal link between entrepreneurship and innovation throughout the Europe 2020 flagship initiatives, reflecting the ‘think small first’ principle set out in the Small Business Act and dedicating part of Horizon 2020 exclusively to supporting SMEs’⁵⁷. The Dedicated SME Instrument will allow SMEs to come with bottom-up concepts for R&D projects, derived from the market, and be provided with a flexible instrument to fund their innovation needs. An instrument, capable of funding the research phase of the innovation cycle as well as the equity and debt backed commercialisation phase.

Nationally, through **Growth Accelerator** we expect to identify and support over 50,000 high-growth potential SMEs over the life of Horizon 2020. Based on our experience so far in mobilizing this key national programme and having engaged with 5,000 UK high-grows already, we are forecasting that at least 7,500 of Growth Accelerator’s clients will be using innovation as a key part of their growth strategy and many of these will require exactly the sort of support that the Horizon 2020 Dedicated SME Instrument offers.

The existing **SMART grants from the TSB** are also highly complementary as a gateway to larger-scale international innovation activity by the highest growth potential UK SMEs with global product ideas. In 2011, a little under 1,600 UK SMEs applied for a SMART grant with just under 400 securing a total of £34M in sums between £25k and £250k for proof of market, proof of concept and prototype development projects. Adequately funded, the Horizon 2020 Dedicated SME Instrument could offer the potential for grants of up to £1M to SMEs to work with technology and value chain partners internationally; on bigger scale innovations needed to enable bigger, global growth opportunities.

Indeed, because of the combined BIS investment in Growth Accelerator and the SMART grants from the TSB, the UK is likely to be the most effective Member State in identifying its high-grows, facilitating them through innovation based growth and signposting them on to vital tools like the Dedicated SME Instrument in Horizon 2020. It will be a great shame if this important tool for UK private sector growth is left underfunded and an ineffective complement to these two key BIS services for SME innovation and growth in the UK.

However, an equally important factor in shaping Horizon 2020 for the benefit of the UK is the **protection of the strong university funding receipts, which make up the vast majority of the Just Retour for UK investment** in the global EC budget and Horizon 2020 specifically. Greater emphasis and funding for the Dedicated SME Instrument will ensure this is maintained. The instrument is specifically designed to enable SMEs to sub-contract their R&D to universities and this will help to contribute to the objective of getting more UK

⁵⁶ Horizon 2020; Carvalho report - Specific Programme, Draft Compromises - Version 23.11.2012. Proposal for a decision; Annex I – point I – point I.3. Industry and small and medium-sized enterprises (SMEs)

⁵⁷ EUROCHAMBRES submission to February 2011 European Council

universities working with industry and SMEs in particular. With adequate funding, as recommended in our answer to question 9, and through the combined enablement of Growth Accelerator and the TSB, we estimate that through the Dedicated SME Instrument, we will be able to help 3,500 UK SMEs to place at least £1Bn of Horizon 2020 grant funding with UK universities and institutes over the course of Horizon 2020.

Inquiry Question 7.

7. In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

SMEs are now broadly accepted as more important to economic growth than ever. In recognition of this, both the European Parliament and the Competitiveness Council have introduced amendments to the Commission's proposals for Horizon 2020 to increase the target for SME participation from 15% to 20% of the new Thematic Areas known as "Leadership in Enabling Industrial Technologies" and "Societal Challenges".

However, the Dedicated SME Instrument is specifically important in improving the the capability of EU research activity and outputs to be translated into economic growth.

The Dedicated SME Instrument is a powerful new tool to enable greater SME participation and specifically, participation that leads to more exploitable results, more products in markets and more economic growth. Fast growing SMEs, the drivers of economic growth in most EU countries, create more than half of all economic growth⁵⁸. The vast majority of these high growth SMEs use innovation intermittently to develop a product for a specific market need, when and where it arises, relying on universities to deliver the R&D for them. Few high growth SMEs have permanent in-house R&D capabilities. For this reason, the dedicated SME instrument is an ideal mechanism to support high-growth SMEs using innovation to grow, as it allows them to sub-contract their R&D to third parties and build project consortia to create international value chain partnerships to help take their products to European and global markets.

This is why the European Parliament has additionally proposed an amendment to increase the stand-alone Innovation in SMEs budget to 4.5%⁵⁹ of the total Horizon 2020 budget and specified that the vast majority of this, at least 4%⁶⁰, should be allocated to the Dedicated SME Instrument.

Also, recognising the importance of the dedicated instrument, the December Partial General Approach from the Competitiveness Council specified that "all of the societal challenges and the enabling and industrial technologies shall apply the dedicated SME instrument and allocate an appropriate amount to it, to reach the minimum goal of 20% of total combined

⁵⁸ NESTA Vital 6% and BIS Enterprise Directorate

⁵⁹ Committee on Industry, Research and Energy; 2011/0401(COD); 26 November 2012; COMPROMISE AMENDMENTS I – 86; Draft report; Teresa Riera Madurell (PE); Proposal for a regulation of the European Parliament and of the Council establishing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020); Proposal for a regulation (COM 2011/0809 – C7 0466/2011 – 2011/0401(COD)). Compromise amendment 62; Annex II breakdown; Proposal for a regulation Annex II – Breakdown of the budget – table

⁶⁰ Horizon 2020; Carvalho report - Specific Programme, Draft Compromises - Version 23.11.2012. Proposal for a decision; Annex I – point I – point I.3. Industry and small and medium-sized enterprises (SMEs)

budgets being devoted to SMEs⁶¹”. This, partly because of the poor results⁶² generated from FP7 in channeling R&D funding to SMEs participating themselves as researchers in Projects in the Thematic Areas led by big business and academia. The EC’s own evaluation showed that nearly no added value in terms of growth, from this form of SME participation, could be attributed to the SMEs’ FP research activity and only 22% of SMEs in Thematic Area Projects described their participation as strategic to their company.

As Eurochambres (The Association of European Chambers of Commerce and Industry) remarked in their recent position paper on the importance of the Dedicated SME Instrument “*Stimulating innovation is not a matter of pumping money into established research channels; it’s about helping a wide range of smaller companies to access tailored research that will help them exploit specific market opportunities*”.

For this reason and facilitated by the UK’s Growth Accelerator delivery partner, Pera; UEAPME⁶³, Eurochambres, EBAN⁶⁴ and EVCA⁶⁵, representing 20 million SMEs, €10Bn of SME investment and 20,000 business angels came together for the first time, on the 22 January 2012, to urge Parliament and national delegations to the Competitiveness Council to complete the task and provide potential high growth SMEs with the clarity and scale of budget they need create growth on an international basis, through innovation.

Inquiry Question 9.

What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?

Specifically, we would recommend that EU institutions should:

1. Support the European Parliament’s amendments to increase the ‘Innovation in SMEs’ budget to 4.5%⁶⁶ of the total Horizon 2020 budget and specify that the vast majority of this, at least 4%⁶⁷, should be allocated to the Dedicated SME Instrument to be used in open calls on topics defined in a bottom-up manner by the SMEs themselves.
2. Additionally, to provide the much needed clarity and certainty on the application of the Dedicated SME Instrument in the areas of ‘Leadership in Enabling Industrial Technologies’ and ‘Societal Challenges’. Achieving this by specifying, in the Partial General Approach, that at least one quarter of the 20% of ‘Leadership in Enabling

⁶¹ Brussels, 6 December 2012, Interinstitutional File: Proposal for a Council decision establishing the Specific Programme implementing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020) - Partial general approach 2011/0402 3. Mainstreaming SMEs, 3.1. Mainstreaming SME support.

⁶² European Commission evaluation of SME participation in FP7, 2012, and Taftie conference 2012.

⁶³ UEAPME the SME umbrella organisation in Europe representing more than 12 million enterprises, which employ around 55 million people across Europe.

⁶⁴ EBAN represents more than 250 business angel networks across Europe.

⁶⁵ European Private Equity and Venture Capital Investing Association in Europe

⁶⁶ Committee on Industry, Research and Energy; 2011/0401(COD); 26 November 2012; COMPROMISE AMENDMENTS I – 86; Draft report; Teresa Riera Madurell (PE); Proposal for a regulation of the European Parliament and of the Council establishing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020); Proposal for a regulation (COM 2011/0809 – C7 0466/2011 – 2011/0401(COD)). Compromise amendment 62; Annex II breakdown; Proposal for a regulation Annex II – Breakdown of the budget – table

⁶⁷ Horizon 2020; Carvalho report - Specific Programme, Draft Compromises - Version 23.11.2012. Proposal for a decision; Annex I – point I – point I.3. Industry and small and medium-sized enterprises (SMEs)

Growth Accelerator—Written evidence

Industrial Technologies' and 'Societal Challenges' funding is allocated to the Dedicated SME Instrument, to be used in calls on topics defined in a top-down manner by the Commission.

7 February 2013

John Hill, Growth Accelerator, Professor Richard Brook, AIRTO and Professor Mary Ritter, Climate-KIC—Oral evidence (QQ 15–35)

John Hill, Growth Accelerator, Professor Richard Brook, AIRTO and Professor Mary Ritter, Climate-KIC—Oral evidence (QQ 15–35)

[Transcript to be found under Professor Mary Ritter, Climate-KIC](#)

Growth Accelerator—Supplementary written evidence

Thank you for inviting me to give evidence to the House of Lords Internal Market, Infrastructure and Employment Committee this week. Following the agreement for European Commission's budget for 2014-2020 last week, the session could not have been better timed. The key question now, is how can the agreed Horizon 2020 budget of €71Bn be most effectively targeted to deliver jobs and growth?

In session, I mentioned that, through the European Competitiveness Council, the Department for Business Innovation and Skills had a "great opportunity" to help ensure that the potential to achieve this objective is maximised and that SMEs in the UK in particular are given the best possible opportunity to participate and go on to generate growth from that participation. Later, Lord Brooke of Alverthorpe asked me to write a letter regarding "what BIS should be working on and what they should deliver and can be tested on in June". You reiterated this request as Chairman and I said I would be delighted to do so. The three suggestions I would like to offer for your consideration as key objectives to set BIS would be:

1. To make it a key UK priority to increase business participation in EU Research and Innovation and in particular participation of High Growth SMEs and those most likely to generate growth and jobs from their participation.
2. To enable this by supporting the European Parliament's amendment to increase the "Innovation in SMEs" budget to 4.5%⁶⁸ of the total Horizon 2020 budget, with the vast majority, at least 4%⁶⁹ of that 4.5% being allocated to the dedicated SME instrument, to be used in open calls on topics defined in a bottom-up manner by the SMEs themselves.
3. To be proactive, and provide the much needed clarity and certainty on the application of the dedicated SME instrument in the areas of Leadership in Enabling Industrial Technologies" and Societal Challenges. Achieving this by specifying, in the Partial General Approach, that at least one quarter of the 20%⁷⁰ of Leadership in Enabling Industrial Technologies" and "Societal Challenges funding devoted to SMEs, is allocated to the dedicated SME instrument, to be used in calls on topics defined in a top-down manner by the Commission services.

The rationale for the effectiveness and impact of these suggestions is contained within my evidence submission and I would not propose to repeat them here. However; it is worth noting that both of the BIS flagship programmes that facilitate SME growth through innovation (the Growth Accelerator Service and the Technology Strategy

⁶⁸ Draft report; Teresa Riera Madurell (PE); Proposal for a regulation of the European Parliament and of the Council establishing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020): Proposal for a regulation (COM 2011/0809 - C7 0466/2011 - 2011/0401(COD)). Compromise amendment 62; Annex II breakdown; Proposal for a regulation Annex II - Breakdown of the budget - table.

⁶⁹ Horizon 2020; Carvalho report - Specific Programme, Draft Compromises - Version 23.11.2012. Proposal for a decision; Annex I - point I - point I.3. Industry and small and medium-sized enterprises (SMEs).

⁷⁰ Brussels, 6 December 2012, Interinstitutional File: Proposal for a Council decision establishing the Specific Programme implementing Horizon 2020 - The Framework Programme for Research and Innovation (2013-2020) - Partial general approach 2011/0402(CS) 3. Mainstreaming SMEs, 3.1. Mainstreaming SME support.

Growth Accelerator—Supplementary written evidence

Board) reached, just a few weeks ago, a joint agreement on these recommendations.

I do hope that we succeed in making these changes and I am grateful to the Committee for listening with such interest.

Thank you again for the invitation to give evidence and if I can provide any further details or information, please do not hesitate to contact me.

12 February 2013

Malcolm Harbour CBE MEP—Oral evidence (QQ 1–14)

Evidence Session No. 1

Heard in Public

Questions 1–14

MONDAY 4 FEBRUARY 2013

Members present:

Baroness O’Cathain (Chairman)
Baroness Buscombe
Lord Clinton-Davis
Lord Elton
Lord Fearn
Lord Kakkar
Earl of Liverpool
Lord Wilson of Tillyorn

Examination of Witness

Malcolm Harbour CBE MEP, Chair, Committee on the Internal Market and Consumer Protection, European Parliament.

Q1 The Chairman: Welcome, Mr Harbour. On behalf of the Committee, I would like to congratulate you on your CBE—well earned. How many years’ hard labour did you have?

Malcolm Harbour: I have had 13 years here. I also had 32 years in the British car industry.

The Chairman: Thank you very much for making this time available to us. Members of the Committee with relevant interests will declare these. The session is on the record and being webcast live, and will be subsequently accessible via the parliamentary website. You will receive a transcript of the session to check and correct and this will be put on the public record, in printed form and on the parliamentary website. Now, I am going to ask you, for the record, if you could say who you are and your official title. Also, if you want to make a very short statement, that would be fine.

Malcolm Harbour: I am Malcolm Harbour. I am a Conservative Member of the European Parliament for the West Midlands. I am now a Chairman of the Internal Market and Consumer Protection Committee in the European Parliament. I took up that responsibility in 2009. When I first started in the Parliament in 1999 I was on the Industry Committee, so I was much involved in the Framework Programme 7 discussions. I have therefore followed the evolution of research policy with some interest, both because of my work there and also because, for 10 years, I have been vice-president of the European Parliament Science and Technology Options Assessment unit, known by its shorter name of STOA, which is the equivalent of POST, with whom I have worked a lot; so, I have a link in to science and research policy there. I also spend quite a lot of time in my own constituency with

university vice-chancellors and researchers. So, I say that by way of introduction because I am not directly involved, currently, with the legislative work on Horizon 2020, even though I am very familiar with the strategy behind it. I have discussed it extensively with the Commissioner as well. You have already had what struck me as being a very clear written submission from my colleague, Vicky Ford, who is the Conservative spokesman on that; so, I do not really want to repeat her remarks because I agree very much with what she said at a practical level. So, in terms of adding value, to some extent—

The Chairman: Can I just interrupt a moment? We have not yet had the statement, but it is due to hit us.

Malcolm Harbour: I am sure it will come to you because I have had it, so it must be around somewhere.

The Chairman: I have just had this note from a clerk.

Malcolm Harbour: It is dated 4 February, so here it is.

Q2 The Chairman: Thanks very much, but I do not think we can get to Strasbourg to pick it up, actually. Are there any interests in the Committee?

Lord Kakkar: Lord Chairman, I am Professor of Surgery at the University College in London. Our institution is entitled to apply for, and has, substantial funding in various EU research schemes.

Lord Wilson of Tillyorn: Lord Chairman, I have to declare an interest as a trustee of the Carnegie Trust for the Universities of Scotland, which, among other things, does some funding of research.

Lord Elton: If we are going into your concerns with consumer protection, which I had not anticipated, I should have declared that I am a lifetime honorary president of the Association of Chief Trading Standards Officers, but I do not think we are.

The Chairman: I was actually going to make the comment, of course, that our Committee is on the Internal Market, Infrastructure and Employment, so we do not have consumer protection. Of course, we would take consumer protection into account, naturally, when we deal with the internal market. Is there anything else that you want to ask?

Malcolm Harbour: I just made my preceding remark by saying that if you particularly want me to comment on the specifics of the proposal currently before the European Parliament, then I would have to defer on some of that because it is not being looked at by my Committee. I am more interested in the whole general shape of EU research proposals going forward and I am happy to comment on a number of the questions that you have placed before me. I did not want to raise your expectations too highly, Madam Chairman.

The Chairman: We always say, in this House, “If I cannot answer it, I will get back to you or I will write to you.” Perhaps you might be able to get the information and let us have it if that is at all possible.

Malcolm Harbour: Of course, yes.

Q3 The Chairman: Thank you very much. Now, the first question: what are the essential elements of an effective proposal relating to research and innovation?

Malcolm Harbour: That would probably take up the entire hour that we have available. Clearly, the whole question about added value research remains something that is widely studied. If we are talking about European level, which I think you are specifically, then the European level project should leverage in significant amounts of additional knowledge by pooling or sharing knowledge together, and by networking people together. It should also make research spending more efficient because, by definition, hopefully we will have less duplication of research and more focus on the areas and also be able to apply more critical resource at the same time. Also, we are looking for ways in which we can work more effectively with people who will be able to deploy that research eventually, at some stage, depending on when it started. Finally, we must always remember that we need to ensure that we really reward the best research and the most imaginative ideas. Initiatives like the European Research Council—which I know you have looked at and, indeed, I think other Committees in your Lordships’ House have—are really important in that context.

The Chairman: Regarding your fourth point on awarding the best research, how does one do that? My mind boggles because you could actually research something and then you do not know when the final product is going to turn out the way you expect it. By serendipity, you could discover another benefit from this particular research. Do you see the point I am making?

Malcolm Harbour: Yes, I understand. You have talked about research and innovation, which is very broad. The nature of any research proposal relates to the quality of ideas that are being put before you, and the quality of the team that is going to work on it; both of those things seem to me to be very important. Also, there are the linkages that the research team will have and the way that they are working with potential new exploiters of that research—I am talking in this stage about what you might call “nearer-market” research. In the case of the European Research Council, essentially we are looking for the very best and most imaginative ideas and we have delegated that responsibility to scientists of eminent reputation. You are basically looking for what they regard as being the best proposal, which they will judge as experts in their field as what they consider to be a truly groundbreaking idea, in which we need to invest then to take it to a further stage. Now, it may well be, of course, that that idea does not work, but, as with any research project, you learn as much from things that do not work as you do from things that do work.

Q4 Lord Fearn: Do you feel that stakeholders at all levels, including the European Parliament and its Committees, are properly consulted in the development of EU proposals on research and innovation? How could consultation be improved and to what extent does consultation affect policy formulation?

Malcolm Harbour: I am not directly involved, as I said, but based on my previous experience, the Parliament is extensively consulted and involved because we are effectively co-legislators with the whole legal framework that puts in place the structure, terms, conditions and, indeed, the broad strategies for European research. That places us in a position where we have a lot of engagement with it. Clearly, that is something that is also now in co-decision with the member states and with the Commission as well. So, at that level of the programme, we have extensive consultation, by definition, because we could not otherwise do our job properly.

Regarding how those projects move forward, then, of course, those are largely delegated at an operational level and I would say that that tends to be rather mixed. We do not necessarily have an operational role, nor do I think that, at a political level, we should see the need to interfere in what should be the operational mechanisms of those programmes.

We could perhaps do more work on scrutinising outcomes and having a look at how some of the new instruments have been working. The European Research Council does a good job by coming to talk to us about that, but in some of the areas, like Joint Technology Initiatives and European Technology Platforms, again, some of those we have more engagement with than others. Overall, from my experience, this Parliament in particular spends a higher proportion of its time on science and technology subjects than most national Parliaments, because it is, proportionally, a higher element of our work.

Lord Fearn: To what extent do member states and MEPs use the European Parliament itself and its Committees as a forum to promote their national interests in research and innovation, or to promote research and innovation for the greater good of the EU?

Malcolm Harbour: That does happen quite often. In a way, there is not necessarily a formalised, structured plan. I can tell you that as one of the Vice-Chairmen, as I said, of our science and technology unit here, we have had a steady increase in areas where the Commission has come to us with ideas for having public engagement and public meetings here. Also, where people have been working on Framework Programme projects—particularly on the areas of things like science and society, where we are looking at how research can be exploited, and some of the areas about communicating science and technology more widely with stakeholders, consumers and other interests—that has now become well recognised here and continues, really, to the extent that, in a way, we are almost full up with requests for those sorts of projects.

The real problem is actually getting Members of the European Parliament to come to them on a regular basis, though we get good support from stakeholders. We have made quite a lot of progress on that. As far as member states are concerned, certainly the major research organisations from member states do come and visit us, as they should do, and some are much more active than others. The French public research organisations are regular visitors here and I have had roundtables with the leaders of the various French research organisations. The research councils here, through the Research Office and the Technology Strategy Board, are also quite regular visitors. Those are particularly good examples.

Q5 Lord Elton: The EU seems to seek to stimulate member state co-operation on research and innovation by facilitating open co-ordination by the creation of high-level groups, associations, networks and councils. You have partially answered my question already, but I am sure there is more to say. Are these modes of co-operation effective in themselves, and could other methods be used that you know of? Are there methods in use that we are not aware of?

Malcolm Harbour: One always has to be careful in any of these new proposals or new ideas for groupings that you actually focus them on really strong outputs for the people who input into them. In other words, they should not just be there because you have decided you want a co-ordinating mechanism; there have to be some clear outputs involved. This is my own personal view, but it is backed up by analysis from the Commission. One of the important developments in the last Framework Programme was the development of what were called European Technology Platforms, which are very much open participation platforms for everyone interested in a particular group or group of technologies. They have been very common in the information technology field, in particular. For example, there is one on mobile phone networks. There is one on photonics. That is just two of many of them. I do get invited to those meetings, which is why I know more about them, and meet the people involved. So, there you have the major technologies suppliers, major research

institutes are involved and you also have SMEs around the table who share parts of the technology. So, you are getting a very broad set of interests there and the Commission is asking these groups to advise it on the research agenda in their own field of technology. That is very important because these are the people, above all, who know where the gaps in technology are, know where the most promising technologies are evolving and are already thinking about how they can exploit the investment in research, which was the point I made at the beginning about what I look for in a good programme. We are now seeing that moving forward because, in the next cycle of research—and these are at an early stage—the Commission is envisaging that some of these will be developed into a consortium involving both private investment and Commission investment, but with private investors having the majority stake. In other words, they will not become Commission institutions, which makes them excessively bureaucratic, but the private sector puts money in on the table to move those forward on a consortium basis. These ideas have very great potential in quite a number of areas: in really stimulating the transfer of the design of good research programmes that are going to have practical outcomes; in engaging people who exploit the technology further up the chain, so they are talking to researchers as the ideas are developing; and in putting the funding in to exploit those ideas at the end, because, as I am sure you all know, all the data shows that this is the area where we are weaker in Europe compared to our international competitors.

The Chairman: Can I just ask for clarification? What are photonics? You mentioned mobile phones and photonics.

Malcolm Harbour: Photonics are all the technologies involved in the science of using light transmission. That includes things like fibre-optic transmission, photocells and other devices like that.

The Chairman: I thought it was something like that, but it was a new one to me.

Lord Elton: I am hoping for a brief answer to a naïve question. Presumably there is tension at these open meetings between the interests of contributors and having massive support for their development of solutions to problems, and the desire of those same people to retain the benefits of happy discoveries to themselves. Is that an inhibition in your open conferences, or is it overridden by national goodwill?

Malcolm Harbour: I have to say I am there only as an occasional observer, so if you want to probe further you will need to ask some of the direct participants, which you would find very interesting, I think. My impression is that they are set up in that way exactly to deal with the problems that you envisaged, Lord Elton—the difficulties around that. Therefore, they are not intended to promote particular national interests at all; they are actually there for all the stakeholders from across the European Union. Secondly, because they are shaping a common research agenda, then clearly everyone has an interest in making that work. We are talking about shaping the pre-competitive research. Obviously there will be some competition at some stage in terms of protection of intellectual property and other things, but those would have to be set up as they are normally in the conditions of any very specific projects that result from it.

Q6 Baroness Buscombe: Malcolm, you have already touched on investment, so this really flows from that and there are two parts to my question. Has the EU been successful in securing co-financing and other types of support from big businesses and industries for EU projects with a strong research and innovation dimension? Similarly, has the EU been successful in encouraging SMEs to participate in EU-funded strategies and projects?

Malcolm Harbour: I will try and give you a short answer about my impression on those. First of all, part of the whole philosophy behind the Framework Programmes is that they are co-financed programmes. It is only the European Research Council grants that are essentially not financed projects, because that is their specific nature. Now, part of the difficulty over the last few years has been the participation conditions for private investors. Indeed, some major investors have, in some cases, been rather put off participation in European Union programmes because of what they see as rather complex conditions and perhaps quite intrusive auditing and very bureaucratic programmes. We are hoping that this is being tackled in the changes that are being made in the Horizon 2020 programme. Mrs Ford is much more of an expert than I am and has been campaigning very actively on this, and you will find out a bit about this in her letter to you. I think it is widely recognised there, and this problem about excessive bureaucracy has been raised up to prime-ministerial level, so it was actually discussed at a European Council during the evolutionary phase of Horizon 2020. Nevertheless, it is absolutely true to say that very substantial amounts of funding have been leveraged in to these programmes. In some of the really big sectoral programmes, for example, in aerospace, transport and in energy, you have big participants working as part of these big programmes. Clearly, more needs to be done in that area.

Parliament has been very keen to support SMEs, and we have consistently asked for a significant proportion of funds to be earmarked for SMEs. Again, there have been mixed results. The problems of excessive bureaucracy still deter many SMEs. I based this on discussions with the universities in my own region: the best programmes encouraging SMEs are ones where they are working with larger companies who can, effectively, handle some of the complexities because SMEs do not have a lot of spare resource to deal with that. The SMEs are there because of the great technology and contribution they are going to make. Essentially, if you can find a partnership involving a large contractor and SMEs, the flow of funds from the EU is, effectively, grant-funding to the SMEs, because they do not necessarily need to put up any funding themselves. It could be straight funding to help proof of concept or development of new projects. This is something that we have rather under-exploited in the United Kingdom and I am hoping that, with the new programme, we will invite David Willetts and others. David Willetts, by the way, has been much involved in this Horizon 2020 programme, so I am hoping that he, together with others in the department for business, will make a real effort to ensure that SMEs really take advantage of what is going to be in the new programme.

Baroness Buscombe: That is actually incredibly encouraging to us. Also, of course, building awareness among SMEs that such opportunities exist is incredibly important, is it not? You were talking earlier also about scrutinising outcomes. I would imagine, for SMEs, their concern is this is very high risk for them, but obviously if they can go under what I might call the “umbrella” of the larger companies, that is a great help. Also, their concern would be returns, which is tough for you to guarantee, of course.

Malcolm Harbour: We are moving into other areas and this is more into my own area of work that we have been involved with. There is the whole issue about encouraging innovation in companies, and what sorts of models of public support you can find for that are still under research. I do not think anyone has come up yet with a real silver bullet to do this, as every circumstance is different. The possibilities of using EU funding in collaboration with other companies certainly minimises the risks for SMEs. The real issue will be how that product or service that they are developing is then moved forward to a stage where it can be brought into the open market. That, of course, is not really part of the EU research funding; this is part of innovation funding.

Now, there are a number of programmes here, but also the Government is looking at these. The first stage—what I call the “proof of concept” stage—is an area where we do have to look at ways of finding better funding streams for that. Engaging SMEs with small companies can be helpful for that, because if the idea is really good and the larger company wants to exploit it, they may well be prepared to support an interim phase. When I was in Silicon Valley last summer, I went to visit Vodafone, who are working in Silicon Valley with innovative companies, and I hope that they will be able to transfer some of this to Europe as well. They are prepared to make grants available to help companies exploit technology to the next stage.

My final word, and I will expand on it if the Chairman wishes—but she knows my views on this—is about public customers and public procurements of innovative solutions, which could well come in at this stage after an idea has been developed to a stage by research funding. If you have an idea that, potentially, has huge possibilities for a public sector customer—whether it is a hospital, a transport authority or a local authority—then you can actually bring public procurement in at that stage. You can then encourage the customer to work with the supplier to develop and test that technology, and then be the lead customer for it.

This is something that has been used in the United States for many years now. Indeed, US public agencies have to spend a certain amount of their funding on procuring solutions from innovative companies. The Technology Strategy Board is now running programmes in the UK, and it is happening in other countries, particularly Finland. So, this is also something that I would put into that overall innovation mix for SMEs.

The Chairman: That sounds very interesting. Of course, it is a great opportunity for jobs.

Malcolm Harbour: Your colleague Lord Broers’ Committee, Madam Chairman, did a very good report about public procurement and innovation about 18 months ago, which has been very helpful to moving this whole idea forward.

The Chairman: Do we have a copy of that? I am looking at the clerk. We are going to get a copy. Thank you for that tip.

Q7 Lord Clinton-Davis: Does the EU strike the right balance in terms of legislation and regulation in stimulating research and innovation and its use? Are there ways in which this could be bettered?

Malcolm Harbour: That is a very broad question. Clearly, there are ways—and I have just indicated one in terms of my own work on public procurement—within, shall we say, the single-market framework, of encouraging more innovation. Really, we have talked about the research stream, but if you look at the programmes we are currently working on, there are a number of things, in terms of driving innovation forward, that are being looked at. We have had a proposal from Commissioner Barnier on creating a single European market for venture capital. Mrs Geoghegan-Quinn has specifically put on the table the fact that the mobility of researchers is being inhibited by constraints over portability of public sector pension schemes for university researchers. It is a particular problem in Germany, for example. The mobility of researchers and their ability to move and go where they can really exploit their skills seems to me to be a really important part of the so-called “innovation area” that we are looking for at a European level. That is, again, how we are going to stimulate and develop the best researchers. We also have to look at other aspects of the facilitating framework.

As far as discouragement is concerned, obviously we have to, in terms of issues around the single-market legislation and placing products on the marketplace, be conscious as to whether there is any chilling effect on innovation. That is always something that is challenging, particularly if you are talking about products that may, for example, possibly present new hazards to public safety. There is a lot of debate going on at the moment in areas of nanotechnology, where the Commission has now produced some proposals for what very small-scale substances should be regulated. It is important, by the way, and that is happening, that they are doing that in conjunction with the United States as well, so we do not set up any new trade barriers in this area.

In areas of information technology and new innovations in the digital world, for example, and the online world, again, we have to be careful that we are not overly prescriptive, so that we allow the market to use the technology and exploit it in new ways. So, it is difficult to give a general answer, but I would say that innovation and innovation-friendliness is something that we should be looking at in all our impact assessments, when we consider new legislative proposals.

Lord Clinton-Davis: To what extent do you consider being in touch with those most affected by these proposals?

Malcolm Harbour: Sorry, I did not quite understand.

Lord Clinton-Davis: It is very important that the EU should learn, first-hand, from those most affected by these sorts of proposals.

The Chairman: Keep in touch with the 500 million.

Malcolm Harbour: We have done that and to some extent, of course, it is our responsibility as the elected representatives to try and consult extensively, insofar as we can, given that we are relatively small in number compared to national Parliaments. We would like to see national Parliaments taking more interest in science and technology and research than we sometimes feel that they do. In your House, in particular, you take a lot of interest in what is going on because you have many Members, including Members of your Committee, who I am talking to today, who have long careers and interest in science and technology. We need, really, to engage with that more fully. Also, we have important work in reaching out to consumer organisations, to user groups and also to the companies as well who are keen to exploit innovations, but may somehow feel inhibited from doing so, unless we can get the right legislative framework to support it.

Lord Clinton-Davis: I would hope that you would also consult the European trade union movement.

Malcolm Harbour: Yes, of course. They have been much involved in discussions around nano-materials, for example. They are very much around the table in a lot of the other consultations.

Q8 Lord Elton: I have a question that relates to the effects of legislation and policy that has now been brought to bear on, among other things, the digital market. We are becoming aware of the interests of the Commission in intellectual property and its regulation in this field. Is it within your knowledge, at the moment, whether this development is likely to impact on research, development and, particularly, innovation?

Malcolm Harbour: As you will be aware, this is a very wide field. We have now reached an agreement on a European patent—not a European Union patent, because Italy and Spain

are not part of it. Nevertheless, an agreement has now been reached and that means that, for new inventions where patents are the appropriate way of protecting that innovation, a single patent will be available in 25 countries and, from a single application, will be defensible in 25 countries forming one jurisdiction. That is clearly a very important part of the intellectual property mix.

The Commission, on the other hand, has taken a particular interest in how research findings ought to be made freely available, and particularly those that are funded by public research. That, as you know, is also part of some of the detailed proposals in Horizon 2020. I have not followed those in a lot of detail, but they are important ones none the less.

On broader areas, I think you were referring particularly to copyright issues in the digital economy. This, of course, has been an area of interest for some time and, indeed, the Copyright in the Information Society Directive was agreed by the Commission in about 2002 and that is currently being reviewed. I think, at the moment, there are not likely to be any major changes because there are big differences of view in some cases about protection of some aspects of digital content; some countries still have levies on certain types of digital equipment in order, essentially, to offset the use of the private copying exemption. It is not something that we are doing here and, indeed, the Government is looking very closely at the reforms that were proposed in the report that it received about 18 months ago. So, all of these things are part of the overall facilitating aspects that we talked about earlier. Some of them are not necessarily specific to the research and innovation policy.

Q9 Lord Wilson of Tillyorn: Do you think that the EU could play a useful role in stimulating and funding research and innovation in what might be called “non-traditional” areas—by that, I mean things like financial services and new business models, so the soft side of the economy, rather than the hard technology side?

Malcolm Harbour: I am sure it could, Lord Wilson, but you have to bear in mind that the funding available is always going to be limited. As far as I am concerned—and I think this is clearly the European Union policy as agreed with the member states and Governments—the research funding that is deployed at European level is intended to be additive and not substitutional. Therefore, it is being directed, selectively, to what we think are the top priority areas. I think the top priority areas are those areas where: first of all, we want to stretch the limits of discovery in completely new areas; and secondly, we want to then find ways of moving that forward into areas like health, transport or low carbon technology. There is some budget available for what you might call “social services research”, and it is right to do that. I think it is inevitable that, at policy level, that is where it will be focused. In areas like financial services, for example, quite a lot could be achieved by companies working together and forming research consortiums themselves and getting bright and capable people around the world to work on them.

Also, the Joint Research Centre of the European Commission, which is the Commission’s own research arm, is deploying more resources now in areas like financial modelling, climate change modelling and other issues. So, they have been helping Commissioner Barnier’s team with quite a lot of financial modelling about some of the effects of their proposed legislation. So, there are probably some clear areas for collaboration there. I have had some discussions with Dominique Ristori, who runs it, about whether in future the Commission will make some of those models available to other researchers, as indeed the Bank of England makes its forecasting models available to researchers, which seems to be a very good thing to do. Also, they are going to be doing some modelling on the impact of the internal market, which, of course, I will be a major customer for.

Q10 The Earl of Liverpool: I was wondering if you could explain to us the rationale for creating the European Parliament’s European Added Value Unit. Do you think that this unit, together with the European Commission’s Impact Assessment Board, has led to EU proposals with better impact assessments and clearly stated desired outputs, outcomes and what one might call “European added value”?

Malcolm Harbour: This is a very interesting question, which is not, if I may say so, Madam Chairman, exactly aligned with the innovation issues, but is one on which I have done quite a lot of work. I am very happy to answer it.

The Chairman: Can I interrupt a moment? We are running quickly out of time. Do you have any report that you have done on this one, which you could let us have?

Malcolm Harbour: I can give you a quick summary, because I am directly involved in it. Also, I am fresh from a two-day conference in Berlin on Thursday and Friday—the International Regulatory Reform Conference—where, for the first time, a member of this unit was presenting, and there was a lot of interest among participants from all Governments in the OECD about what the Parliament is doing.

I just want to make it clear that this is at a very early stage. The unit has really only become operational for six months. We are very pleased that you have noticed it already, but, in terms of direct output, it is a bit early to claim that we are achieving good results. What I would say is that, as far as impact assessments are concerned, the profile of impact assessments and the need to scrutinise the Commission’s work on impact assessments far more thoroughly is now rising up the agenda here, because we now have a resource to be able to do that. For every legislative proposal that the Commission sends us, the unit is now doing a four or five-page critique of that, examining some of the data. This is not a full re-analysis, but it gives my colleagues the opportunity to ask challenging questions about it when it comes before them.

My Committee is the first in the history of the Parliament to insist on receiving impact assessments before we start work on any proposal. I think a number of my other colleague Chairmen are following that. The European Added Value Unit is there as a resource for areas where we want to investigate whether European policies are really working effectively, and whether there are areas in which European policy could be made to work effectively to add value to what member states are doing. There are a number of projects under way. The first one has just been published, which is looking at the ideas about having a corpus of European administrative law. That is not a project on which I have worked, but my colleague Klaus-Heiner Lehne, who chairs the Internal Market Committee, will I am sure be very pleased to come and talk to you about it. So, I would just say to you that this has been a really important step forward. It would be worthy of your attention, Madam Chairman, shall we say in at least a year’s time, before the next European elections, when we might have a retrospective on it, which will also give some value to the incoming Parliament, which will take up its seats in the middle of 2014.

The Chairman: That is a very useful tip. We shall note it and come back to it in 12 months’ time.

Q11 Lord Kakkar: I just wanted to ask, if I may, whether the economic crisis, and the austerity that many European member states are now experiencing, has impacted, in your opinion, at a national level and at a European level on the environment for research and innovation. Also, in that context, is the proposed spending on research and innovation appropriate?

Malcolm Harbour: My own personal view, and I think the view of my colleagues here, is that the budget that has been proposed for Horizon 2020 in terms of the priorities for European Union spending is appropriate for the circumstance. The time where we should be investing in research is a time when economies are not doing so well, because we absolutely need that research for the future. If we cut back on research now it will, effectively, prolong the effect of the recession, and it is, essentially, a counter-cyclical policy.

The Government's negotiating stance on the financial framework, for seven years, has been to try and protect the research budget and squeeze down on other budgets. Of course, that can be controversial, particularly if it is agriculture as the main other budget heading. We are reasonably hopeful though that there will be a good settlement. It might not be as much as the ambitions of the Parliament, but I remain reasonably optimistic that the Prime Ministers will strike a deal this week. I suppose if I am on the public record for that I have to accept the fact that I might be wrong. My feeling is that we will reach a deal on that, and it is really essential that we do, because until we have the envelope for the seven years' spending then we cannot actually finalise the deal on Horizon 2020. Essentially, we have done our work on it but the overall package is now awaiting the financial numbers to be slotted in, and I hope that we will be able to do that in the future.

Now, what about spending in other countries? It varies. My impression is that many countries are also taking a similar view. Certainly, David Willetts has successfully protected a significant research budget. It has been the policy in the United Kingdom to make sure that we keep up that level of research for the reasons that I have stated. Inevitably, there will be problems. There will be problems as we have had to tackle in the UK over the funding of universities, university resources, which are so critical, and so on. The picture does vary significantly from country to country. What that means is that the continuity offered by a seven-year framework of European funding is going to help those countries that are struggling to at least maintain some levels of activity. That is the inherent importance of having a strategic budget over an extended period that could be, in this case, two Commissions; it could be a number of Governments. At least there is some continuity to long-term spending, which is one of the under-valued elements of the benefits that we get from the European Union.

The Chairman: I am very interested in what you say about the MFF, because it is not agreed until all is agreed. So, are you actually thinking that it is going to be sooner rather than later?

Malcolm Harbour: I think they were hoping for a deal before Christmas, Madam Chairman, so we will wait to see. We do really need a deal to resolve a number of crucial issues.

The Chairman: We need action.

Malcolm Harbour: My colleagues working on Common Agricultural Policy reform will also say the same thing, by the way, but there may be some conflict of interest there.

Q12 Lord Kakkar: To date, the funding programmes have been respected, because there has been a principal emphasis on the excellence of the proposals and their potential impact. Do you think there might be a risk going forward with, firstly, newer member states not having a definite, or as competitive, research infrastructure? Do you think, secondly, with austerity in some of those countries biting into research budgets, that there may be a political motivation to direct funding into certain parts of the European Union, which is not focused on the principles of excellence and the impact of the research?

Malcolm Harbour: Lord Kakkar, you have put your finger on one of the biggest political debates that we always have here. Our view about it has been that as far as the research grant process is concerned, particularly for European Research Council grants, that excellence has to remain as the core principle under which that funding is awarded. On the question of tackling deficiencies in research infrastructures and building up capabilities, then we have to use other funding streams that are specifically earmarked for those purposes. One of the core areas of the European Union's principles of operation has been sustained regional policy development, where there has been a transfer of funds from stronger economies to weaker economies to build those up. Research infrastructure and research capacity building clearly comes under that funding stream.

Again, all of that is on the table at the moment with the European regional funding package. If you look at what is going to happen, it is quite clear that a significantly higher proportion of that funding is going to be going to the weaker and less developed economies of the newer member states, in Eastern Europe in particular, as part of that change round that is going on. We, and other developed economies, will be getting less out of that and that is a sensible principle. We need to address the issue that you raised, but we should not do it by diluting our principle of awarding research grants on the basis of excellence of the proposal.

Lord Kakkar: Returning to your ratio of funding directed towards European Research Council grant applications, based on excellence and impact and the proportion based on support for the development of infrastructure, did I understand correctly that that is going to change substantially in this funding round?

Q13 Malcolm Harbour: No, I am not sure it is and I do not know the details because I am not a master of the details of the programme. I am not sure it is going to change that much, but I think there is funding for research infrastructure. I have not seen the data but I suspect that most of that will be directed towards weaker economies to help them build infrastructure. Do not forget that you can also fund these activities from regional development funding as well. Indeed, if you look at the regional development funding proposals, a significant amount of funding for that—a higher proportion—is supposed to be used for entrepreneurship and to encourage entrepreneurship, innovation and business start ups. So, that is part of what the Commission calls the “common strategic framework of funding”, with the Horizon 2020 programme through other programmes, competitiveness and innovation and small business programmes and European regional development funding, so that you have a continuum of policy, which hopefully will work, from the generation of great ideas in the European Research Council, right through to deploying ideas and starting up businesses to monetise them.

Q14 The Chairman: Thank you very much indeed. It is really kind of you first of all to agree to come on this video conference, but also to be so informative. I am sure I speak for every Member of the Committee when I say thank you very much indeed and wish you success.

Malcolm Harbour: It has been a real pleasure to do a first video conference with you and I must say it has worked very well from my point of view. We are getting very good quality pictures. So, having broken ground with this, because this is the first time I have done a video conference with your Lordships' Committees, I know I speak on behalf of my Committee, where we have already made the offer to do more video conferences on any aspect of our current work. Indeed, this facility here is big enough where I could have a number of my colleagues from different countries around the table. I am not sure whether we can manage interpretation in this room, but in the facilities in Brussels we can even

handle a simultaneous interpretation for some of my colleagues who prefer to speak in their own languages. We have done that with Committees in the French Parliament and the German Parliament. So, if on your future programme you feel so inclined to invite us to have a roundtable with colleagues from different countries and different political groupings in my Committee on any topics of interest, then I freely make that offer to you and we would be very delighted to set that up.

The Chairman: Thank you very much indeed because that is exactly what we have been thinking about. This is our second one and it is certainly much easier to have all of us here rather than just a few of us in Brussels. It is certainly a good way of getting business done. So, thank you.

Malcolm Harbour: Thank you very much indeed for the opportunity and enjoy the rest of your evening.

Institute of Physics—Written evidence

What are the essential elements of an effective proposal relating to research and innovation?

1. The primary funding scheme relevant to those working in physics research and physics-based companies has historically been the Framework Programmes (FP). Within the specific requirements of any Framework funding call, effectiveness will be determined by the quality of the proposed science and technology, a clear statement of aims, objectives and deliverables and a well-supported proposition for the economic and social impact of the outcome.

2. Proposals should not neglect the indirect or intangible benefits of collaborative research and development work. Included in these are the benefits that can be accrued from the personal and inter-organisational relationships and the professional development created through a structured proposal.

Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

3. There appears to be a great deal of variation in the effectiveness of consultation between thematic areas. Within some areas there is a feeling that consultation has been both effective and worthwhile, leading to well-structured calls, however in others, it is apparent that the views of sectors are not being heard, but it may be that this is due to ineffective engagement with stakeholders at a sector level, rather than a problem with the European institutions involved. National agencies such as UK Trade and Investment (UKTI), the Technology Strategy Board (TSB) and the Department for Business Innovation and Skills (BIS) have shown increasing leadership in recent years, and this has shown some benefit.

4. There is an essential element of good fortune about the most effective engagements, and facilitation of meetings and workshops plays a crucial role. We recommend that in addition to the agencies of the national governments, greater use should be made of the mechanisms of national learned societies, professional associations and trade bodies that may be best placed to represent their members across the professional landscape.

The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?

5. The high-level interactions and communication through organisations such as the recently-formed Science Europe (and its predecessors) have shown some success in moderating interactions between member nations. Allied with this, larger international programmes such as CERN are world-leading examples of international cooperation. In

addition to such high-level groups and networks that already exist, informal networks are vital for information to flow amongst all involved in the projects, especially the smaller nation states.

Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

6. Larger UK-based companies such as BT and BAE Systems have shown considerable success in developing networks across Europe to promote and develop innovative products and technologies. However, it is still the case that innovative SMEs have achieved less success in accessing the funding and networks available through the Framework Programmes. It has also been the case that companies with previous experience of applications to similar programmes have achieved greater success than first-time applications, a situation that will naturally favour those with greater resources. There has been a steady improvement in accessibility to company-led entrants over the many iterations of the Framework Programmes, , though the engagement, particularly of SMEs, remains a concern. The Horizon 2020 programme, with its dedicated SME strand will improve this further.

7. This limited engagement is by no means a problem for the European innovation funding programmes alone – increased SME engagement is a stated aim of innovation programmes across the UK and it may be that greater strategic cooperation between European SME programmes and those operated by national organisations would be beneficial.

8. At the UK level, these programmes operated through the TSB and within BIS, have shown success in improving the performance of private sectors organisations within current programmes. However, there are gaps in this provision due to perhaps unavoidable mismatches between the focus and intention of European programmes and the science and innovation priorities of national governments, to the disadvantage of companies operating in areas which might be eligible for European funding, but lacking a natural domestic supporter.

Do EU proposals clearly state their desired outputs, outcomes, impacts, and ‘European added-value’? Do you think the European Commission’s Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

9. Yes, the within Framework Programmes the desired outputs are clear as are other statements of intention, and form a central part of any call. However, there remain challenges in balancing the desired outputs of programmes and the practical realities of technology development and business. Additionally, the balance within the programmes between short-term goals and the outputs of long-term science projects where ‘success’ is often difficult to define is also a challenge.

Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

10. No comment.

In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

11. The nature of the EU, when contrasted particularly with smaller states such as Singapore but also nations with larger but more homogenous economies such as Australia, and its consequent diversity means that that such a direct companion is perhaps not ideal. Indeed it could be said that, since countries outside EU are seeing the value of engagement with the framework programme and have negotiated a means to collaborate within the framework structure, the EU would not do badly in broader international comparisons.

12. The Framework 7 Programme, the final and largest Framework programme, accounted for around 5% of investment in civil research and development in Europe, with the remainder from national governments and other agencies, and the private sectors⁷¹. As such, European innovation funding is typically a small fraction of the total within a nation state, and the success of commercialising and developing the products of research will be greatly dependent on the local economic and innovation landscapes, the availability of national support for knowledge transfer, and the absorptive capacity of countries within specific industrial sectors. The new structure of the Horizon programmes with its greater emphasis on the larger 'grand challenges' may facilitate this to a greater degree.

How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

13. It is apparent that the increased budget proposed for Horizon 2020 compared to FP7 is needed to boost research and innovation across the EU, which is vital if the EU is looking for sustained economic growth. The EU must continue to strive towards the 3% GDP investment figure to achieve this goal while retaining a balance between innovation-led funding and support for curiosity-driven research.

What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?

14. There is scope for the EU institutions to expand their understanding of the training and development impact of funding proposals. One of the more significant direct impact of

⁷¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32484/11-901-funding-eu-research-innovation-from-2014.pdf

research and innovation funding is of the trained people who work on the projects themselves.

15. There is also perhaps greater opportunity to provide better evaluation of the products and outcomes of Framework Programmes as they progress within national infrastructures – both the knowledge and technologies, but also the participating organisations and businesses. Technology Readiness Level (TRL) 1-3 up to TRL4-5 is done well by the FP projects, but moving from TRL5 to commercialisation (TRL8&9) is a real challenge. An investigation into the innovation behaviours of people who have worked within an FP (or similar) project research environment could be a method of evaluating the process.

11 February 2013

LCA Europe Limited—Written evidence

Effectiveness of EU Research and Innovation Proposals

Summary of Relevant Experience of Dr Michael Lloyd, Director, LCA Europe Limited, Senior Research Fellow, Global Policy Institute

I have been involved with the RTD programmes of the EU since 1984. As a partner in CERES (since closed), I advised a number of UK universities (e.g. UCL, Warwick, Durham, etc) on their participation in EU RTD programmes, over the period from 1984 to 1989. This involved, in some cases, assisting with the preparation of bids and discussions with EU officials. In 1997 I moved to Brussels as Economic Adviser to the European Parliament until the end of 1998. However, from 1999, I was heavily involved in coordinating and participating in a large number of RTD projects (10) in the area of **transport and innovation**, including regional transport innovation, for a Brussels-based regional and transport organisation (AMRIE). Until 2009 I was based in Brussels, but left in 2009 to return to the UK. However, in 2010 I became involved in a new project **InnoSuTra** (January 2010 to January 2012) on 'Innovation in Surface Transport', led by the University of Antwerp. In this project, I participated as a **UK SME**, together with 5 EU universities. I am currently involved, again as a UK SME, in a new *bid* with 6 other EU universities and an Italian innovation consultancy, based in Milan, who are leading the (**MATRIX**) bid, The topic here is the comparison of the impact on innovation and business development of regional transport research, emanating from national and EU sources and funding, across a number of EU NUTS 2 regions (I am, *inter alia*, analysing the impact on the North-East of England, where I am now based).

I. Addressing the Committee's Questions

Question I

I.1 There are three essential elements of an effective EU RTD proposal.

- a) Clearly defined European added value
- b) A well defined research programme
- c) A well-structured management plan

I.2 To a large extent these are the criteria which are used to evaluate the project bids received. The problem lies not in the choice and use of these criteria for evaluation purposes, but in the difficulty, particularly in connection with the second two criteria, of evaluating the bids against these criteria.

I.3 There must be some clear and well-defined *European added value*, i.e. going beyond what could be achieved by a national research project. An example here would be an examination of innovation practice in the surface transport sector across the EU. It would clearly be of benefit to be able to compare innovation practice in a number of countries within the EU to establish best practice and to identify key drivers of innovation.

- 1.4 There must be a *well-defined research programme* delivered against a set time-table. The problem here is to be able to demonstrate a clear research plan, but with identified risks of non-fulfilment of part of the project. (One problem is that the Commission sometimes fails to recognise that as a research project there will, inevitably, be a number of unknowns which will only be discovered once the research gets underway. For instance, foreseen and required data may not become available or may be inadequate. In some cases this means that full quantification is not possible and that qualitative evidence may have to be used to supplement quantifiable evidence).
- 1.5 There must be a *well-structured management plan* for delivering the project. This is difficult to assess, but clearly evidence of previous successful delivery is a valuable indicator. The ability to make judgments in this area is not a strong point of the Commission or their evaluators. Sometimes this may lead to good management teams being selected even though the quality of the bid may not be as good as another. On the other hand it sometimes also results in poor quality management teams being selected where there is only a marginal difference in bid quality with the bid of a superior management team.
- 1.6 *It is never going to be possible to have perfect evaluations. However, it has become clear to me that it would be preferable, in this area of the Commission's work, for the process of evaluation and the management of projects to be placed in the hands of external independent contractors, who would employ appropriate, experienced researchers to evaluate the project bids and professional managers to adjudicate on the management plans and to manage the projects.*

Question 2

2.1 Consultation takes place, but not really at practitioner level. It would be useful for anonymous reports on the project process and its management to be collected from a random sample of around 200 concluding projects, covering different research sectors and different Directorates-General. *This feedback could then be analysed and the results shared to enable improvements to be made.*

Question 3

3.1 No comment

Question 4

4.1 If the intention is to establish specific 'private/public partnership' projects, as a new category, then this is neither useful nor necessary. Private participation from industry already occurs and the various RTD Programme priorities would be disturbed and probably distorted. It is true that the original ICT research programme ESPRIT was effectively run by the major ICT companies at that time; ensuring that their 'blue skies' research was funded. However, large companies do participate strongly in current RTD programmes.

Question 5

5.1 Yes, as indicated earlier the structure and criteria of RTD projects do indeed cover the listed issues relating to the outcomes of the research. No comment on the role of the Impact Assessment Board

Question 6

6.1 Some information is provided and is incorporated in the thinking behind successive programmes. However, more careful assessment is required of the information provided. The mix between major programmes tends to follow fashion rather than having a clear view of political economic priorities.

6.2 One specific problem, which might be alleviated by more open discussion of the results of projects, is the replication of work sponsored by different Directorates-General. *It would also be useful for follow-up contracts to be granted to successful consortia to complete further research or piloting identified by the initial research project.*

6.3 Moreover, there are insufficient links between the open programmes and the research activities of the various research institutes of the Commission. This leads to replication of work already being done in the institutes in the open programmes. One way around this problem might be for *clusters of high level researchers in an area to be associated with the research institutes concerned and the work being done there.*

Question 7

7.1 This question is impossible to answer definitively in the absence of any specific research comparing the relative effectiveness of the use of RTD outputs across different countries. What is interesting and relevant, is that, in a study prepared for the European Parliament in 1999 (*Econ. I 13.EN*), Michael Lloyd noted that in three EU countries, Finland, Ireland, and Spain, *RTD expenditure was biased towards industrial production/technology*. In all three of these countries patent applications rose substantially. In two of those countries GDP growth rates were also the highest in the EU in the period studies, 1994 to 1998.

Question 8

8.1 The European Commission figures for 2010 to 2012 indicate that, with the exception of France, all the countries suffering from economic austerity policies (including the UK) have seen a reduction in public funding of research, technological development, and innovation. The lack of aggregate demand is also likely to have a deleterious effect on private sector spending. EU spending has so far been sustained and is providing essential support in the UK, particularly for universities' research spending. It remains to be seen whether the current EU budget discussions will result in the necessary increase in the RTD and Innovation budget. The UK desire to see increases in this area of the EU budget is generally shared by the other 26 countries, but the UK attempt to reduce or, at best, to stabilise the overall budget will, obviously, not make any shift in priorities easy to achieve.

Question 9

9.1 The answer to this question is provided in the Conclusions and Recommendations, Section B below.

B. Conclusions and Recommendations

Overall Conclusion

10.1 Without the financial input from successive EU RTD programmes UK research and technology development would have been under-funded. But it is also the ability to bring together in key areas, including my own of transport research and innovation, the

leading research institutions in Europe, with spin-off benefits from such collaborations. The indirect benefits of this collaboration are also considerable. One-third of all articles published in high quality journals involve international collaborative projects. In the EU RTD projects in which I have been involved publication in journals has occurred, both during and on completion of the projects. It is difficult to measure the influence on, not only future research, but also British business innovation and practice which may arise in this indirect way. Hence, both in terms of the direct benefits of the funding of UK research via the EU RTD programmes, with the UK receiving a disproportionately higher amount than any other EU country, the indirect benefits are also likely to be high. In the medium-term attempts to hold down the overall EU budget, while at the same time attempting to expand the amount of the budget going to RTD are not likely to be successful. Treating the EU budget (running at less than 1% of UK GDP, with the UK as the 11th per capita contributor to the budget) as if it should make a significant contribution to austerity measures until 2020 is to take a narrow accounting view of the focus of that budget on some key areas such as RTD and structural funds which are aimed at rendering the EU more competitive in global terms.

Key Recommendations

10.2 Both the absolute and the relative proportion of the EU budget (currently around 8%) devoted to RTD should be substantially increased. If the total EU budget is to be constrained then funds should be transferred from areas of high proportionate spend such as agriculture to RTD. This will be beneficial for the EU and, because of the relative excellence of UK scientific and general research, is likely to disproportionately benefit the UK.

10.3 There is an apparent deterioration in the quality of evaluation of projects. This is due to three factors. First, there is the apparently deteriorating quality of evaluators. It is important to make sure that senior academic staff are attracted to work as evaluators by being sufficiently remunerated via a higher day-rate, which has barely changed in 10 years. Second, the situation also arises because, though it may understandable from a political viewpoint, preference is given to projects having a substantial involvement on new, smaller EU countries. In fact, this is against the spirit of the EU and leads to inferior projects out-competing other better value projects. Third, linked to the second factor, is that the less-developed EU countries have researcher rates which are considerable lower than those from say Germany or the UK. There are appeal procedures in place, but because of the considerable time delays involved and the unwillingness to alter bureaucratic decisions once made, the appeal procedures are practically worthless. All of these problems require solution if the EU RTD programmes are to deliver even greater benefits in future.

10.4 SMEs are encouraged to participate in EU RTD projects and there are specific schemes in place to assist them. However, these schemes are time-consuming and under-funded. In any event SMEs wish to participate in mainstream projects. The key to participation is to belong to, or be aware of, the various networks which are well-known and experienced participants in EU RTD programmes. It would be of considerable assistance if the BIS Department were to keep a record of successful SME participants in the various disciplines and introduced them to successful UK university and other major EU RTD programme participants. The key to successful participation in EU RTD projects is membership of the relevant discipline networks. For instance, LCA Europe Limited is a well-known member of the main European transport research and

innovation network. However, there are other related discipline networks, e.g. regional research and innovation research *per se*, where we are unknown. Networking, though critical, is a time-consuming activity for time-poor SMEs. Assistance in this respect from BIS would be helpful.

10.5 The management of the RTD programmes should be contracted out to ensure a more professional evaluation, review, and management of the programmes.

10.6 Some of the specific measures mentioned in the evidence provided above (highlighted in italics), from a long-term practitioner viewpoint, would collectively have a positive impact on the EU RTD programmes and their prosecution. Most of these recommendations are related to ensuring the greater involvement of practitioners, including SMEs, in the running of the programmes.

7 February 2013

Professor Sheila MacNeil and Professor Christopher Chapple—Written evidence

**Professor Sheila MacNeil and Professor Christopher Chapple—
Written evidence**

[Submission to be found under Professor Christopher Chapple](#)

Professor Martin McKee CBE MD DSc MSc FRCP FRCPE FRCPI FFPH FMedSci and Dr Michael Galsworthy, PhD—Written evidence

Professor Martin McKee CBE MD DSc MSc FRCP FRCPE FRCPI FFPH FMedSci and Dr Michael Galsworthy, PhD—Written evidence

[Submission to be found under Dr Michael Galsworthy, PhD](#)

Microsoft—Written evidence

1. What are the essential elements of an effective proposal relating to research and innovation?

Frontier research: An effective proposal should be underpinned by a well identified and challenging basic research problem. Universities and public research institutions are uniquely positioned to take on frontier or pure research with no immediate commercial product in mind research that most companies would be unlikely to tackle but that has the potential to be transformative. Without greater investment in basic research, there is a danger that these fundamental game changing and important advances will happen outside Europe.

Focus on excellence: Research and innovation funding usually has best impact in established centres of excellence. Competition between these centres can benefit EU-wide research. National and regional funding, such as the European Regional Development Fund, should continue to be used to modernise and diversify economic structures. The creation of such infrastructure will then enable less developed regions to better compete in accessing EU research and innovation funding.

2. Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

Generally yes.

3. The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?

These modes of cooperation are adequate but coordination between Member States and the EU should be stronger. In order to better leverage each other's funding resources, Member States and the European Commission should come up with a clear agreement on the topics and budget allocations of selected projects. This would contribute to making collaboration and co-financing between the EU and Member States more efficient and would make it more likely for additional funds to be mobilised, as well as funding which is made available to be used in the most resourceful and effective way. Without such a clear agreement, project implementation will be at risk as consortia may have to be changed depending on conflicting and/or unsynchronised national and European priorities.

4. Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

There is a general perception that access to EU-level programmes is both complicated and time consuming. This could be one major reason for the decreasing participation in

programmes over the last 10-15 years. The downward trend of business participation has continued steadily from FP4 throughout to current FP7 and the participation of the private sector in FP7 accounts for one quarter of all applications (25.3%).

In order to reverse the decreasing participation ratio of industry, the European Commission has meanwhile made a first important step towards simplifying the administrative burdens, by releasing its decision on three simplification measures on January 24th 2011.

Simplification: Simplification should be one of the basic design principles for any effective proposal that aims to attract industry participation. It would help all stakeholders, including the European Commission itself, to apply the same set of rules to different programmes across different Directorates General. At the same time, there should be a clear and well communicated rationale to any variations between the rules, should there be any. This would reduce the difficulty for new participants to understand the rules that apply to their proposal and to find the best instrument to achieve their objectives. Clarity of rules can be increased, and room for conflicting interpretation reduced, by decreasing the number and size of required official documents.

Enhanced trust: In encouraging businesses to engage in the Framework Programme, bureaucracy must be cut substantially and be replaced with enhanced levels of trust by the European Commission in project participants.

Increased flexibility to change research projects: In the information and communication technologies (ICT) sector, technology evolves very rapidly and it sometimes makes sense to reassess the goals of a research project in light of changes on the market. Research projects should be able to change direction (even radically) when it becomes obvious that a product or technology appears on the market that achieves something similar or indicates that a better path of research is in another direction. Such changes may impact on the budget of projects and the expected results of projects, and so increased flexibility should be provided to adjust budget, project scope and direction during a project. As such, the development of flexible, trust-based contracts is essential. In particular we support the view of the Expert Group of the Interim Evaluation of the 7th Framework Programme that it is too onerous to set out detailed list of deliverables at the contract negotiation.

Flexible intellectual property rules: In addition, intellectual property provisions should remain as flexible as possible to accommodate the various possible ways that parties can exploit foreground intellectual property, and take into the account the rising degree of globalization that underlies this exploitation.

5. Do EU proposals clearly state their desired outputs, outcomes, impacts, and 'European added-value'? Do you think the European Commission's Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

[Won't respond.]

6. Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

[Won't respond]

7. In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

A number of factors still limit considerably the generation of economic growth from the output of research and innovation programme in Europe. Patent protection remains a country-by-country process in Europe, although the new European Patent should help to make EU-wide patent coverage and interpretation more widespread. Copyright licensing also remains fragmented across the EU in some important sectors; the EU is currently conducting the stakeholder dialogue License Europe to try to reach market-led solutions here.

8. How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

Private R&D funding is cyclical and many companies have unfortunately reduced their investment. That makes it more important than ever that the public sector maintain its steady support. Of course, public R&D funding is not an economic quick fix; true breakthroughs take years to matter to our lives. But it is a vital, long-term investment in our collective future. In coming years, Europe's prosperity, competitiveness and social cohesion will depend far more on its intellectual capital than on any other form of wealth; to starve its education, research or innovation base now will set back Europe's global competitiveness by years.

The level of support towards bottom-up activities and frontier research should be maintained or increased. The European Research Council which allows individual researchers to initiate projects is a very good example of the type of research funding activities that the European Commission should strengthen.

9. What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?

[Won't respond – Some ideas are weaved in the above responses.]

February 2013

Gavin Cawood, National Centre for Product Design + Development Research (PDR) and Design Wales—Written evidence

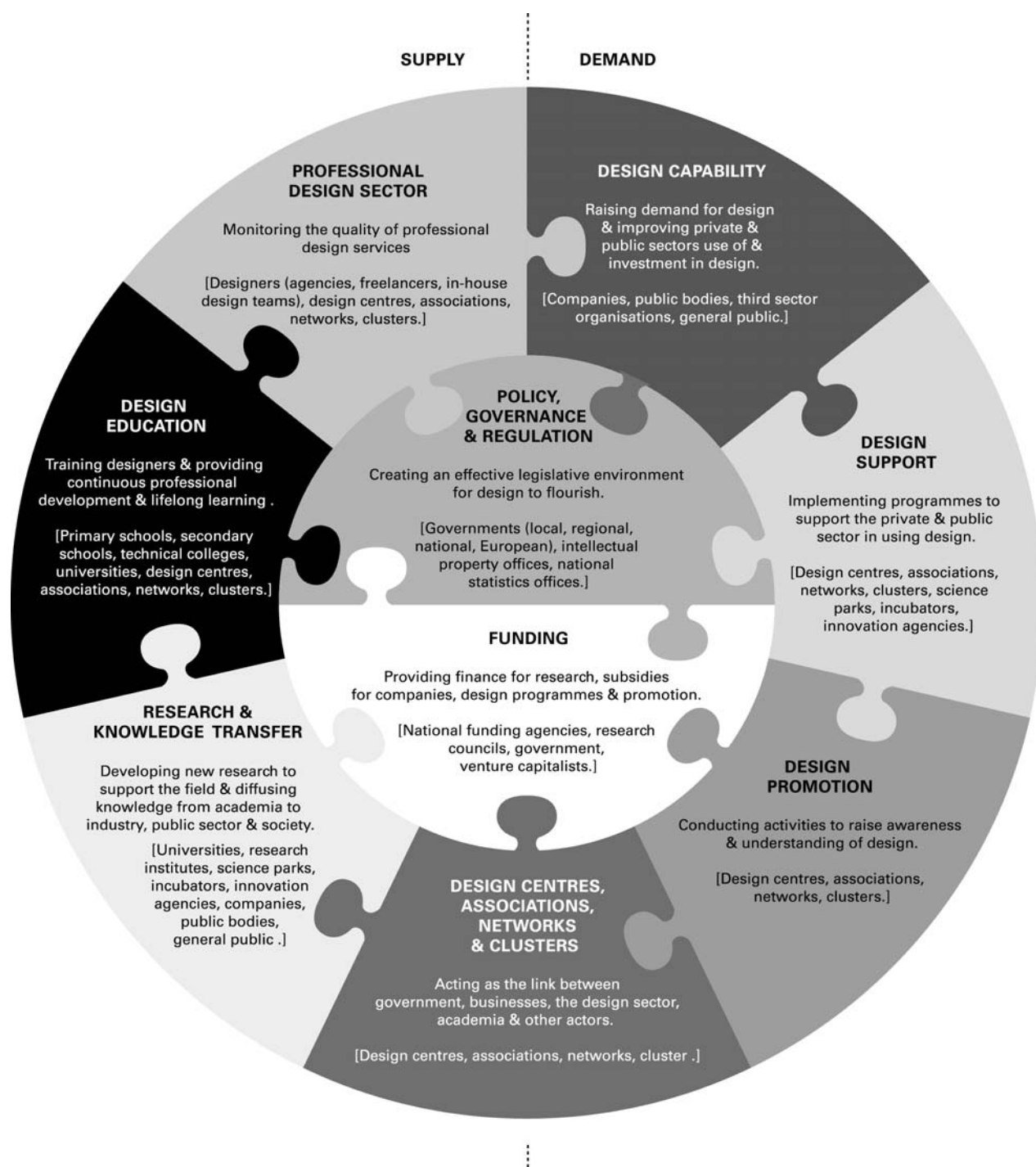
- I. What are the essential elements of an effective proposal relating to research and innovation?

Effective proposals to encourage research & innovation must take into account that innovation takes place in an Innovation System that has numerous interacting elements that must work together.

The Innovation System for each region and nation are different depending upon the local political, economic and social environment and therefore any proposals must take into account of the current state of the wider Innovation System or it will fail.

Since 2010 there has been a paradigm shift at a European policy level from innovation being defined as purely technological to now include non-technological and user-centred approaches; such as design. For these new areas of innovation taking a systems approach to policy and programme proposals is vital.

The UK-led SEE Platform network of 11 European design and innovation organisations has produced a Design System to help regions and nations understand how they might realise the full potential of design. The elements of the Design System are; regulation; investment; support; promotion; professional design sector; research & knowledge transfer; design users and design & research centres.



- Do you feel that stakeholders at all levels, including academic institutions, small and medium-sized enterprises (SMEs), and big businesses are properly consulted in the development of EU proposals on research and innovation? How could consultation be improved; and to what extent does consultation affect policy formulation?

The European Union, via various European Commission programmes, does make considerable effort to consult widely with stakeholders. But, whereas big business and higher education institutions have the capacity to monitor and engage with such consultations SMEs are more likely to lack the resources to do so.

Most UK higher education institutions invest in a capability to monitor and engage with European consultations and programmes and, as regional hubs for knowledge transfer, should take a role in connecting industry to European consultations.

A good example of how the EU has consulted with stakeholders to influence an innovation related policy has recently taken place concerning support for design:

- In 2009 the European Commission undertook a consultation entitled “Design as a tool for user-centred innovation”, which helped to reach a clearer definition for design and underpinned the role of in realising innovation.*
- As a result, in 2010 design was introduced as an enabler of innovation, including in relation to public and private sector services, in the Innovation Union policy document.*
- In 2011 the European Design Innovation Initiative (EDII) was established and led by the European Design Leadership Board – a group of individual experts from across Europe - to help steer the European Commission in their understanding and support for design.*
- Funds were made available for projects to help understand the potential impact of design and facilitate its wider integration by regional policy makers – resulting in six international network projects including the SEE Platform (www.seeplatform.eu) led by Cardiff Metropolitan University.*
- During 2012 the EDII Board produced “Design for Growth & Prosperity”, a publication that included recommendations for how design might help Europe in its drive for smart, sustainable and inclusive growth. The generation of the recommendations included open consultation workshops with stakeholders from industry, academia and government from across Europe.*

- 3. The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils. Are these modes of cooperation effective, and could other methods be used?**

Our experience is that the high-level groups, associations and networks facilitated by the EU do provide the opportunity for both connecting with national and regional stakeholders and encouraging transnational cooperation.

However, there is often a gap in how this high-level insight and cooperation is then translated into regional or national policy or programmes. An example of how this has been achieved has been through the work of the SEE Platform; a network of 11 design and innovation organisations, co-funded by the European Commission, that is cascading changes to EU innovation policy to the 100 regions that have never previously supported design via region-specific stakeholder workshops (www.seeplatform.eu).

- 4. Has the EU been successful in securing co-financing and other types of support from big businesses and industries for EU projects with a strong research and innovation dimension? Similarly, has the EU been successful in encouraging small and medium-sized enterprises to participate in EU-funded strategies and projects?**

Whereas big business, regional public authorities and academic institutions might have the capacity to engage with EU-funded strategies we believe that the administration required prohibits many SMEs from taking advantage of such strategies.

Academic institutions and regional authorities have a role to play in bridging this gap by acting as local hubs that can connect SMEs to EU programme calls.

5. Does the EU strike the right balance in terms of legislation and regulation in stimulating research and innovation and its use? Are there ways in which this could be improved?

No comment.

6. Do you think the EU can add value with ideas and funding in ‘non-traditional’ areas of research and innovation, for example, financial services sector, creating new business models, etc?

The EU can add considerable value to non-traditional areas of innovation, such as design, that most risk-averse regional and national governments would not support.

Funds from the European Union have helped the Welsh Government be progressive in its support for innovation, including through the Service Design programme. This Knowledge Transfer Centre project was the first to support an increased understanding and use of Service Design in the manufacturing sector whilst in parallel creating the first cluster of Service Design expertise.

7. Do you think that there is a need for a mechanism to enable the submission of ‘follow on funding’, in order to capitalise on the networks built in previously funded projects and to maximise their output?

From both a people management perspective there is an issue with EU-funded programmes when they come to an abrupt end. Although in EU programme calls there is often a requirement to demonstrate how the project might be sustainable over the longer term this is sometimes countered by a restriction on generating income during the life of the project; in effect this stifles potential commercialisation and does not reward success.

8. The European Commission created an Impact Assessment Board in 2006, while the European Parliament recently created its own impact assessment unit. Do you believe these entities have led to better EU proposals in terms of clearly-stated outputs, outcomes, impact, and ‘European added-value’?

No Comment.

9. How have the economic crisis and the atmosphere of austerity in many EU Member States impacted on the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

The economic crisis in Europe is driving some unexpected levels of innovation in regions of countries such as Greece and Poland, who are undertaking interesting, forward-thinking projects.

Gavin Cawood, National Centre for Product Design + Development Research (PDR) and Design Wales—Written evidence

In realising strategies for innovation there is a case to review the rate of intervention, for example: Within the EU INTERREG IVB programme, where the emphasis is on testing and interventions and the delivery of pilot projects the intervention rate from the EU is only 50%, whereas under the EU INTERREG IVC programme, where the emphasis is on sharing experiences, the intervention rate is 75%.

Although the delivery of pilot projects is probably more expensive than networking initiatives, there seems to be more support for talking rather than doing.

5 March 2013

National Institute for Health Research Evaluation, Trials and Studies Coordinating Centre (NETSCC)—Written evidence

Note: Our experience with EU projects is limited to the EUnetHTA Project 2006-8, the EUnetHTA Joint Action 2010-12, and the application process for the 2nd EUnetHTA joint action 2012-15; all funded through DG SANCO. The responses to questions 2 to 9 below relate only to this experience.

1. What are the essential elements of an effective proposal relating to research and innovation?

- a. Well described intervention or innovation with all the component parts well-articulated
- b. Clearly set in a contextual framework
- c. Underpinned by a theoretical framework
- d. Clearly set in the existing evidence demonstrating that research findings will add to the existing body of knowledge
- e. Timing of the research and addressing an identified service uncertainty/research need
- f. Appropriate methodology and study design which is very clearly described at all stages including a clear analysis strategy and links to the research questions
- g. Full range of expertise on the research team appropriate to all the aims of the proposed study
- h. An original plan for getting research findings into the public domain beyond standard publication of articles.

2. Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

Stakeholders in the projects we experienced were poorly consulted. The application processes were uniformly rushed, with insufficient time for invited applicants to consider and scope the work to be undertaken. This resulted in over-reach in some areas, and under-reach in others. In the 2nd EUnetHTA joint action this process was rushed to completion, despite a gap of almost a year before the project was required to start – this time could have been better used in scoping and designing the project.

3. The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?

We have no comment on this question.

4. Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

We have no comment on this question.

5. Do EU proposals clearly state their desired outputs, outcomes, impacts, and ‘European added-value’? Do you think the European Commission’s Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

Often they do, but they tend not to consider the practicalities of delivering those outputs. In the case of the EUnetHTA joint action one of the desired outputs was the establishment of a permanent EU network for health technology assessment by the end of 2012. However the appropriate EU legislation would not come into force until after that date, therefore the specified output could not be delivered, and this was known even when the project was commissioned.

6. Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

Our comments on monitoring and evaluation are concerned with their appropriateness rather than the level of information provided. In our experience EU processes are good at undertaking process evaluation, but comparatively poorer at evaluating the outputs. Thus we can be confident in the manner that the outputs were produced, but less confident that the outputs are actually of value.

7. In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

It is important to note that the EU is not a country, unlike USA, Australia, Singapore etc, so should not be expected to behave like one.

In our experience EU member states (especially the larger member states – UK, France, Germany) commission and use health care research appropriately and in a cost-effective manner. The EU then tries to fill a supra-national gap, but appears to have less consideration for cost-effectiveness than member states do.

8. How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

We have no comment on this question.

9. What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?

We have noted that process evaluation tends to take place as a workpackage internal to the project as a whole. This implies that the evaluators need to walk a

fine line between promoting a project which they have bid for and signed up to, and delivering an honest evaluation report which highlights flaws as well as successes. In our case, as evaluators of the EUnetHTA joint action 2010-12 we were also working with 3 other workpackages, so needed to maintain good working relations with them – this may have impeded our ability to identify poor practice. Consideration should be given to external evaluators who are not part of the overall project – these might be drawn from a pool maintained by the EU or member state governments, or advertised for when needed.

In addition, all projects with outputs which are intended to be used should have the outputs themselves evaluated, not just the process of producing them.

11 February 2013

Open University—Written evidence

Context

The Open University (OU) has a long track record of successful applications for EU research funding and the European Union is a significant source of research income for us.

Between 2010 and 2012, the OU submitted 59 successful proposals and during this three-year period the EU funding the University received amounted to c£11m (15% of all OU research income).

Against a backdrop of increasing competition for all sources of research income, the volume of this important strand of income for the University continues to rise.

The EU funding we receive supports high quality, collaborative research across several key disciplines areas for the University, in particular computing, educational technology and social sciences. Current projects include:

- The **JUXTALEARN**⁷² project, which is helping students find ways to overcome barriers to understanding complex concepts. The project is led by the OU's Institute of Educational Technology, in collaboration with partners in Sweden, Germany, Spain, Portugal and the UK.
- The **COMPOSE**⁷³ project. The OU's Knowledge Media Institute is a partner in this large collaborative project which will allow SMEs and innovators to introduce new services and applications to the market in a short time and with limited upfront investment. The project's commercial partners include IBM, the Barcelona Supercomputing Center, CREATE-NET and Fraunhofer FOKUS.
- **Oecumene: Citizenship After Orientalism**⁷⁴ is a project led by Professor Engin Isin in the OU's Faculty of Social Sciences. Funded by the European Research Council with an advanced grant, the project focuses on the interaction between two controversial and contested concepts: citizenship (the process by which belonging is recognised and enacted) and orientalism (the assertion of the superiority of western culture over its eastern counterparts). ERC assessment is on the basis of excellence in science and this project is a great example of outstanding research at the OU made possible with funding from the European Commission.

⁷² <http://www.open.ac.uk/iet/main/research-scholarship/research-projects/juxtalearn>

⁷³ <http://kmi.open.ac.uk/projects/name/compose>

⁷⁴ <http://www.oecumene.eu>

1. What are the essential elements of an effective proposal relating to research and innovation?

Based on our experience, we consider that the most effective EU proposals are those which enable partnership and collaboration, and which fund highly innovative technological developments. Proposals that address real-life issues and contribute to social and economic advancement are particularly valuable.

2. Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

Opportunities for stakeholders to input to development of EU proposals could be increased through more active engagement through existing research networks at regional level. This would result in fuller consultation, more inclusive of regional variations in terms of opportunities for and requirements arising from the outcomes of research and innovation.

3. The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils. Are these modes of cooperation effective, and could other methods be used?

Informal networks set up without facilitation by the Commission can be incredibly useful for developing ideas and stronger collaboration. It is our view that the Commission could work to promote such networks.

4 Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

The OU engages effectively with the private sector through existing networks to deliver research. Strong collaborative partnerships are a particularly efficient way to maximise impact. The benefits to business of being able to access University resources are clear and the research is strengthened by the involvement of private sector partners. Therefore the OU would like to see the EU encourage partnerships with the private sector further by providing funding specifically for partnerships with businesses and organisations of all sizes, but particularly SMEs which typically lack the resources to fund and support innovation themselves.

5 Do EU proposals clearly state their desired outputs, outcomes, impacts, and ‘European added-value’? Do you think the European Commission’s Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

The Commission’s Impact Assessment Board has a vital role to play but would benefit from a stronger profile. The Commission should contribute to ensuring awareness of the benefits arising from research that it supports.

6 Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

Information about monitoring and evaluation provided by the EU is excellent but access to the Commission for discussing preferred monitoring and evaluation approaches could be improved. Existing guidance could be more clearly signposted. At times it is not clear which guidance is appropriate e.g. Evalsed is appropriate for regeneration but an equivalent suite of materials specifically for research and innovation is not provided as yet.

7 In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc.?

No comment.

8 How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

Research and innovation in the UK have had budgets restricted, leading to a real term cut. However, it is our view that increased spending on these areas in times of economic hardship is crucial to lifting struggling economies and businesses out of recession. This is particularly the case at the tail end of a recession - a critical period for economic recovery that presents the opportunity to be at the forefront of any economic upturn, with the technology and knowledge ready to make the most of early growth by leading on new developments.

9 What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?

No comment.

February 2013

Pfizer, Rolls-Royce, EADS, and Airbus—Oral evidence (QQ 36–53)

Pfizer, Rolls-Royce, EADS, and Airbus—Oral evidence (QQ 36–53)

[Transcript to be found under Airbus](#)

Dr Adam Heathfield Senior Director, Worldwide Policy, Pfizer— Supplementary written evidence

Intellectual property needs for open innovation in pharmaceuticals

1. The overall costs of developing a new medicines are huge, and it can take many years for even the most successful of medicines to recoup the costs of development. However, it is relatively easy to make cheap copies of a medicine once approved. So, intellectual property protection for pharmaceuticals is absolutely central to every aspect of our business.
2. Shifting from an in-house model of R&D to a more open, distributed model increases rather than reduces the need for robust IP protection. In fact, IP can be a strong framework within which innovation is organized and managed. In cases where the separate tasks of developing a new medicine are conducted by different companies or groups, the overall financial return from commercial sales still needs to cover the costs of each step plus profit margins for each participant. So we need to generate the same or greater returns in order to sustain all the parts of the R&D ecosystem. The clean hand-over between different parties in the R&D process also relies on robust IP.
3. Negotiations on how to apportion IP rights with collaborating academic centres can be highly complex. Overall, our experience with these types of partnerships has been good, but sometimes problems can occur if:
 - we feel that the academic centre over-values its IP and over-estimates its chance of delivering commercial return, leading to elevated expectations of royalty payments which can make projects untenable; or
 - the academic centre has attempted to patent its work but has done so inappropriately, leading either to lack of protection in key global markets or – worse still – becomes “prior art” that invalidates patents on more useful developments of the same technology.
4. The pressure on universities to generate revenues from their research has created more complexity in the IP negotiation process. In the IMI for example, competing pharmaceutical companies are happy for the results of pre-competitive research to be made freely available, but some technology transfer offices in potentially participating universities want ownership over any IP generated by their work. Examples where academic centres are worried about appropriating returns but industry is happy for free access runs counter to many public expectations, but are an important trend.
5. What is considered “pre-competitive” for companies like Pfizer looking to develop medicines and generate commercial sales, may not be viewed as precompetitive for institutes and companies looking to generate revenues or other rewards (publications etc) from development of fundamental knowledge or intermediate platform technologies. Pfizer wants to see a healthy set of small companies and excellent research centres working on industrially-relevant topics, but we need to find a balance between protecting their interests and the need to drive this communal effort into delivering real products.

6. Patents are only one form of IP protection and are very good for protecting the IP for the molecular structures of our medicines. However, the pharmaceutical industry has always sold more than just chemicals, we sell chemicals plus huge amounts of knowledge about how that medicine can and should be used. The knowledge is generated in clinical trials, which now account for around 60% of R&D costs (up from 50% a decade or so ago).
7. We are being asked for ever greater amounts of data by regulators and reimbursement agencies, and these data can be costly to produce and protect. Data Exclusivity (DE) is thus another important form of IP protection for pharmaceuticals—it provides companies with the added confidence that their clinical data disclosed to health authorities to ensure public health and patient safety, will be appropriately protected.
8. Developing a medicine for use in just the US or EU may not generate sufficient return on investment — in parallel, demand for medicines in the rest of the world is growing at a significant rate. This means that the overall mathematics of investment in research increasingly rest on robust IP protections in emerging markets. The absence of globally consistent IP regimes will significantly hinder technology transfer. Sustaining open innovation – or any kind of innovation – in pharmaceuticals requires respect for IP provisions around the world.
9. We therefore see open innovation as a potential mechanism to source expertise through alliances and collaborations within a strong intellectual property (IP) framework. Strong IP provides the basis for companies and organizations/academic centres to partner and exchange mutually beneficial knowledge and the patent system is flexible enough to accommodate this level of complexity. In order to be a sustainable and impactful concept in the pharmaceutical field, the focus of open innovation needs to be in establishing frameworks which generate synergies by bringing together the specific skills of different partners.

18 March 2013

RAND Europe and Design Wales—Oral evidence (QQ 54–67)

Evidence Session No. 4

Heard in Public

Questions 54–67

MONDAY 25 FEBRUARY 2013

Members present

Baroness O’Cathain (Chairman)
Lord Brooke of Alverthorpe
Baroness Buscombe
Lord Clinton-Davis
Lord Elton
Lord Fearn
Earl of Liverpool

Examination of Witnesses

Jonathan Grant, RAND Europe Principal Research Fellow and former RAND Europe President, and **Gavin Cawood**, Operations Director, National Centre for Product Design + Development Research (PDR) and Design Wales.

Q54 The Chairman: Welcome and thank you very much both for waiting and for your attendance here. Before we start, Members of the Committee with relevant interests will declare these, if Members could remember to do so. The session is on the record and being webcast live. It will subsequently be accessible via the parliamentary website. Witnesses will receive a transcript of the session to check and correct, which will be put on the public record in printed form and on the parliamentary website. If you could begin by stating for the record your names and official titles.

Gavin Cawood: Gavin Cawood, unit head of the National Centre for Product Design and Development Research at Cardiff Metropolitan University.

Jonathan Grant: Jonathan Grant, principal research fellow and former president of RAND Europe.

The Chairman: Thank you very much. We have allocated the questions, of which you have had notification. I will ask the first question: what are the essential elements of an effective proposal relating to research and innovation?

Gavin Cawood: I guess I am here because of the work that we have been doing with European projects on design, which is one of the broader issues when it comes to innovation, which people have been interested in. We have been involved in some European projects in trying to help regions and nations, and the Commission, understand what design is about and its role in innovation. In working with the different nations and regions, as we

have worked with our partners, the biggest issue is to realise that it has got to be part of a system for wider innovation or design. Supporting one element of that system does not necessarily work; you need to understand that it has to be in a national or regional context. The policies and proposals need to have actions with ownership and targets. One of the gaps in relation to policy proposals is how the cascade from the European Commission to national Governments, down to regions, happens and how things can get diluted as they fall down that cascade. Somewhere along the line there needs to be a realisation about actions and targets for each of those elements.

The Chairman: Thank you. Dr Grant.

Jonathan Grant: RAND Europe is a not-for-profit public policy research institute whose mission is to help improve decision-making through research and analysis. Last year, for example, we bid for 60 projects through the European Commission and associated agencies. We would expect to win somewhere between 30% and 40% of those projects in a good year. When we look at proposals, there are two points to make. One is that the invitations to tender coming out from the Commission are very clear, in our view. They are very prescriptive in their evaluation criteria and very transparent in saying what weights they will give to different elements, which is very good. As an organisation, we know that if we have a track record in an area, put together a consortium of Europe-wide partners and show an understanding of the policy context, we have a good chance of winning. We would compliment that. The risk of that, from an innovation point of view, is that the tender documents can be very prescriptive. If we have some expertise to bring to the discussion, we do not really have the opportunity in our proposals to suggest alternative ways of framing an issue or alternative methodologies for addressing an issue. That is a fine line—on one side you have transparency and openness and on the other creativity and innovation. There is no easy answer there.

The Chairman: Can I just ask how long you have been doing this? You must have developed skills in dealing with the European Union.

Jonathan Grant: RAND Europe has been around for 20 years. We have always done work for the Commission over that 20-year period but in 2008 we opened an office in Brussels, with the deliberate objective of opening up the European Commission market. Last year, about one-third of our revenues came from the European Commission. If you go back five years, it was probably around 5% to 10%. So we have definitely learnt over the past five years how to play the game.

The Chairman: Have you learnt how to collaborate with the Commission in such a way as to shortcut the process—or indeed even teach them or tell them how you think it might be done better?

Jonathan Grant: “Yes and no”, I think would be the answer to that. We have researchers who have very close working relationships with European officials. Through those relationships, they can help shape agendas and help the Commission think through what the future challenges are and how research can support those future challenges. At the same time—understandably, this is not a criticism—the Commission is very hands off. It wants to have a very transparent process. We respect that, but it was one of the key reasons why we decided to open an office in Brussels, because we knew we had to have people on the ground to develop those relationships.

Q55 Lord Fearn: Do you feel that stakeholders at all levels, including academic institutions, small and medium-sized enterprises, and big business, are properly consulted in the development of EU proposals on research and innovation? How could consultation be improved and to what extent does consultation affect policy formulation?

Gavin Cawood: To my mind, the consultation—the consultation process—is quite good. It is open and transparent, although it maybe has some weaknesses in reaching sectors like the SMEs. To be involved in the consultation process, you have to have a willingness and a desire to be involved. You have to have the resources and the time, and put the scanning out there, whether it is just monitoring websites or having people on the ground in Brussels, to understand what is going on and to be involved and engaged at the right time. If you are just operating an organisation and waiting for something to come through the door, that is when it does not happen.

A good example is in relation to design, which is my own area. As far as I could tell, the European Commission did not know particularly what to do with design, but could tell it had, potentially, a real role in realising innovation, in this broader definition of that. It did a consultation in 2009 about how design could fit into innovation policy in terms of becoming a vehicle for user-centred innovation. That led to the development of a board—the European Design Innovation Initiative board—back in 2011. They held a number of open workshops where industry, academia and design centres across Europe were invited to develop proposals together. The board then drafted proposals, which have now been put out as recommendations. Hopefully, they will end up in wider European Commission and regional policies. From our perspective, that has been very transparent and pretty effective. The only issue is about reaching those hard-to-reach points such as SMEs.

Jonathan Grant: I would agree. The process is pretty constructive and positive, and open and transparent. The challenge, especially when you are looking at policy research, is that the policy cycle works quite quickly, as your Lordships are well aware, and when you have too much consultation it slows down the process. We find that the procurement cycle between putting out an invitation to tender and a decision on starting the work can take a very long time compared to other people we work for. If you have too much consultation at the front end of that, you are just extending that procurement cycle. There is a trade-off between being open and consultative but also getting the policy research you need to inform your decision-making at that decision-making point.

Lord Fearn: You said that consultation was good. But supposing it is not good on one particular project, how do you get through then?

Jonathan Grant: To be frank, we give up. We are busy and have lots of opportunities we can bid for. If we do not think that we are in tune with the department in the Commission that is putting the work out then we will move on to another opportunity where we are in tune. At a micro level, for our organisation, that is not a major issue; at a macro level, it could well be an issue.

The Chairman: Thank you. Lord Elton, you wanted to ask about IP.

Q56 Lord Elton: We are getting rather confusing evidence on intellectual property rights. Some people are saying to us that the regime is working very well, or will work very well, while other people are considerably alarmed about the open access being proposed. Do you have views on that, or have you heard the views of others in this field on that that you could tell us about?

Jonathan Grant: To be honest, given the nature of the work we do, and being a not-for-profit organisation, we do not really come up against any formal IP issues. Our public-good mission, if you like, is to publish all the work that we do, so we do not have the opportunity to capture IP in a formal sense. Therefore, it is not an issue for us. I have not heard other people comment on that so find it difficult to make a judgment.

Gavin Cawood: I have never really heard others comment on it either, particularly in our field. But in supporting industry in relation to design issues, IP is of importance. It is always a debate between whether companies go down the road of trying to protect what they have got in terms of assets through IP or whether they have a policy or strategy of being continually innovative to stay at the front of the wave. There are issues as well in relation to open sourcing, which I think was mentioned. There are also potential issues in relation to service innovation, which is an area that is not particularly covered at the moment.

Lord Elton: Service innovation?

Gavin Cawood: Service innovation. It is an emerging discipline or field, particularly in the design sector. Large organisations such as the AA, Visa and Virgin Atlantic have departments that invest in understanding what their service offering is, and how they and their end-users get the most value from it. How you protect that is another issue. The approach to innovation has moved on a bit beyond the IP framework. There is the question of how you can equate that down, in particular to SMEs. If we are trying to persuade them to invest in things like service innovation but they cannot protect it, that is a question mark for them. I am not sure if I have answered that question properly.

Lord Elton: It is an interesting sidelight. Thank you very much.

Q57 Baroness Buscombe: Has the EU been successful in securing co-financing and other types of support from big business—corporations and industries—for EU projects with a strong research and innovation dimension? If so, and looking at it from another perspective, has the EU, in your view also been successful—or otherwise—in encouraging small and medium-sized enterprises to participate in EU-funded projects and strategies?

Gavin Cawood: I am not sure. I cannot really answer for big business, but coming from a region which does draw down quite a lot of European co-funding, we have over the years run quite a few programmes, on behalf of the regional government, to encourage small and medium-sized businesses to invest in innovation. That is quite successful although it is getting harder as budgets are smaller. Programmes are usually more specific these days as to what they can use the co-funding for and what kind of sectors it is aimed at, so that has been difficult too. But overall, I think they are pretty good at attracting co-funding.

Baroness Buscombe: Do you not think that high levels of bureaucracy have got in the way? Or do you just drive through it and accept it?

Gavin Cawood: From the perspective of small and medium-sized enterprises, I do not think bureaucracy is that much of a problem in drawing down co-funding. It is more about what you might call the middle-management capability to understand how you apply for it and, finally, having the desire and time to actually do it. On top of that, a co-funding culture, or a grant-related culture, can develop where, if an issue is raised by someone on the regional Government or a company wants to do something, there is an automatic assumption that there will be a handout to the organisation. But I do not think there is a barrier in terms of the bureaucracy, no.

Jonathan Grant: We are in a slightly different position. It is worth making the distinction between grant-funded activity such as FP7-funded activity and contract activity. We do both. On the contract activity, we can recoup our costs fully; on FP7 activity we can only recoup 75%. The whole nature of overhead recovery is a big issue for us. Partly, given what we do, it is just not feasible for us to get co-funding, because we do not have a product, we are doing policy research. We do FP7-type work and make a loss on it. We know we are going to lose 25% but do it partly because the research staff want to do it—they are interested and motivated—and partly because it gives us the opportunity to develop pan-European networks, which are very useful when we start doing the contract work.

Baroness Buscombe: So there is leverage there?

Jonathan Grant: There is some leverage, but the concept of co-financing for policy research organisations is non-existent. We just have to make the decision that we are going to lose money.

Gavin Cawood: I was talking about the programmes we have run which are directly aimed at the small and medium-sized enterprises and will build on what has just been said about research-based funding or co-funding coming out of the European Commission. It is a big commitment for institutions such as universities to apply for it. Again, you have got to really want to do it. We have been successful over the past eight years in applying for European funding to do really interesting projects to do with design, service innovation, et cetera, and people sometimes see us and think they would like to do some of that. They are really constructive projects that help you to network and do transnational co-operation but to be able to do it you need the resources and the infrastructure to undertake it, and the experience to do it. The project we have just started took us at least 18 months to apply for. I think the hit rate where you actually get the project is about one in seven or one in nine; and you can only recruit a year's worth of set-up costs if you get the projects. There is always that risk.

Baroness Buscombe: That is quite high risk, is it not?

Gavin Cawood: It is very high risk.

The Chairman: Participation by SMEs in this funded research has always been low. Is that mainly due to bureaucracy that they impose on the companies? Is it just that those companies do not know how to get round the bureaucratic nightmare, or that they do not have the resources in smaller companies either to employ people who do know their way around the system or to allow people to give up the job that they are doing within the organisation to put them onto the job of trying to get the way through this? It is a pretty soulless task I would have thought.

Gavin Cawood: It can be soulless. But if it is a larger organisation applying for some EU fund which is related to research and networking, the same applies. You have got to have the capability and capacity to do it. If it is more of an end-user service which is delivered by a regional institution such as ours, there is much less bureaucracy. I think we are talking about two different things.

The Chairman: I would have thought that you could supply very interesting help to these smaller companies. Some of the SMEs have highly creative people involved with them, who are not much good at trying to tackle bureaucracy. Would you be able to hand-hold these people and lead them through it, or supply a service that would actually be there, rather like the services you provide by being a consultant, to get through it?

Gavin Cawood: We can do. We are talking about two slightly different things. One is where we have a blanket service that we are applying to a region, where we can go into the company and offer them some support or advice. The other one is where we are applying for something that is probably a bit more progressive and over the longer term, working with international partners. That is a bit more involved. In those cases, we can act as a centre of expertise or conduit to working with several partners.

The Chairman: A clearing house.

Gavin Cawood: Kind of. Some of the requirements are that you have to have partners in different EU nations, including one academic and one from an SME in the different nations. An SME would probably not start off doing that because it is a bit of nightmare to go down that route. But if you, as an institution, have relationships with existing businesses, then you can see those opportunities.

The Chairman: You can marry them.

Gavin Cawood: It is like a marriage brokerage more than a clearing house.

Q58 Lord Elton: I do not want to be tedious on the subject but you were saying earlier that it was necessary to have certain well qualified people on the staff in order to cope with the application process, which you said was a very good application process by inference. But does the fact that you have to have very highly qualified people to tackle the process not suggest that it could be better and could be managed by less highly qualified people, thus admitting more SMEs to the first stage in the race?

Jonathan Grant: I think RAND Europe is, if you like, an SME. We have 80 people and are in that order of magnitude. Our experience is that there are definitely barriers to entry, which is your question. You have to learn the system, how to write successful proposals and how to collaborate successfully. You are not only selling yourself to the Commission but to collaborators, and if you are going to be successful, you want the best collaborators. You have to learn all this. There are consultancies out there that provide those services and help organisations. We engaged them when we started this process and, quite frankly, they were not very good. We learnt by doing and have now learnt that system. It has taken us five years and we are starting to recoup the investment we made to do it. I do think there are barriers to entry and it is not easy. As Gavin says, you have to be absolutely committed that this is what you want to do if you are going to go into that market. You cannot do it half-heartedly.

Lord Elton: How would you lower the barriers?

Jonathan Grant: That is a good question. Partly, you cannot. The Commission is a unique institution. From a Government's point of view, and from a policy-making point of view, it is unique, and you have to understand the unique way the Commission operates.

Lord Elton: That is what we are looking at. We are not asking how you cope with the Commission but how you improve the Commission.

Jonathan Grant: You have to acknowledge that uniqueness. It is not like working for Her Majesty's Government, it is a different type of organisation. We have had to learn that as an organisation, as has every organisation interacting with the Commission. In a practical sense, the Commission has a very good theoretical process for identifying issues, putting tender documents out and having an open, transparent and competitive process. People do the

projects, and those projects are managed and delivered; you can draw out a nice stage-by-stage process. In practice, what you need is greater flexibility and greater creativity. Commission staff need to be empowered more to take decisions and not to follow the bureaucratic process.

You have a question later on about follow-on funding. My view is that it is not about having follow-on funding but about empowering decision-makers in Brussels to continue to work with a group when they are delivering what they want. It is not follow-on funding per se, it is having that empowerment. Research-funding agencies around the world struggle with this all the time, because research funding is a bureaucratic process and successful innovation is the antithesis of that. How do you manage that trade-off? You have got to persuade the bureaucracies to take risks and be creative.

Baroness Buscombe: It sounds very Germanic and hierarchical.

Jonathan Grant: The Commission?

Baroness Buscombe: Yes, in terms of decisions and the culture.

Jonathan Grant: Yes, it is. If you look at DARPA, the US defence applied research—something—agency, which in my mind is a model research funder, it allocates something like \$3 billion a year. It has 150 technical staff managing those projects, and those technical staff are empowered to make decisions. They deliberately say, “We are going to rotate those staff every five years because we want to bring in the most creative minds from industry to run this funding agency and we do not want them to go native. So we are going to kick them out after five years”. If you get a DARPA job on your CV, industry is going to be gobbling you up. You create this virtuous circle. If the US Government can do that, why can we not do that in the UK and in the European Commission? That is the sort of model.

The Chairman: That is very interesting

Lord Elton: Is that the US defense something agency?

Jonathan Grant: It is the US Defense Advanced Research Agency. There is a “P” in there, for Projects probably. Google it and you will come across it.

Q59 Earl of Liverpool: This follows from the answers you gave to an earlier question from Lord Elton. Do you think the EU strikes the right balance in terms of legislation and regulation in stimulating research and innovation and its use? Are there ways in which it could be improved?

Gavin Cawood: I am not too sure on this question. In relation to things like tax incentives for encouraging R&D, which has been around for a long time, I know that there is relatively low awareness within SMEs, particularly ones we have been working with. I am not sure about the way that the European regional development fund supports EU cohesion policy, as I have no experience of how this operates at the moment.

Jonathan Grant: I would have to say that I think the question is wrong, if I may be so bold. I do not think that legislation and regulation stimulate research and innovation. Ideas and creativity stimulate research and innovation. The role of legislation, regulation and standards is more about when you want to encourage uptake of new ideas and the adoption of innovation. But they do not stimulate it and it is important to separate those two roles. Once we have a good idea and want it to be adopted, putting that into standards using

regulatory incentives, whether positive or negative, is a good idea but it is not going to stimulate the new idea in the first place, in my view.

The Chairman: We have been told about and examined proposals for cloud computing and parcel delivery, where the EU wants to create regulatory frameworks within which these sectors can develop. We feel, as a Committee, that competition in the market could fulfil much of that goal. David Willetts, the Minister for Universities and Science, has criticised the EU for not facilitating the adoption of space tourism and nanotechnology, and for banning plastics in food packaging without a scientific reason to do so. I take it you would agree with that?

Jonathan Grant: Absolutely, broadly. I made the point earlier that you get innovation by empowering people to take risks and develop good ideas. Innovation policy has got to loosen the system as much as possible. Regulation does not loosen systems.

The Chairman: It is rather like having an artist painting. Lord Elton would know all about that. You cannot prescribe where they do that or where the mountain is. You have to have free-thinkers.

Q60 Lord Brooke of Alverthorpe: I think in part you have answered my question, which is about whether the EU can add value with ideas and funding in non-traditional areas of research and innovation. You started at the beginning by talking about design as something that you took to them. The other examples we have been thinking about include the financial services sector, where of course the UK is particularly strong. We are good, too, in consulting and creating business models. Another area where perhaps Europe has a role to play in bringing people together is maybe in infrastructure. Do you think more should be done in those areas rather than sticking with the traditional approaches, which one might describe as heavy industry?

Gavin Cawood: I would certainly say, referring back to design, that there are so many opportunities. It is quite difficult because people's perception of what design is is so varied. But I have seen over the past five or so years that the Commission is particularly embracing understanding what design is about. We are involved at the moment in a project called the C platform, which is funded by the European Commission. It is a network of 11 design and innovation organisations across Europe helping to understand and exchange information about the role that design can play in innovation policy and how that can be realised on the ground. I think we have a target of running 100 workshops across Europe, particularly in regions which have not got any design equities or programmes at the moment. We are helping them to understand their innovation systems and where design can fit in. The interest and beauty of Europe is that every region and nation is so different. You cannot transplant one programme or policy from one place to another. It simply does not work. You have to understand what is there on the ground already. The bottom line would be that I would certainly say that it can add value to non-traditional areas of R&D. It is an essential thing to do for prosperity and growth.

Q61 Lord Clinton-Davis: Where there are weaknesses among the European countries who are members of the EU—if there are any—do you think that could be tackled?

Gavin Cawood: It can be tackled but there has got to be willingness on the part of regional and national Governments. We have seen it in areas you would not particularly expect. Estonia, for example, is particularly good with its online presence and digital development. It is very different to the UK because it has such a tiny population, and if it decides to do

something and go for it, it can do it relatively simply. Greece is just picking up some issues to do with service innovation in the public sector and has been asking us to lead programmes looking at that. In Poland, there is a region called Silesia, which Wales is particularly close to as we have a similar industrial heritage, which is very proactive in being seen as innovative—and being innovative—embracing things like the medical applications of what design and prototyping can bring, as well service innovation. If you hear their regional politicians talk, they are very pushy and progressive. They are not interested in being the old eastern Europe and being left behind by western Europe; they are interested in being ahead of us and embracing some of these non-traditional research activities.

The Chairman: Thank you. Lord Brooke?

Lord Brooke of Alverthorpe: You are on the ground. I admire you being in Brussels. That is one piece of experience you can give to others.

Jonathan Grant: This is a really good question. A great report came out of NESTA, about three or four years ago, called *Hidden Innovation*, which focuses exactly on this issue; what you have termed non-traditional areas of research and innovation. The headlines from that report, as I recall, are that there is a lot of hidden innovation out there, which, by definition, we do not see. The implications of that from a research and innovation point of view is that, when we set for example R&D targets under both Lisbon and Barcelona, those do not cover hidden innovation. Europe failed on both sets of targets. What does that mean? You cannot really make a judgment. We do not know whether it is right or wrong, good or bad, because there is all this other innovation going on which is not being captured in these traditional R&D-type statistics. It is very important, when you think about innovation, that you think about it in the broadest context and not in that traditional R&D context, even though that is how it is statistically reported.

Gavin Cawood: I think it is probably from the same report that the measures of spend by industry on traditional R&D against these non-traditional areas show that they spend a lot more on the non-traditional areas to be innovative, whereas Governments usually support the traditional side. There is a bit of a disparity there. We found that is the same in the UK as in Finland and Estonia, where I think we looked. It is the same in other countries too. Whether they are correcting a gap, or whether it is a mistake, I am not sure.

Q62 The Chairman: I am going to ask a question about the follow-on. Is there a need for a mechanism to enable the submission of follow-on funding in order to capitalise on the networks that could have previously funded projects and to maximise their output? In other words, if they have built teams through a structure of a couple of companies or industries, it would be a shame to let that all just stay as it was with the same innovation that created them in the first place. Could that actually go on for follow-on funding?

Jonathan Grant: My view there is that there are mechanisms for follow-on funding, to continue networks and what have you. As Gavin said a number of times, you have to really want to make those networks work. I am not sure whether it is about follow-on funding. If people want to make something work, they are going to make it work.

The Chairman: If it works in the first place.

Jonathan Grant: Exactly. The point I made earlier is that I am not sure the question is necessarily about follow-on funding but is about having flexible mechanisms which can, in an almost bespoke way, support initiatives, in the broadest sense, as and when they are

needed. Again, I suspect there will be different types of outcomes on different types of projects. If you just have follow-on funding, you may not be able to get that type of money to support a network. It is more about being flexible. I would strongly argue you do that by empowering people who are running these programmes to make decisions.

The Chairman: I suppose if they have success in the original projects they become even more encouraged and continue.

Jonathan Grant: Yes.

The Chairman: That makes sense. Thank you. Lady Buscombe.

Q63 Baroness Buscombe: Is the problem then that, even if you are very successful, you have to go back to square one every time? Is that what you are saying?

Jonathan Grant: Yes and no. Over the past five years we have built up templates, with which it is much more efficient for us to put a proposal together: we have everybody's CVs in the same way and all that sort of stuff. So you get those start-up costs.

Baroness Buscombe: But there is this lack of flexibility?

Jonathan Grant: It is the lack of flexibility and the programme-management attitude.

Baroness Buscombe: I can feel it.

Jonathan Grant: The attitude is, "The project has come to an end, it's finished; what do we do next?", rather than, "We as a Commission have invested in this innovation and we need to think about sustainability. Given that sustainability, what is the most appropriate way of supporting it?". That is the point.

Baroness Buscombe: The problem there is that that is a decision for someone else.

Jonathan Grant: Yes, and that is where you have got to empower people to make those decisions.

Gavin Cawood: In most European programme cores, there is an element of a requirement to demonstrate how it might be sustainable after the programme period. But the solution is really difficult, because they are funding an intervention. Governments, whether European, national or regional, fund an intervention for something because there is a gap. There is a gap there because you need to raise demand or solve a problem. If you get to the end of it, unless you have solved the problem completely it is self-sustaining and quite difficult. You can fall off a cliff a little bit at the end of projects. You have to be prepared and have succession planning et cetera. Again, talking about design, we have had some issues about what the term design means. We have had a couple of projects related to design, and when we have gone back with another project related to design, it has taken a lot of effort to get the Commission to understand what the second or third project is about and why it is different to the first, because it is talking about design.

Baroness Buscombe: Does that create havoc in terms of employment?

Gavin Cawood: Total havoc.

Baroness Buscombe: That must be very tough.

Gavin Cawood: It is the biggest stress point for me as a line manager. It is the name of the game. If you have a bag of 15 programmes, funded from wherever, you have three which

you have just applied for, six which are running and three which are running out. You have to plan for that constantly. We are doing better and better in terms of combining a one-third, one-third and one-third approach. At the moment we are trying to do one-third enterprise, one-third research and one-third knowledge transfer in everything we do. Then you can balance so that you are not solely reliant on government-based funding programmes.

Q64 Lord Elton: Mr Grant referred to hidden innovation. Perhaps a better word might be unreported innovation, because it is presumably known about. Assuming that it is beneficial—because innovation, from our point of view, is not just something different but something better—ought we not to be looking at means of encouraging that sort of development? How do we reach into the shadowy field outside the statistician’s view?

Jonathan Grant: Very good question. I did a piece of work three or four years ago looking at innovation in the National Health Service.

Baroness Buscombe: Tough.

Jonathan Grant: Thank you. How do you stimulate innovation in a large bureaucratic organisation? It is difficult. There are cultural issues. If you look at the research evidence, leadership is absolutely key. In organisations where you have chief executives who take risks themselves and allow other people to take risks, those organisations on the whole are more innovative. That is kind of obvious but is worth stressing.

Then you can go through to more economic things where, for example, without getting too technical, the greater the price elasticity of a good, the greater the innovation. The fact is that we do not have any price elasticity in the health service. Can you stimulate innovation in a service that has no price elasticity? There are another half-dozen things. That is not to argue that you cannot stimulate innovation, for example by sharing information. If you log on to Amazon and buy a book, it says, “People who have bought that book have liked this book”. That is a great illustration of passing on information and stimulating you as an individual to buy another book. Why can we not do that in other areas of public life? “So and so who did this procedure also did that procedure”. There are creative ways that you can stimulate public services but there is not a magic bullet. It is difficult and challenging, and we have got to acknowledge that in any debate around research and innovation. If we knew the answers, we would not need to innovate. It is quite important to acknowledge the challenges and constraints but at the same time not give up; we have got to be quite creative in stimulating and pushing innovation.

Baroness Buscombe: Do you think the biggest barrier there is culture?

Jonathan Grant: I would not say it is the biggest barrier. I think there are multiple barriers and it is too simplistic to say that. You have to look at the market in an economic sense. Some markets will have an innovative capacity and some will not. I do think leadership and culture are important. Social media creates a great tool now, whereby you can feed information back in real time, which can stimulate innovation.

The Chairman: That is really marketing, is it not?

Jonathan Grant: A lot of this comes from marketing. The other issue is that as an R&D enterprise—whether the Commission, the UK Government or anybody—we look at innovation, in an economic sense, from a supply side. We fund research and hope that some of that research will lead to innovation, which will be to the betterment of mankind. What

we have forgotten is the demand side. There are demand-side instruments that can stimulate innovation. Saying what our challenges and problems are is a very simple way of doing it. Then there are prizes: the Longitude Prize, 300 years ago, is an excellent example of demand-side innovation and we do not really use that. We are starting to but we do not really use it. You can use public procurement. The public sector spends a lot of money, so why does it not say, “We guarantee that we are going to buy 100 units at this price for the first person to develop this bit of technology, which we need in this service”? The public sector could do that but, on the whole, it does not.

Q65 The Chairman: The whole problem, and I very often say this, both when I go to Brussels and here, is that it is a market of 500 million people but too often research and innovation are from the supply side and are not thinking about what these people are going to need and what will make their lives better. Our previous witnesses were talking about the social impact. I just en passant mention this Amazon thing, which is exactly the sort of thing we are saying we should not be doing about food. Supermarkets are doing BOGOF—buy one, get one free—and people are said to be spending too much money on food and it is leading to diabetes and all the rest of it. It is very tricky. But again, it is the marketing impact of these sorts of things. Anybody else want to come in on this question?

Do you think there is a need for a mechanism to enable the submission of follow-on funding in order to capitalise on the networks built on previously funded projects and to maximise their output? This follows on directly from what we have been saying. If you get a lot of expertise in a particular area, instead of saying, “Yes, well that was what we wanted to do; we have reached our target of increasing innovation, making life better for everybody and employing people”, are you going to take the next step?

Jonathan Grant: I think it gets back to empowerment and allowing the bureaucracy to make those decisions. On the tender side, the Commission has operated a number of innovative mechanisms over the years, including what they call framework contracts—not to be confused with the framework programme—where you bid to be on a framework and effectively they get a preferred supplier list. Once you are on that list, it is much easier to have these dialogues and discussions, and things should be quicker. Those sorts of mechanisms work really well. Gavin has mentioned it in passing, but we have not really touched on the time lag. If it takes 18 months for somebody to make a decision about a project which may only be €300,000, by the time you learn that you have won that project half of your staff may have left.

The Chairman: The enthusiasm has gone.

Jonathan Grant: The enthusiasm has gone and the policy cycle has gone.

The Chairman: And the need for it has gone.

Jonathan Grant: Exactly. I do not think follow-on funding is the issue. It is about the front end making quicker decisions.

The Chairman: Our clerk has sent me a note here to ask you to send us the report in writing.

Jonathan Grant: Which one? The NESTA one?

The Chairman: Will you write to us about this? We will write. Thank you. Lord Clinton-Davis. I am getting very confused.

Q66 Lord Clinton-Davis: Some six or seven years ago, an impact assessment board was set up by the Commission. More recently, the Parliament reacted in a similar way. Do you think that that is an advantage? Is there any rivalry or competition between them?

The Chairman: Just duplication.

Lord Clinton-Davis: Do you think that, jointly and severally, the initiatives which I have referred to have been of value?

Jonathan Grant: If I can just backtrack, let us think why the Commission undertakes impact assessments. I would say they are a good thing. We have to remember—this is one of the differences between the Commission and Her Majesty’s Government—that the Commission does not have a direct, democratic mandate. In policy-making, it cannot fall back on principles and values, it has got to fall back on evidence and on research and analysis. That goes to the core of how the Commission undertakes policy-making. From the year dot, the Commission has undertaken policy-making in that way. The impact assessment process is formalising that and making it more transparent. The Commission has always used research in its policy-making, and impact assessments are making that more transparent and formalising it.

On paper, you have to praise the Commission for instituting a process of impact assessments. Indeed, I would go as far as to say it would be great if member states adopted that. I think it makes sense. The issue comes into the application. There have been a number of reviews of impact assessments, which show that they are of variable quality, which is exactly why they set up the Impact Assessment Board in 2006 to try to standardise quality. Quite often, the costs and benefits are not quantified, let alone monetarised. There are no standard tools for assessing both costs and benefits, which makes it very difficult to compare across policy domains, despite the theory. Should we be investing in a new school or hospital? If you have the same methodology, you can make that decision but at the moment we do not have the same methodology. The timescales within which the impact assessments occur are often too short, especially when you put in that procurement cycle. I do not have any evidence for this, but my guess is that this drives down the quality. Probably most importantly, if you speak to the researchers around Europe, you do not get the option to critically explore alternatives. To be very cynical, you get a document saying, “Could you please undertake an impact assessment on X. We in the Commission have identified three options”. Option 1 is the status quo and option 2 is just ridiculous, so you know that their preferred option is option 3. We as researchers are not allowed to go beyond that prescribed specification, which is very frustrating, as I am sure you will appreciate. This is probably more a question for someone in the European Parliament but I think that the reason that the European Parliament has set up a parallel process is to provide scrutiny over the Commission’s impact assessment. That is probably a good thing. Having duplication is obviously not, but having scrutiny is good. Again, I think the heart is in the right place but it may be more down to implementation.

The Chairman: That is a very interesting observation. I can see where you are coming from but I do personally think that impact assessments are absolutely essential.

Jonathan Grant: My view is that they are absolutely essential. The issue is the execution.

The Chairman: Lord Clinton-Davis, you have another bite of the cherry.

Q67 Lord Clinton-Davis: We in Europe, and elsewhere, are facing an economic crisis. In what way has that impacted on the programmes of research and development and so on? Are the levels of expenditure appropriate in the current circumstances?

Gavin Cawood: I am not sure about the levels of expenditure because it is difficult to know what to compare it with. With the economic crisis, we are seeing that it is more difficult to engage with businesses in providing support. Support programmes from regional governments are more focused and targeted. They are less broad and there is less flexibility. One impact over the past five or six years in the UK—particularly in England I think, although I do not work very much in England—is changes in the business support infrastructure. One of the benefits that Wales has had over the past 18 years is that there has been very little change in the business support infrastructure. It has been fairly constant so we have been allowed to build up centres of expertise and a critical mass of expertise, whereas in England you have had a number of different initiatives that have come and gone and different layers of bureaucracy on top of each other for the regions. You ended up with the regional development agencies, which have gone, so programmes have come and gone.

Lord Clinton-Davis: Why do you refer to England? Is it not an issue that affects the whole of the country, the whole of Britain?

The Chairman: Because he comes from Wales.

Lord Clinton-Davis: Oh yes, sorry.

Gavin Cawood: They let me out for the day. Innovation is devolved to the Welsh Government so they choose how they support businesses here in relation to innovation. That change in infrastructure is an issue. It is difficult for businesses to understand and difficult to create centres of expertise with some sort of critical mass.

The Chairman: But surely businesses are used to changing conditions? It is not just in funding for innovation and research, but because markets change all the time. They should be flexible; they have flexibility built into their DNA, so why can they not cope with this?

Gavin Cawood: They are flexible because they have to survive, and a majority of them probably contact the infrastructure because they are in some sort of major or minor crisis. A common complaint we have had is about the change and about understanding who does what and how they can be supported.

The Chairman: Thank you very much. Are there any other questions that the Committee think we ought to have asked? No? Thank you very much indeed. At the end of these sessions I usually ask our witnesses whether there are any questions that you think we should have asked and, if there are, how you would have answered them. Either you can tell us now, straightaway, with a sort of machine gun, or you can think about it and write to us, if you would. You are the experts and we are the amateurs. This has been very helpful indeed and thank you both for coming and giving your time.

Research Councils UK (RCUK)—Written evidence

1. Research Councils UK (RCUK) is a strategic partnership of the UK's seven Research Councils who annually invest around £3 billion in research. We support excellent research, as judged by peer review, which has an impact on the growth, prosperity and wellbeing of the UK. To maintain the UK's global research position we offer a diverse range of funding opportunities, foster international collaborations and provide access to the best facilities and infrastructure around the world. We also support the training and career development of researchers and work with them to inspire young people and engage the wider public with research. To maximise the impact of research on economic growth and societal wellbeing we work in partnership with other research funders including the Technology Strategy Board, the UK Higher Education Funding Councils, business, government, and charitable organisations. Further details are available at www.rcuk.ac.uk
2. This evidence is submitted by RCUK and represents its independent views. It does not include, or necessarily reflect the views of the Department for Business, Innovation and Skills (BIS). The submission is made on behalf of the following Councils:
 - Arts and Humanities Research Council (AHRC)
 - Biotechnology and Biological Sciences Research Council (BBSRC)
 - Engineering and Physical Sciences Research Council (EPSRC)
 - Economic and Social Research Council (ESRC)
 - Medical Research Council (MRC)
 - Natural Environment Research Council (NERC)
 - Science and Technology Facilities Council (STFC)

Introduction

3. RCUK welcome the opportunity to respond to this inquiry. This response focuses mainly on European Commission proposals for the new Framework Programme in the field of Research and Innovation – Horizon 2020.
4. RCUK are aware that innovation will be a major dimension in the forthcoming Common Strategic Framework (CSF) Programme ('Structural Funds') but has not been involved in discussions with the EC undertaken by BIS. RCUK are also aware that the Commission is encouraging the joint funding of proposals where this is practicable using Horizon 2020 funding and CSF funding, which could increase the effectiveness of these investments.
5. EU research and innovation funding is important for the UK, which to date has received around 15 per cent of total Framework Programme 7 (FP7) funding, second only to Germany. In some areas the UK has been the most successful in attracting FP7 funding, for example in the health sector where the UK has to date received 17 per cent of available funds, ahead of all other nations. We consider however that it is important for the Commission to communicate better the nature of its different programmes and initiatives so that potential participants are able to understand the discrete benefits of each. Greater clarity would improve participation across all sectors.

6. We would like to see a more consistent approach to consultation on new programmes as currently this varies; the Commission consults widely on some programmes but not on others. We would also encourage strategies for monitoring and evaluation of the success of programmes to be more visible and would particularly welcome this approach for the evaluation of pilot programmes. In developing future programmes we consider that the Commission would do well to take national practice and systems more into account.

Q2. Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

7. It is essential that there is an open consultation process from the outset of the development of a new programme. This is traditionally done in parallel to Commission impact assessments and is designed to inform the Commission Impact Assessment of the newly proposed programme. This should include stakeholder consultation with all types of stakeholders. It should include adequate opportunities for an open dialogue over challenging areas and should additionally seek input through the formal Committees that are responsible for the current programme. The latter is an area where the Programme Committees do not currently have a formal remit, but the Commission does engage Committees in an informal way. In advance of the proposal development it is also important that Member State input is called upon, in particular with regards to funding bodies across the EU. Ex-post evaluation of existing programmes should also be taken into account, although this can be tricky given that the current programmes by their nature are on-going and therefore the ex-post evaluation would not be finalised. A positive step towards this has been the interim and annual reviews of FP7 which have been able to inform the developments of Horizon 2020.
8. With regards to Horizon 2020, stakeholders have been consulted through formal and informal consultation and dialogue. However, the focus of this is on the main proposal. A more challenging aspect is the development of the wider policy landscape, often dealt with at a ministerial level through the Competitiveness Council. For example the establishment of the European Innovation Partnerships and the European Research Area were both led through this ministerial dialogue, with stakeholder consultation secondary to the formal agreement of the strategy at ministerial level.
9. Given the breadth of the European research and innovation landscape it is difficult to coherently consult on all areas, for example the continuation of Joint Technology Initiatives, Public Private Partnerships and Joint Programming Initiatives, as many of these are dealt with independently rather than as part of the consultation process for Horizon 2020. The consultation for the development of the Horizon 2020 proposal focused primarily on the overarching strategic issues, and as such the thematic aspects were not fully addressed at the initial stage. This has subsequently formed a large part of the formal negotiations, meaning that the research community has not been fully able to access and contribute to this part of the negotiations. Earlier open stakeholder consultations with the research community on thematic aspects of the programme would have been welcomed in addition to the stakeholder workshops that were held in summer 2011.

10. We would also welcome a commitment by the Commission to produce a map of all the ongoing initiatives in the research and innovation landscape. This is being dealt with to some extent within the work of the European Innovation Partnerships, though these are only focused on their specific areas, rather than across the breadth of the funding and policy landscape.

Q3. The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?

11. The modes of the open method of co-ordination are welcomed and do have value. However, often the work is not communicated to the research community as well as it could be, making it difficult for stakeholders to follow and monitor these consultation activities. A clearer mapping of these activities would be beneficial to the whole community and lead to greater transparency of the whole process. In some areas it may also be appropriate to establish steering committees, composed of those with professional expertise, to drive the research agenda in particular areas across the three pillars of Horizon 2020 and ensure a coordinated and coherent approach in order to achieve maximum impact.

Q4. Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

12. There have been clear strategies for engaging the private sector through favourable reimbursement regimes and the establishment of specific calls focusing on SMEs. The Joint Technology Initiatives and the Public Private Partnerships established under the Commission's recovery package were specifically designed to tackle this issue, where the private sector has the main voice in directing the focus of the calls. However, caution should be exercised over the use of some of these schemes, as the Joint Technology Initiatives are seen by some to favour larger industry. There are added challenges for stakeholders across all sectors in that the funding rates and rules for participation for each of these schemes vary to some extent from those used within the Framework Programme, creating extra burdens of administrative complexity. Additionally calls that specifically require a certain proportion of the budget to be directed to SMEs need to be carefully thought about prior to establishment to ensure that these calls are fit for purpose and do not result in artificial consortia which could compromise excellence. While acknowledging that steps – such as reducing the 'time to grant' – are being taken in Horizon 2020 to break down the true barriers to SME engagement (for example time from call to contract; bureaucracy of managing participation), with the aim of fostering more sustainable and long-term participation of SMEs in European research, we would encourage the Commission to keep looking closely at where improvements could be made.

Q5. Do EU proposals clearly state their desired outputs, outcomes, impacts, and 'European added-value'? Do you think the European Commission's Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

13. The impact assessment process does address the issues of ‘European Added Value’ and the outputs and outcomes and impacts of the proposals to be established. However, these lengthy documents are often viewed as being inaccessible to the wider research community and are only publically available at the same time as the Commission’s proposal which can limit the dialogue over any contentious issues. It is also a difficult process to translate all aspects forming part of the impact assessment into the final proposal.

Q6. Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

14. There is a need for a coherent and global monitoring process. The EU does provide information on overall monitoring and evaluation of programmes with regard to funding data, but there is still considerable work to be done to expand this to cover the outputs of the projects. The adoption of a suitable evaluation approach is particularly important given current budget restrictions as it is vital to be able to demonstrate the impact of the framework programmes in order to ensure continued support. One of the challenges of EU funded research is obtaining access to research results and outputs, and the Commission introduced pilots in FP7 for open access publications of research results. Open access of research publications will be standard in Horizon 2020 and will be expanded to include pilot activities on open access of research data. This process should be done in close collaboration with activities in Member States to ensure interoperability of procedures and policies.
15. RCUK published a new policy on open access in July 2012⁷⁵ which was developed in discussion with key stakeholders in the UK and international research community. We are recognised as leading in this area and many stakeholders are currently developing their policies around open access based on the position within the UK. At a European level, our policies are informing the development of the European Research Area and – among other activities – we are contributing to Science Europe’s work in developing co-ordinated policies on open access across Europe.

Q7. In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

16. The Commission does produce ex-post monitoring reports. Across the EU the way in which Member States use the outputs of publicly funded – whether at regional, national or EU level – research and innovation varies, however the Commission could do more to publicise and raise awareness of the outputs of research funded at the European level. The Knowledge and Innovation Communities (KICs), an EU initiative part funded (up to 25 per cent) by the European Institute for Innovation and Technology (EIT) with their remaining funding leveraged from a range of other sources such as research grants, industry partners and national funding, should play a role in bringing the outputs of research to market as the KICs’ partnerships mature.

⁷⁵http://www.rcuk.ac.uk/documents/documents/RCUK%20_Policy_on_Access_to_Research_Outputs.pdf

Q8. How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

17. In the current economic climate the programmes funded at an EU level are playing an increasingly important role in the pan-EU research landscape, in particular as national funding is increasingly difficult to obtain. Over time this will lead to increasing demand for the programmes and care should be taken to ensure the activities and a pan-EU level continue to focus on areas of clear 'EU added value' and are not seen as a way to replace ever decreasing national activities across the EU. It is important that the budget of the research and innovation activities at an EU level remains substantial enough to adequately fund the activities of the Research and Innovation programmes. A significant drop in budget would prohibit the ability to fund sustainable research at an EU level and would in turn lead to a decrease in economic growth.
18. As a member of Science Europe, RCUK fully endorse its statement of November 2012 on the Horizon 2020 budget, entitled 'Time for Europe to commit to a knowledge-based economy'⁷⁶, which emphasised the importance of adequate funding for research and innovation at the Europe level. The statement called upon European leaders to recognise the value of Horizon 2020 as a mechanism for "encouraging collaboration between excellent researchers both within Europe and internationally, achieving critical mass, driving cutting edge innovation and scientific breakthroughs, and tackling major scientific challenges".
19. The introduction of innovation as a high priority theme for the CSF funds has opened up new opportunities for the UK. While CSF funding is primarily targeted at regionally driven activities, the possibility of combining CSF funding with national funding to deliver regional innovation priorities is an interesting development which RCUK together with other UK funding bodies are pursuing with BIS.

Q9. What suggestions could the UK make to the EU institutions to maximise the effectiveness of legislative and project proposals with a strong research and innovation dimension?

20. It would be incredibly valuable to ensure there is an on-going dialogue maintained with national funders. This would better equip the Commission to be able to take account of national practices and systems. In particular this would be highly valuable in the context of the rules of participation and greater acceptance of nationally accepted accounting systems. Secondly, with the move to funding global societal challenges under Horizon 2020, there would be valuable lessons to be learned from the way in which grand challenges are tackled at national level, in particular the RCUK multidisciplinary cross-council grand challenge areas.

February 2013

⁷⁶http://www.scienceeurope.org/uploads/Public%20documents%20and%20speeches/SE_H2020%20budget_Position%20Statement_FIN.pdf

Professor Sally Roberts, PhD, Dr Jill Urban, PhD, and Professor JCT Fairbank, MA, MD,
FRCS—Written evidence

**Professor Sally Roberts, PhD, Dr Jill Urban, PhD, and Professor JCT
Fairbank, MA, MD, FRCS—Written evidence**

[Submission to be found under Dr Jill Urban, PhD](#)

Rolls-Royce, EADS, Airbus, and Pfizer—Oral evidence (QQ 36–53)

Rolls-Royce, EADS, Airbus, and Pfizer—Oral evidence (QQ 36–53)

[Transcript to be found under Airbus](#)

Royal Society of Chemistry—Written evidence

Effectiveness of EU research and innovation proposals

In summary, our recommendations are:

- Regulation should be more flexible to enable innovation;
- The EU should follow the UK's lead in introducing more effective, less burdensome enforcement of regulations;
- Processes to apply for and administer EU research funding should be simplified;
- The EU should do more to facilitate cooperation on research and innovation through scientific data sharing.

Regulation should be more flexible to enable innovation

During your Committee's recent evidence session with Science Minister David Willetts MP, he remarked on the need to ensure that the EU strikes the right balance between stimulating innovation and managing risk, and we welcome the Minister's comments about the need to ensure that excessive EU regulation does not unnecessarily hinder new technologies from being introduced to the market. There is a perception in industry that regulation often falls behind scientific developments – there is a lag-time between new discoveries (for instance a method of analysing the effects of a particular class of pesticides) and regulation reflecting these changes. Building in flexibility can help to make sure that regulation reflects up-to-date scientific practice.

The EU should follow the UK's lead in introducing more effective, less burdensome enforcement of regulations

Our recent report on Securing Soils for Sustainable Agriculture seeks to address some of these issues and we also welcome the UK Government's recent plans to cut red tape for the chemicals industry by introducing more effective, less burdensome enforcement of the Control of Major Accident Hazards (COMAH) regulations. We would like to see the EU take similar measures in other sectors, such as agri-science and food, to ensure that there is sufficient flexibility in regulation to nurture growth in new businesses, while protecting public safety. This will help to ensure the effective commercialisation of innovative R&D and support business growth.

Processes to apply for and administer EU research funding should be simplified

We were also pleased to note the Minister's comments regarding simplification of the processes for applying for and administering EU funding. As outlined in our response to the European Commission's Green Paper on research and innovation funding, the level of reporting from application through to audit can deter many stakeholders from applying for funding. This is particularly the case for small to medium enterprises (SMEs), who often do not have sufficient resource to manage such administration. Evaluation of administrative processes to remove unnecessary burdens (e.g. repeat reporting across a group of joint stakeholders) could help to achieve a more streamlined process that would encourage wider participation.

The EU should do more to facilitate cooperation on research and innovation through scientific data sharing

We would like to see the EU do more to facilitate cooperation on research and innovation through scientific data sharing. As outlined in our Chemistry: We Mean Business briefing note, we are particularly keen to see research-related tax relief to encourage scientific data-sharing and collaboration, specifically during the early stages of R&D, to ensure we can maximise the economic returns from research. Tax relief could also be a powerful instrument in enabling researcher mobility across sectors and disciplines, which is a strategic area identified recently by the UK Government Chief Scientific Adviser. The response to the House of Commons Science and Technology Select Committee's inquiry into the Valley of Death highlights our recommendations in further detail.

4 April 2013

The Russell Group of Universities—Written evidence

I. Introduction

- I.1 The Russell Group is pleased to have the opportunity to contribute evidence to the Sub-Committee’s inquiry.⁷⁷ We represent 24 leading UK universities which are committed to maintaining the very best research, an outstanding teaching and learning experience and unrivalled links with business and the public sector. EU proposals relating to research and innovation are of vital importance for the UK’s leading universities, the UK’s economy and place in the world, and European ambitions for growth and jobs.
- I.2 This inquiry is being conducted against the backdrop of the negotiations on the Multiannual Financial Framework (MFF) for 2014-2020 and we submit this evidence without knowing the full implications for research and innovation of the agreement at the Council Summit on 7-8 February. The most pressing issue in this area is securing effective funding for Horizon 2020, the EU programme for research and innovation, which we made clear in our letter to the Financial Times on Tuesday 5 February.⁷⁸
- I.2 Further detail on the EU’s proposals may be found in “Horizon 2020: the contribution of Russell Group Universities”.⁷⁹ This briefing paper discussed important issues including: prioritising excellent research, simplification and reducing administrative burden, connecting fundamental research to innovation, talent circulation and internationalisation, sustainable funding levels, and the key role of research-intensive universities in bringing together research, education and innovation.
- I.4 The contribution of European Higher Education proposals to research and innovation is discussed in our evidence to the House of Lords Select Committee on the European Union (Social Policies and Consumer Protection Sub-Committee) inquiry into the Modernisation of Higher Education.⁸⁰
- I.5 The contribution of proposals for the European Research Area (ERA) is discussed in our response to the European Commission’s consultation.⁸¹
- I.6 Dr Jennifer Barnes, Pro-Vice-Chancellor for International Strategy at the University of Cambridge, gave evidence on behalf of the Russell Group to the Industry, Research and Energy (ITRE) Committee of the European Parliament on the contribution of world-class research-intensive universities to turning ideas into jobs, growth and progress.⁸²

⁷⁷ For more information about the Russell Group see www.russellgroup.ac.uk

⁷⁸ <http://on.ft.com/11EJKad>

⁷⁹ <http://www.russellgroup.ac.uk/uploads/Horizon-2020-the-contribution-of-Russell-Group-Universities-June-201.pdf>

⁸⁰ <http://www.russellgroup.ac.uk/uploads/HoL-EU-Cttee-Inquiry-into-the-Modernisation-of-Higher-Education-in-Europe-the-EU-contribution.pdf>

⁸¹ <http://www.russellgroup.ac.uk/uploads/Russell-Group-ERA-framework-contribution.pdf>

⁸² <http://www.europarl.europa.eu/document/activities/cont/201203/20120321ATT41380/20120321ATT41380EN.pdf>

2. Funding for Horizon 2020 in the Multiannual Financial Framework

2.1 Putting the focus on EU funding for research and innovation in leading universities and businesses would be the best signal to the British and wider EU public that any MFF agreement represents their Government's commitment to growth.

2.2 World-class research and innovation will be crucial to growth and to Britain's place in the race for the wealth and jobs of the future. We welcome the Committee's stance advocating a greater share of a limited EU budget for investment in research and innovation, with a reduction in other areas including the Common Agricultural Policy. We also welcome the UK Government's position that "growth and competitiveness are underpinned by research and innovation, and the Government therefore considers that this area should account for a larger proportion of an overall smaller EU budget".⁸³

2.3 We are pleased that the UK and other EU leaders at the February 7-8 Summit recognised the need to increase investment in research and innovation, even while making the first real terms cuts in overall EU spending. Sub-Heading 1a "Competitiveness for growth and jobs" will include Horizon 2020, Erasmus for All, large science infrastructure and other programmes including competitiveness for SMEs and the new Connecting Europe Facility. The Council conclusion sets this Sub-Heading at €125.6 billion for 2014-2020, significantly less than the Commission's proposed €155 billion, and significantly more than the equivalent heading in the 2007-2013 MFF. The amount of this which will be allocated to Horizon 2020 within this Sub-Heading is not yet confirmed. The Council's conclusion states that "given their particular contribution to the objectives of the Europe 2020 Strategy, the funding for Horizon 2020 and ERASMUS for all programmes will represent a real growth compared to 2013 level." We look forward to seeing the further details. Under the terms of the Lisbon Treaty, the MFF will also need to be approved by the European Parliament.

2.4 As the agreed high level agreement on budget headings is translated into individual programmes it will be more important than ever to make the most effective use of scarce resources. Horizon 2020 should be the top priority within the threshold for Sub-Heading 1a. The European Commission proposed €80 billion of funding for research and innovation over the period 2014-2020.⁸⁴ The European Parliament has called for the budget for research and innovation to be increased to €100 billion in order to support smart growth.⁸⁵ The composition of the Sub-Headings has changed between MFFs, and Horizon 2020 is a new programme containing additional activities to Framework Programme 7 (FP7), so direct like-for-like comparisons with the previous MFF are difficult to estimate with confidence at this stage. However, it seems likely that funding for research and innovation will increase in real terms on the previous MFF but will be considerably less than the amount the Commission proposed.

⁸³ Government response to the House of Lords Inquiry Report: the Modernisation of EU Higher Education.

⁸⁴ http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=h2020-documents

⁸⁵ <http://www.europarl.europa.eu/sides/getDoc.do?type=REPORT&reference=A7-2012-0313&language=EN>

- 2.5 There may also be a real terms fall in the value of like-for-like new grants made in 2014 from 2013. The amount of research and innovation funding committed per year will increase relatively slowly compared to FP7 and may not return to 2013 levels for some time.
- 2.6 Horizon 2020 will remain key to Europe's, and the UK's, long term prosperity. If the final budget for Horizon 2020 is smaller than planned, the priority within the funding envelope available must be to promote the very best and most transformative research. The smart thing would be to protect as much as possible the planned investment in excellent science and research – especially the European Research Council – and research into the grand challenges facing us, including healthy ageing, clean energy, and food security: research which underpins sustainable economic growth.
- 2.7 Russell Group universities in the UK are key to the success of EU research and innovation. They make up 14 of the top 50 higher education participants in the current research and innovation programme (FP7). The UK leads Europe in the quality of our research. Our researchers have won far more awards from the European Research Council (ERC) than our nearest competitor: 761 compared with Germany's 467. The UK wins the second highest share of overall FP7 funding. With this funding we pursue fundamental, applied and translational research into the grand challenges facing us, including healthy ageing, clean energy, and food security: research which underpins sustainable economic growth.
- 2.8 Our success in leveraging European funding that complements UK government investment also means we have a lot to lose. For leading universities, European funding isn't a top-up, but a key – and irreplaceable – part of our research income. Russell Group universities win over £275m in research funding a year from the EU, more than from six of the seven UK Research Councils.⁸⁶ As a proportion of total university income, EU funding is more than twice as important to Russell Group universities as other UK universities.
- 2.9 The ERC advance grants announced on 23 January show the opportunity increased EU funding for frontier research on the basis of excellence could present: the UK won 80 grants, more than France and Germany combined. Russell Group universities alone won 63 grants, more grants than either country, representing around €140m gained for the UK. There was strong Russell Group involvement in developing both the successful proposals for the flagship EU research initiatives announced on 28 January. Funding for Graphene and the Human Brain Project could reach €1bn each over ten years, if the budget for Horizon 2020 is protected in the detailed next stages of the MFF process.
- 2.10 We fully understand that the UK Government advocated a reduced overall EU budget, but we urge the Government to continue to argue in Europe for the approach it has taken in the UK: to protect a strong science and research budget within a lower overall settlement. UK universities are the most competitive in

⁸⁶ HESA finance 2010/11.

Europe: if the budget for excellent research is there, we will win it for the UK, and deliver the innovation that produces long-term, sustainable economic growth.

3. Key Facts

Excellent research in Horizon 2020 will provide significant value to the UK:

- The UK won more than 16% of all Framework Programme 7 (FP7) funding to EU member states and 27% of European Research Council (ERC) funding - far higher than the UK contribution to the EU budget (c. 11.5%) or the UK share of overall EU spending (c. 5.6%).⁸⁷
- Funding for competitiveness and innovation makes up nearly 18% of the UK's receipts from the EU, almost the same as our structural funding. FP7 alone is 13% of the UK's receipts from the EU - higher than in any Member State except the Netherlands.
- The UK received €3.7 billion in research and innovation funding from (FP7) in 2007-2011, second only to Germany. The then 20 Russell Group universities alone won over €1.5 billion, 16% of all EU research funding to universities.
- FP7 has funded UK participation in nearly 90,000 collaborative links across the EU, ranging from leading academics to SMEs.

Growth and jobs depend on world-class research and innovation:

- €1 of EU FP7 funding lead to an increase in industry added value (contribution to growth) of €13 on average.⁸⁸
- If Europe had not invested in FP7 the loss would far exceed the funding saved: The long-term impact is estimated at 900,000 extra jobs and 0.96% extra GDP - a boost to growth the size of the total expenditure on all other EU budget lines combined.⁸⁹
- High quality university research attracts private investment. 22% of UK R&D funds are from abroad, higher than any large economy and double the EU average.⁹⁰ Businesses rate UK university-industry collaboration in R&D to be second in the world.⁹¹

Russell Group universities are key to UK competitiveness and success of Horizon 2020

- Russell Group universities are 14 of the top 50 HE participants in FP7. They also represent 17 of the world top 100 universities and they earn 75% of UK HE research income from outside the EU.⁹²
- The 20 pre-expansion Russell Group universities earn 78% of the UK HE sector's ERC funding and over 70% of the UK HE sector's income from EU industry and

⁸⁷ FP7 grant database October 2011. Fifth FP7 monitoring report, EU Budget Financial Report 2011.

⁸⁸ *Impact Assessment Horizon 2020*.

⁸⁹ *Impact Assessment Horizon 2020*. EU total expenditure minus FP7 spending is 0.95% of GNI. *EU Budget 2011*.

⁹⁰ OECD STI scoreboard 2011.

⁹¹ First in the EU and ahead of the US. The World Economic Forum competitiveness report 2012.

⁹² QS World University Rankings. Ten in the THE and nine in the ARWU top 100. Fifth FP7 monitoring report. HESA finance and HEBCI 2010/11.

charities.⁹³ They win 21% of all ERC funding, 20% of all Marie Curie funding (an EU funding stream).⁹⁴

February 2013

⁹³ Ibid, and HEBCI 2010/11.

⁹⁴ European Commission, FP7 grant agreements and participants database, accessed October 2011.

The Society of Motor Manufacturers and Traders—Written evidence

The Society of Motor Manufacturers and Traders (SMMT) is one of the largest and most influential trade associations in the UK. It supports the interests of the UK automotive industry at home and abroad, promoting a united position to government, stakeholders and the media. The UK automotive industry is dynamic and globally competitive. Our sector is a vital part of the UK economy with £50 billion turnover and £10 billion value added. With over 700,000 jobs dependent on the industry, it accounts for 11% of total UK exports and invests £1.3 billion each year in R&D. The industry plays an important role in the UK's trade balance, with vehicle manufacturers exporting almost 80% of production. The UK is home to the world's largest number of low volume vehicle manufacturers.

The automotive industry invests heavily in and undertakes significant levels of R&I in Europe, with the UK as a key hub for this activity. We have welcomed many national initiatives and policy measures in the UK to leverage such investment, which have in turn created skills, jobs and supported growth. Such activity has significant long-term benefits and supports the role of the UK as a leading global innovative nation.

The automotive industry welcomes both the European Commission's proposal for a regulation establishing Horizon 2020 – the EU's Framework Programme for Research & Innovation; and the proposals for a Council regulation laying down the rules for participation and dissemination. European automotive manufacturers are the largest private investors of R&D in Europe with investments totalling over €26bn per annum.

SMMT has recently shared its views with UK government on Horizon 2020. These views are supportive of the positions of key European associations for automotive - EUCAR (European Council for Automotive R&D), ACEA (automobile) and CLEPA (components). These organisations have been very active in communicating their positions on Horizon 2020. In summary, the automotive industry seeks:

- Maintenance of total Horizon 2020 budget of €80bn in Multi-annual Financial Framework (MFF).
- Maintain budget shares for programmes on “Smart, Green and Integrated Transport” and “Enabling and Industrial Technologies”.
- Support focus on key automotive R&I initiatives, and at least a combined €5bn budget contribution for these initiatives, reflecting the economic and social importance of the European automotive sector.

The Committee's call for evidence outlines some specific questions. In addition to the statements above and in response to some of the themes raised, SMMT would like to make the following points:

- With the renewed focus on industrial strategy in the UK, there is a significant opportunity to ensure co-ordination in policy approaches across government through ensuring the UK maximises opportunities related to EU R&I funding. Automotive is one of the industries which is working collaboratively with government on a sector strategy and a shared growth ambition. This includes

consensus technology roadmaps and identification of ‘sticky’ technologies where the UK has the opportunity to be a global leader. Seeing sector priorities on increasing R&D investment in the UK supported through the UK government’s approach to the EU R&I framework, as well as support of other key policy levers such as the forthcoming changes to the R&D tax credit which will be introduced in April 2013, would be complementary and beneficial.

- The UK’s share of EU green transport funding is not low, but has decreased over the last few years, and is under 10% of the total budget. Such a downward trend is concerning, particularly with the UK’s ambitions around industrial strategy, and also because of the unique position of the UK automotive industry. This industry has shown its commitment to the UK through a series of announcements over the last 2 years which have resulted in investment commitments totalling over £6 billion. Such announcements support jobs and growth not just in large automotive companies, but throughout their supply-chains and associated industries. This investment enhances the skills base and firmly positions the UK as a leading automotive and globally competitive location for advanced manufacturing activities, including R&D. Associated with this investment, £3 billion of opportunities for the supply-chain have been identified and as the economy starts to grow there is an opportunity for timely action to ensure the full benefits of such opportunities can be felt.
- The automotive sector welcomes the work the UK undertakes on encouraging R&I, however, industry would be keen to see greater transparency in how the UK is seeking to influence and maximise the opportunities around the EU R&I agenda. Greater transparency would be supported by a more inclusive approach and SMMT would encourage government to engage with a more diverse community on the green transport R&I agenda. At present there are some outstanding industry experts and academics involved, but widening out the community government engage with, for example through more direct contact with companies, would be mutually beneficial.
- SMMT is currently working with key partners to develop a programme of activities to raise awareness on EU R&I opportunities and to support successful application for funds. This is an ongoing piece of work and we would be pleased to provide more information as it progresses and develops.

I enclose two recent documents which may be of interest to your inquiry, a EUCAR position paper and separate summary statement on Horizon 2020. If you need more information on these documents or on any comments outlined in this paper, please do not hesitate to contact me.

6 February 2013

University College London—Written evidence

University College London is among the top three UK research institutions in terms of awarded European Union research grants, attracting over £164 million worth of EU research funding since 2007.⁹⁵ UCL is also first in the UK in terms of both participation and funding received through the EU's Framework Programme 7 Cooperation Programme which funds collaborative research on an international level.

UCL therefore welcomes the opportunity to contribute to the House of Lords' Sub-Committee B's Call for Evidence on the Effectiveness of EU Research and Innovation Proposals.

Please find UCL's replies below:

1. What are the essential elements of an effective proposal relating to research and innovation?

Funding excellence.

2. Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation?

Consultations are carried out. Pan-European responses through the League of European Research Universities (LERU), the European Association of Research and Technology Organisations (EARTO) and the European University Association (EUA) are more effective than institutional or Member State responses.

3. The EU facilitates Member State cooperation on research and innovation through the open method of coordination, the creation of high level groups, associations, networks, and councils? Are these modes of cooperation effective, and could other methods be used?

UCL cannot comment on the effectiveness of these modes of cooperation as this falls under the remit of the Department for Business Innovation Skills.

4. Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

Yes - there is now much more focus on industrial / SME participation. However this top-down / prescriptive approach can sometimes be counter-productive since it can impact on the excellence agenda.

⁹⁵ Source: European Commission, FP7 Grant Agreements and Participants Database Statistics, 29.10.2012.

5. Do EU proposals clearly state their desired outputs, outcomes, impacts, and ‘European added-value’? Do you think the European Commission’s Impact Assessment Board helps to ensure the production of useful and accurate impact assessments?

The call documentation and guidance notes clearly outline the expected impacts. However there is currently no requirement or post-project assessment to ensure that such impacts (or other impacts) have been achieved. The Impact Assessment Board provides useful data on impact assessments. However this mechanism has only been used for piloted initiatives and non-FP7 research projects.

6. Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

Yes.

7. In terms of informing public policy and generating economic growth, does the EU use the outputs of research and innovation effectively in comparison with other countries, for example, USA, Australia, Singapore, etc?

Whilst there is much anecdotal feeling that the UK does not use the outcomes of research as effectively as other countries, the strength of the UK economy in knowledge-based services and manufacturing sectors would suggest the contrary. However, maintaining the global competitiveness of our innovation ecosystems requires continuous investment and improvement.

8. How have the economic crisis and the atmosphere of austerity in many EU Member States impacted the research and innovation environment at the national and EU levels? Are the proposed levels of spending in EU projects appropriate in the current situation?

The economic environment has clearly impacted on the UK's research environment i.e. Overall (relative) drop in research funding, Wakeham, enhanced emphasis on impact and translational research.

9. What suggestions could the UK make to the EU institutions to maximize the effectiveness of legislative and project proposals with a strong research and innovation dimension?

The UK should focus on the following recommendations: Research and innovation must be based on excellence. Simplification. More bottom-up research (all of these proposals are in the H2020 proposal).

11 February 2013

Universities UK and the UK HE International Unit—Written evidence

Introduction

1. This document sets out the response of Universities UK (UUK) and the UK HE International Unit (IU) to the House of Lords inquiry into the effectiveness of European Union (EU) research and innovation proposals.
2. The response has been developed in consultation with stakeholders from across the UK HE sector.
3. The response will be divided into separate parts according to overarching policy themes rather than responding to each of the questions set out separately.

EU research and innovation funding in the UK

4. To set this response into the appropriate context, we would firstly wish to make some explanatory points about the importance of EU research funding to the UK. The quality, breadth and depth of research in the UK enables it to secure a disproportionately large quantity of EU research funding. Research and innovation is one of the areas where UK interests are most closely aligned with opportunities offered by the EU: the more the EU invests in research and innovation, the more the UK benefits from EU membership.
5. The Framework Programme for Research and Technological Development (FP7) is the EU's main instrument for funding research and innovation and its funding to the UK is significant. To date Framework Programme 7 funding:
 - to the UK is equivalent to 15% of the UK's national science budget.
 - to UK academics is equivalent to 10% of the UK's national science budget, or the spending power of a medium-sized UK research council.
6. The total contribution of FP7 to UK research is expected to reach €7 billion over the life of the programme 2007-2013. Overall, UK universities account for 61.2% of all UK participation, receiving 10.5% of all FP7 funding. The UK is involved in more successful FP7 projects than either France or Germany - 40.6% of all grant agreements in FP7 to date.
7. In 2012, the UK was also the most successful country for all Marie Curie Individual Fellowships and top or second country for all Marie Curie host schemes. So far in 2012, the UK has received €207.56 million under the Marie Curie programme.
8. Moreover, the UK was also the top country for the European Research Council's Starting and Advanced grants in 2012. Between October 2011 and October 2012, the UK received €244.42 million from this programme.

Key principles in European Union research and innovation policy proposals

9. Overall, we view the European Union (EU) as holding a considerable research and economic potential. It is vital that this potential is fully supported and exploited by EU research and innovation policy.
10. The first key principle that EU research and innovation policy proposals should follow is the use of excellence as the prime criterion for determining receipt of research funding in Europe. The UK sector has strongly welcomed the commitment of Horizon 2020, the successor to FP7, to this principle.
11. On a broader policy level, another key principle of EU research and innovation policy we would wish to highlight is the importance of subsidiarity. It is of vital importance that EU policy – in research and innovation (R&I) as well as in all other fields - adds value to and does not duplicate national level initiatives and support for R&I.
12. In the context of EU research policy, this is also especially pertinent to the coordination between the programmes within Horizon 2020 as well as other programmes. While these programmes, for example the Joint Technology Initiatives, will offer substantial opportunities for higher education institutions and considerably contribute to creating the ‘Innovation Union’, it is crucial that a high level of coordination between Horizon 2020 and other programmes is maintained to avoid duplication.
13. Furthermore, it is vital that the importance of independence in decision-making about programmes and priorities is recognised in any EU research and innovation policy proposals. For example, the European Research Council (ERC) and the European Institute for Innovation and Technology (EIT) - both two major recent EU initiatives in research and innovation policy - both have independent governing boards. We see it as very important that the independence of decision-making and prioritising in research is upheld in future proposals.
14. Finally, any EU research and innovation policy proposal has to take into account the sustainability of institutions’ participation in any EU programme. This includes that ensuring approaches to funding and reimbursement are based on full economic costing (FEC) wherever possible. Real recovery of direct costs is particularly important in the current economic climate as it enables institutions to recruit staff specifically to work on EU-funded projects, and thus to enhance and build up the next generation of researchers in Europe. While flat rate and lump sum options can be useful in particular circumstances, they should be retained on an optional basis, and should not be mandatory.
15. The fact that the European Commission’s proposal for Horizon 2020 removed the option for reimbursement based on real costs appears to be somewhat contrary to the move towards encouraging institutions to identify their real costs for internal management purposes across the EU. This has previously been actively encouraged by the Commission as an important contribution towards sustainability and the modernisation of Europe's higher education sector. While we acknowledge the complexity of the current option for claiming reimbursement on the basis of full

16. By using a sector-wide Transparent Approach to Costing (TRAC), UK higher education institutions have accumulated experience of identifying and calculating the full costs of their activities. A variant of this has been used for UK participation in FP7 – TRAC-EC-FP7. The UK Treasury accepted TRAC as a robust methodology for allocating significant increases in research funding, and then protecting research in cash terms at a time of drastic reductions elsewhere. The UK higher education sector will continue to work with other countries, the European University Association (EUA), and the European Commission to advance the case for a transparent approach to costing and sustainable reimbursement rates for funding from Horizon 2020.

Consultation of stakeholders and open method of coordination

17. While we are sure that EU level organisations are consulted regularly and closely, greater emphasis could be given to engagement with national level organisations, beyond the direct consultation via their governments.
18. In the development of EU research and innovation policy proposals, it is sometimes difficult to know how some of the proposed initiatives will join up and what their impact will be. We would therefore encourage an improved and transparent system of evaluation of take up and impact that could then feed into new and future initiatives.
19. Finally, there is some concern about the tendency of the European Commission to collect data in different areas in order to then make a case for ‘obstacles’ that have to be overcome by legislative proposals of the Commission, according to § 182,5 of the Lisbon Treaty. A recent example of this is the European Research Area (ERA) survey, the distribution of which has been rather opaque and the response eligibility criteria have been very open.

Private sector engagement

20. The EU has increasingly focused on private sector support in its recent research and innovation policy; in particular to strengthen the innovation side of R&I. Examples of initiatives include the Joint Technology Initiatives (JTIs) which are public-private partnerships, involving industry, research community and public authorities that address strategic areas where research and innovation are essential to European competitiveness. Similarly, the European Institute for Innovation and Technology (EIT), through its Knowledge and Innovation Communities (KICs), links the higher education, research and business sectors to one another with the aim of boosting innovation and entrepreneurship.
21. While these initiatives have been successful to some extent, the main challenge that continues to persist is to secure private sector engagement and support in them.

22. A main obstacle to industry participation is the multitude of different schemes. More care should be taken to design topics that specifically focus on SME participation and this should be done through open consultation with the research community. Currently, while some calls that include a mandatory SME partner work well, others contain topics in cooperation themes which are not well-structured. As a consequence, it can be difficult for researchers to find and engage with suitable SMEs, and this can ultimately lead to mismatched consortia.

Impact assessments

23. Generally, the call documentation and guidance notes of the current EU Framework Programme for Research and Technology (FP7) clearly outline the expected impacts. However, there is currently no requirement or post-project assessment to ensure that these impacts (or other impacts) have been achieved. While the Impact Assessment Board provides useful data on impact assessments, it has only been used for piloted initiatives and non-FP7 research projects.
24. More specifically in terms of the EIT, while the sector acknowledges its important role in encouraging greater collaboration between industry and higher education, a coherent assessment setting out the EIT's impact and achievements is still outstanding. This is especially important given that the remit of the EIT is to concentrate on the development of training and entrepreneurship rather than research itself and the EIT will be part of Horizon2020 and receive a considerable increase in funding.

Research funding budgets

25. The economic crisis and the atmosphere of austerity can be clearly felt in the UK's research environment. Indeed, there has been an overall drop in research funding in real terms.
26. The European Commission's proposals for a Horizon 2020 budget of €80 billion were very encouraging and in line with the overarching EU's Europe 2020 strategy that seeks to align Europe with the three priorities of smart, sustainable, and inclusive growth and accordingly sets the target 3% of the EU's GDP being invested in R&I.
27. It is in this context as well as in that of the importance of EU research funding to the UK, that it is encouraging that EU heads of states and governments at the Special Summit on 7 and 8 February committed to a real growth increase for both the Horizon 2020 and Erasmus for All programmes. However, while the top level budget lines have now been agreed, pending agreement by the European Parliament, further negotiations over the coming weeks will finalise individual programme budgets, including Horizon 2020 and Erasmus for All. It is the outcome of these negotiations that will impact on the level of funding available for UK and it is vital that the Horizon 2020 and Erasmus for All budgets will be prioritized for the benefit of students, universities and indeed the whole of the UK and Europe.

Key UK positions to make to the EU on research and innovation

28. The key points to make are

- Research and innovation funding must be based on excellence;
- Simplification of programmes;
- Emphasis on bottom-up research;
- Research budgets need to be prioritised.

Universities UK

Universities UK (UUK) is the representative organisation for the UK's universities. Together with Higher Education Wales and Universities Scotland, its mission is to be the definitive voice for all universities in the UK, providing high quality leadership and support to its members to promote a successful and diverse higher education sector.

UK Higher Education International Unit

The UK Higher Education International Unit (IU) represents all UK higher education institutions internationally and delivers a number of programmes and initiatives to support the development and sustainability of the UK HE sector's influence and competitiveness in a global environment. It supports the sector's engagement in European Union and Bologna Process policy debates.

The IU is funded by the Higher Education Funding Council for England, Higher Education Funding Council for Wales, Scottish Funding Council, Department for Employment and Learning (Northern Ireland), GuildHE, Universities UK, the Higher Education Academy and the Quality Assurance Agency for Higher Education. It is located at Universities UK.

11 February 2013

Dr Jill Urban, PhD, Professor JCT Fairbank, MA, MD, FRCS, and Professor Sally Roberts, PhD—Written evidence

Dr J Urban, PhD, Senior Research Fellow (Emeritus), Department of Physiology, Anatomy and Genetics, Oxford University, Professor JCT Fairbank, MA, MD, FRCS, Consultant Orthopaedic Surgeon, Nuffield Orthopaedic Centre, NDORMS, Oxford University, and Professor S Roberts, PhD, Spinal Studies & ISTM (Keele University), Robert Jones & Agnes Hunt Orthopaedic Hospital, Oswestry

We write as the UK members of a current FP7 Health consortium on back pain, a disorder imposing an enormous financial and social burden in the EU and world-wide (1). Between us, we have been involved in 4 previous EU consortia.

Funding from the EU has provided financial support for large international collaborative studies for which there is no other source of funding and has been invaluable in enabling us to build up:

- (i) a very large database on back pain patients. It would not have been possible to collect such information in any one EU country. Such databases are essential for increasing understanding of the pathogenesis of complex disorders such as back pain.
- (ii) consortia utilising the required specialist skills, again not possible in any single EU country. This has been very fruitful in terms of knowledge transfer and has provided added value to UK research groups.

We would however like to see changes in several ways in which EU grants are run.

A concern is that there is no mechanism for submitting follow-up proposals. It takes much effort and time to build-up consortia, learn how to work together and utilize the data collected in line with advances in technology, particularly in regard to genomic analyses; the consortia are disbanded when the grant ends which is often at the point where they are most efficient and productive. Without follow on funds, much material and effort is wasted; with relatively little extra investment, follow-up funding could increase output significantly.

We would also like to comment on some of the issues raised in your document

2. Do you feel that stakeholders at all levels are properly consulted in the development of EU proposals on research and innovation? Are stakeholder concerns properly taken into consideration; how could consultation be improved; and to what extent does consultation affect policy formulation? The channels for consultation and means of formulating calls for proposals are obscure; consultation with the majority of stakeholders (e.g. in the Health programme with clinicians, patient interest groups, research scientists, industry) is poor to non-existent.

For all apart from the Marie Curie and ERC programmes, the only way to submit a proposal is in answer to a very prescriptive call. In the health programme at least, some areas of considerable social and economic importance, such as musculoskeletal disorders, are very unrepresented in calls – is it because no stakeholders in these areas were consulted?

It would be of real benefit if the remit of the ‘calls’ was much broader, if the consultation process was more open and if relevant stakeholders were advised of avenues for participation in the consultation process.

4. Has the EU been successful in engaging private sector support for projects with a strong research and innovation dimension? Are there ways in which this could be improved?

In our experience, SMEs have been included in consortia for ‘political’ reasons rather than for their skills (in many calls, having SMEs as a partners is a requirement); they have added little to the project and have gained little themselves in new knowledge or approaches. SMEs or other industrial partners may have a real and important role in some projects, but forcing them into all projects in certain calls, is not of benefit.

Perhaps the EU could provide carrots rather than sticks – if findings in projects are patentable or of industrial interest, mechanisms should be in place by which the EU could offer funding and advice on appropriate paths to industry, rather than forcing uninterested SME bed-fellows onto researchers.

6. Do the EU and its institutions provide sufficient information about the monitoring and evaluation of their projects and strategies?

(i) The EU provides on paper, details of evaluation of the projects by ‘experts’.

From contacts who have acted as evaluators, we have learnt that the ‘experts’ for the Cooperation programme at least, are often relatively inexperienced post-doctoral researchers without much overview of the area of research. The feedback from evaluations from proposals we have submitted (both successful and unsuccessful), has been extremely limited and unhelpful at the outline stage and universally poor for full proposals. From their comments, the evaluators appear to lack knowledge of the specific research area of the proposals. Good monitoring once grants are running does not improve outcome if unsuitable grants are awarded because of poor refereeing.

The ERC proposals however appear very well evaluated by real experts in the specific field of each proposal. The EU does thus have mechanisms in place for good refereeing of proposals and this mechanism should be used more widely.

Reference

(1). Fig 6 in Vos et al. (2012). Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*, 380(9859), 2163–2196. doi:10.1016/S0140-6736(12)61729-2

11 February 2013

The Wellcome Trust—Written evidence

The Wellcome Trust is pleased to have the opportunity to respond to this inquiry. Science and innovation play a crucial role in maintaining EU competitiveness, and so it is important that legislative and programme proposals in this area are as well-informed as possible. As a global charitable foundation and funder of medical research, we consider engagement with the European Union to be an increasingly important part of our advocacy work to secure the best environment for medical research in the UK and EU, particularly in light of the increasingly multidisciplinary and international nature of research. Our engagement with the EU has generally focused on legislative proposals relating to research and innovation, including legislation on clinical trials, animal research, data protection and the use of electromagnetic forces, particularly the use of MRI scanning, as well as broader programme proposals, most notably Horizon 2020. We also take note of legislation that affects the operating environment for charities and foundations, as well as that which has a bearing on our funding activities, such as legislation around investments and tax. From our experience, we have identified the following key principles which we believe should underpin the development of proposals relating to research and innovation:-

- **Use of scientific evidence** – it is crucial that research and innovation proposals be informed by the most robust and up-to-date scientific evidence in order to effectively inform their development and ensure that they best serve research and researchers. This should hold true both for the development of proposals and for their implementation;
- **Clarity of purpose** – proposals should clearly set out their purpose, intended outcome and planned approaches in terms of consultation, development and implementation;
- **Timely consultation and engagement** – a suitable cross-section of interested stakeholders and expert groups should be engaged at as early a stage as possible in order to effectively contribute to the process, and to identify any unintended consequences. This will ensure that input is received from as wide a range of relevant groups as possible;
- **Impact assessment** – proposals should be suitably assessed with regard to their impact, cost and proportionality, both within their immediate sphere and where they may have wider impacts, to the extent that these can be predicted;
- **Transparency and accessibility** – in order to facilitate effective engagement and consultation, an appropriate level of information should be made available on the content of proposals, as well as the timescales for their development and implementation;
- **Responsiveness** – proposals need to be responsive in order to keep pace with the changing research environment, and rapid advances in science and technology.

In our experience, however, the above principles have not always been adhered to. Legislative proposals such as the original Clinical Trials Directive 2001/20/EC, the Directive on Animals Used for Scientific Purposes ('Animals Directive') 2010/63/EU and the Physical Agents (Electromagnetic Fields) Directive 2002/40/EC suffered from a lack of appropriate scientific consultation. In the case of the Animals Directive, the initial dialogue was almost entirely led by animal welfare groups, with little input from the scientific sector, and a great deal of work was required to redress this imbalance. The original Clinical Trials Directive

was highly criticised for its disproportionate approach, and resulted in an increased regulatory burden for researchers, contributing to a significant drop in the number of trials conducted in the UK. Meanwhile, the Physical Agents Directive, which was intended to protect workers from risks arising from exposure to electromagnetic fields, had the effect of potentially seriously restricting the use of MRI for research and clinical diagnosis. Thankfully, in the two latter cases the concerns were brought to the attention of the European Commission and steps have been taken to address the issues – but considerable time and effort could have been saved had they been identified earlier.

Experiences such as these demonstrate the need for effective impact assessment during the development of proposals, and engagement with expert groups so that they can be informed by the best scientific evidence and ensure that any concerns or potential adverse effects are identified in a timely fashion. The Wellcome Trust, along with other research funders and charities, is increasingly seeking to engage with EU proposals at an early stage. However, this has not often been straightforward because it is often difficult to find the right information. Similarly, it is also often difficult to find the right contacts within the EU structure, although there are numerous networks and interest groups within the EU, such as Science Europe and the Federation of European Academies of Medicine (FEAM), which are highly effective at raising concerns and communicating them back into the development process. A more open and transparent approach to policy and programme development and evaluation within the EU would go some way towards opening up opportunities for engagement and ensure that the development of research and innovation proposals is informed by the best expertise. A communications approach along the lines the UK parliament has adopted, with an easily navigable web presence in which it is straightforward to identify the progress of a particular piece of legislation, would be one potential improvement. This would also help to facilitate discussions with the relevant UK Government departments on EU legislation, and ensure a more joined up approach.

It is important to also emphasise the positive aspects of our engagement with the EU: as discussed above, legislation such as the Clinical Trials Directive and the Physical Agents Directive have been much improved in response to the concerns outlined above, with the European Commission showing full willingness to listen and engage. The on-going process to redraft legislation on medical devices, although in a relatively early stage, has also shown the Commission to be taking a well-informed and responsive approach, and we look forward to engaging further as the process continues. Similarly, constructive engagement with the rapporteur on the Animals Directive, along with the Commission, resulted in significant amendments being made to the Directive that helped ensure that the legislation is fit for purpose and does not threaten EU competitiveness. We have also welcomed the appointment of Anne Glover as the first Chief Scientific Advisor to the European Commission, and have had several constructive discussions with her since she took on this role; we would hope that the role of the CSA will be adequately supported and resourced in order to ensure it has maximum impact.

The call for evidence also asks about the effect of recent economic conditions on the EU research and innovation landscape. From the Trust's perspective, such economic conditions demonstrate the importance of maintaining an effective European Research Area that invests in science and innovation for long-term growth, as well as national and international investment to maintain the UK's strong position within the EU and worldwide. An effective illustration of this is given by the need for continued investment in pan-European infrastructure projects, such as the European Life-Science Infrastructure for Biological

Information (ELIXIR), which is aiming to develop an integrated and sustainable platform for biological data. The Trust is a partner in the ELIXIR project and welcome the £75 million that has been invested by the UK Government in the European Bioinformatics Institute, as the ELIXIR hub. However, on-going revenue for the EBI has not been adequately secured, and it is therefore vital that the government continues to advocate at European Union level to ensure the provision of the long-term funding required to sustain ELIXIR and other key infrastructures that will be critical to underpin the research endeavour.

It is also important to think beyond purely financial terms, and consider the need for the EU to be internationally competitive in the way research and innovation are regulated. Added to this is the need to ensure a harmonised approach across member states that best serves research and innovation, while allowing for the plurality and subsidiarity in individual member states' views and approaches. We believe that active engagement with the EU is beneficial to the UK and encourages a strong environment for research and innovation; we hope that promoting an evidence-based and transparent approach within the EU will enable us to engage effectively and build on these strengths.

We would be happy to discuss any of these issues further.

15 February 2013