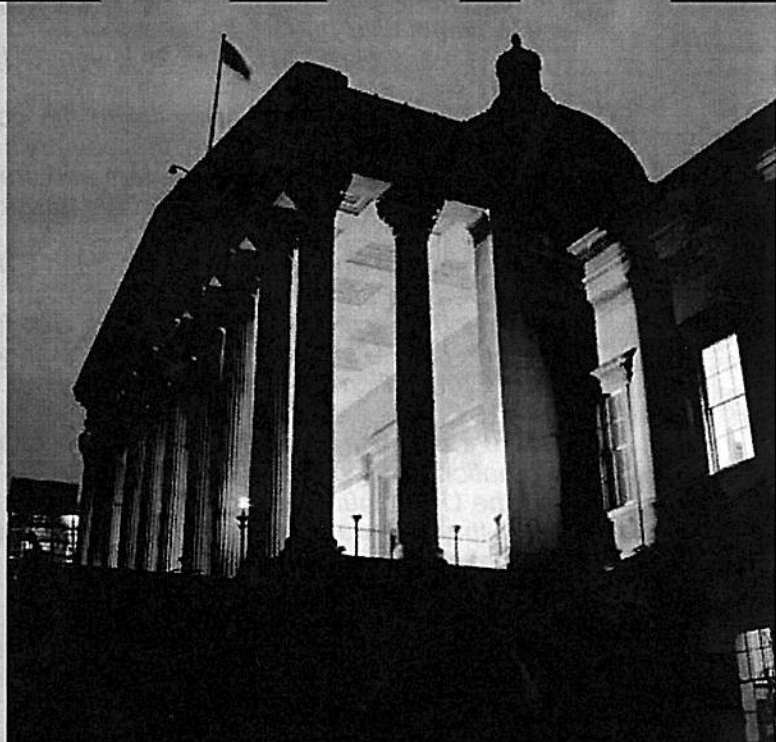


LONDON'S GLOBAL UNIVERSITY



UCL

University College  
London response to  
the Government  
Review of the  
Balance of  
Competences  
between the UK and  
European Union

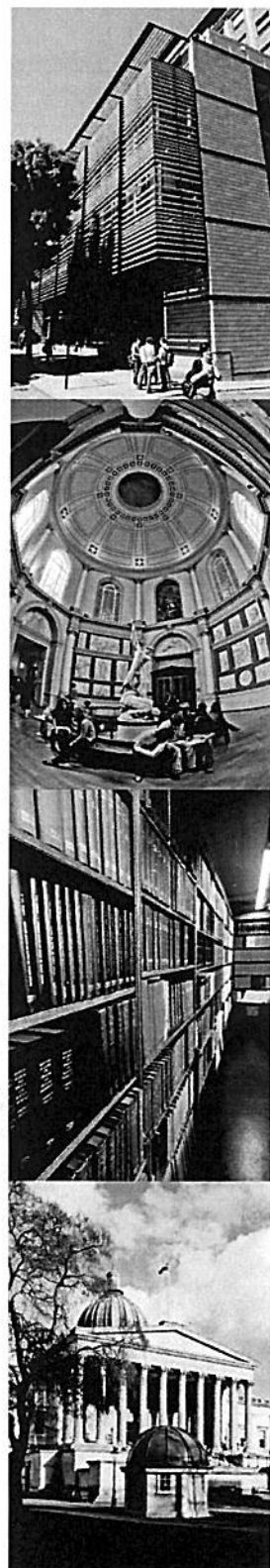


**Research and Development**

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## EXECUTIVE SUMMARY

- *Through participation in more than 600 Framework Programme funded projects and a cumulative budget in excess of £270 million, University College London (UCL) is major player in European Union (EU) funded research and innovation.*
- *EU funding streams are essential to the continued advancement of research excellence in the UK, and to the country's wider innovation and growth. EU funded research is a complementary and irreplaceable source of funding for UK universities, and for research intensive universities in particular.*
- *The framework and policy drivers behind EU funded research have changed in recent years. Funding excellent science and excellent people is a relatively new and much welcomed component of EU funded research. UCL very much supports the EU's push to expand these principles under the upcoming 'Horizon 2020' €70.2 billion funding programme.*
- *EU funded research and innovation enables stakeholders to engage in international collaboration on a global scale. This has positive impacts in Europe and the UK by building a critical mass of knowledge, and adds significant value given the global nature of the research environment and the common global societal challenges we are all facing.*
- *Funding to the UK through the Marie Curie international mobility programme has enabled institutions to attract and retain excellent overseas researchers who have provided benefits to the UK research base.*
- *UCL strongly supports the EU's proposed structure of Horizon 2020 and the introduction of a new 'Industrial Pillar'. Whilst UCL recognises that the primary target for this new funding stream may not be universities, we recognise the need and added value that this new scheme will contribute towards the European and UK research base.*
- *Research is one of the remaining significant areas in which the UK is winning the global race. Many areas of science are heavily dependent upon collaboration between nations. European cooperation makes possible scientific activities that would not be achievable at a national level, most notably space missions, large scale research facilities such as CERN, and various technology development programmes. Whilst scientific cooperation is a global activity, and the UK also benefits hugely from its links with the US, Commonwealth and other major or emerging scientific nations, there is clear value in a European level of collaboration as exemplified through the Framework Programmes and other initiatives. It is to be highlighted that several leading scientific nations that are not Member States of the European Union, notably Switzerland, Israel and Norway, participate substantially in these collaborations and programmes.*
- *The UK has a uniquely successful framework for Higher Education, with universities acting as autonomous entities within a regulatory, assessment and funding system that reflects the needs of wider society. We believe that the nature of this system is such that it must remain overwhelmingly determined at the national level, with a relatively minimal role for European-level regulation across the highly diverse EU Higher Education landscape.*



## INTRODUCTION

UCL is a leading player in EU funded research and is consistently ranked as one of the top performing institutions in Europe under the Cooperation, Ideas and People programmes – with funding from the European Research Council (ERC) present in all of UCL's eleven faculties. UCL's participation in EU funded research involves a comprehensive range of research and innovation activities ranging from Arts and Humanities and Laws to Mathematical and Physical Sciences to Life Sciences and Medical Sciences.

Given UCL's experience and leading position in EU funded research, we feel that we are in a strong position to respond to the call from the Department for Business Innovation and Skills for a Balance of Competences Review in the area of EU research and development.

### 1. EU funded research provides a unique and irreplaceable source of research funding

Investment in leading research is an indispensable component of the UK's economic competitiveness. EU funded research programmes provide a unique and irreplaceable mechanism for UK stakeholders to compete for research and innovation funding. Funding to support international (global) collaboration, projects to fund excellent people, and fellowships to enable trans-national mobility are the central components of the Seventh Framework Programme (FP7), the ~€50 billion primary EU funding programme spanning 2007-2013. A significant proportion of this type of funding is unavailable at national level. Furthermore, given the large-scale and organised nature of the EU's research funding streams, it would be very difficult and, unquestionably, much costlier to replace such programmes at national level.

Robust UK Government funding for research, development and innovation remains crucial to the health of the UK economy and our future global competitiveness, however EU funding is complementary to this. In addition to boosting key areas of research and allowing activity at a larger scale than might be supported in the UK alone, EU funding can also help to keep alive areas of research where funding is unavailable at national level, for example, research in fields such as anthropology, heritage science and cosmology which were supported at a time when there was little available funding in the UK. The value of these fields of research is once again being recognised in the UK and, because of EU funding, the UK still has a core of excellent research capability and capacity on which to build.

The UK performs very well in the area of EU funded research. So far, the UK has secured more than 16% of all FP7 funding to EU Member States and 27% of European Research Council (ERC) funding – this is far higher than the UK proportional contribution to the EU budget (c. 11.5%) or the UK share of overall EU spending (c. 5.6%). Between the years 2007-2011, the UK received €3.7 billion in research and innovation funding from FP7, second only to Germany. At UCL, EU funding represents 10% of our total research grant income, compared with roughly 35% from UK Research Councils, 30% from UK charity, and 15% from UK government departments. Thus, an estimated 300 research jobs at UCL depend upon EU funding. We understand the figure is comparable to other UK leading research universities – thus the loss of EU funding would be comparable to the loss of one of the larger UK Research Councils, such as the Medical Research Council or Engineering and Physical Sciences Research Council.

### 2. Excellence is now the recognised benchmark for EU funded research

The criteria for evaluating and allocating EU funded research have shifted in recent years. One of the main drivers for this change has been the introduction of funding from the European Research Council, an area in which the UK continues to perform exceptionally well, having secured 761 ERC grants compared with Germany's 467. Funding excellent people and

excellent projects is now the cornerstone of EU funded research and will play a central component for funding research under the upcoming Horizon 2020 programme.

The UK has so far secured more than £1 billion from the ERC under FP7. Given the large increase in budget for the ERC and the focus on funding excellent projects under Horizon 2020, the UK is clearly in a very strong position to significantly benefit from EU funded research between 2014 and 2021. ERC funding is also a valuable source of mobility for researchers. We expect the UK will attract more than a hundred world-leading researchers that it would not have otherwise because of ERC funding under Horizon 2020 – as well as retaining several hundred who may otherwise have left given the relative scarcity of such individual excellence-based funding in many fields within the UK system.

*"For almost 8 years the EU has been the main supporter of my research work (a European Research Council Startup grant and before this a European Young Investigator Award). These EU schemes provided a relatively long-term source of funding that allowed me to focus almost all my efforts on research, enabling me to build a world-leading interdisciplinary research group that addresses important contemporary challenges in the chemistry and physics of materials and interfaces. The research funded by the EU is what we would call "blue skies" fundamental research, and as such it lead to many high quality publications in world-leading journals (see publications at [www.chem.ucl.ac.uk/ice](http://www.chem.ucl.ac.uk/ice)). Key breakthroughs include new understanding of how water coats surfaces and a much deeper understanding of the forces that hold molecules together. However, more generally through sustained effort in modelling interfaces (particularly wet interfaces) we developed understanding and expertise that is of value to industry and some of our research is now supported by industrial sponsors such as BP."*

**Professor Angelos Michaelides – ERC Grant-holder**

### 3. International Collaboration on a global scale

With over 500 collaborative projects, UCL is currently ranked first in the UK for funding received under FP7's Cooperation Programme. There is no other funding agency in the world that enables the same level of trans-national collaborative research funding to that which is provided by the EU. A dedicated programme of thematic areas tackling large scale societal challenges provides researchers with an opportunity to collaborate on issues that transcend national borders. Collaborative research also enables researchers to build a critical mass of knowledge, which adds significant value given the global nature of the research environment.

*"In my experience, a number of benefits arise from EU-funded collaborative research. First of all it enhances research capabilities so enabling researchers to undertake projects that are outside their own skill sets. This means that problems can be addressed that would normally be beyond the capabilities of an individual research group. Secondly, it establishes new research partnerships that enable the ready exchange of researchers between institutions thereby, ultimately, extending the expertise of the research group. Finally, it leads to the establishment of long-lasting networks of institutions that are more likely to be successful in future funding opportunities offered by the EU and other sources."*

**Professor Mike Wilson – Coordinator of a large-scale FP7 project**

### 4. International mobility

The Marie Curie programme is a highly successful and unique funding stream that enables researchers to undergo pan-European and global trans-national mobility to develop careers at doctoral and post-doctoral stages. Funding to the UK through the Marie Curie programme has enabled institutions to attract and retain excellent overseas researchers, conferring substantial benefits to the UK research base.

*"Marie Curie actions provide an excellent means to recruit the very best Early Stage and Experienced researchers from the EU and outside, thanks to a higher salary than normally available for each respective role, and, crucially, provide a fundamental contribution to high-quality training of the future classes of industrial and academic researchers thanks to the well-monitored planning and implementation of training actions."*

**Professor Franco Cacialli – Coordinator of a Marie Curie Initial Training Network**

## 5. Industrial leadership

Whilst the primary target for the new Industrial Leadership Pillar of Horizon 2020 may not be universities, UCL very much welcomes this new area of funded research. UCL also welcomes the EU's drive towards the Innovation Union and the pro-active approach of trying to simplify and open up Horizon 2020 funding streams for all stakeholders; especially SMEs. There is a significant opportunity for UK stakeholders from all sectors to benefit from these proposed changes.

*"UCL fully supports the EU's drive towards Innovation Union and, with this, the introduction of a new Industrial Leadership pillar under Horizon 2020. For Horizon 2020 to be a true success, it is essential that all stakeholders (especially SMEs) are able to access and engage in EU funded research and I very much welcome the EU's newly proposed instruments, under Horizon 2020, to facilitate this requirement."*

**Professor Stephen Caddick – Vice Provost for Enterprise, UCL**

## 6. Horizon 2020 package

### Funding rates and simplification

The new funding model for Horizon 2020 is a positive change from the FP7 funding model. The allocation of 100% of the project budget plus an additional 25% to cover facilities, indirect costs and permanent staff time will simplify the funding mechanism, improve the financial sustainability of the institutions delivering Horizon 2020 actions, and mitigate the risk of underinvestment in infrastructure, which would be highly damaging for the UK's research base.

### Open Access

Following a pilot study on the open access provision of research on a voluntary basis for those in receipt of funding under the FP7, it is proposed that Horizon 2020 will oblige institutions in receipt of EU funding for research to provide access to this research on an open access basis, either via the 'green route' (with embargos of six or twelve months in place) or by reimbursing the costs of publication via the more immediate 'gold route'. UCL is supportive of the principles of open access to ensure that publicly funded research is freely available where possible. However, universities should not have to bear the burden of the associated costs, which would be prohibitive, and research funding should not be re-purposed in order to deliver open access policies. We are pleased to see that the Commission is providing the option to publish through a 'green' as well as 'gold' route, as this option is a simple and cost effective way of delivering open access. It is important that recipients of funding are given as much flexibility as possible in deciding how to provide open access to their research.

### Staying competitive in a global environment

Research is one of the remaining significant areas in which the UK is winning the global race – our share of highly cited papers is rising, and we remain one of the destinations of choice for the finest researchers in the world. This is the result of sustained investment and proportionate assessment by government and charities, and the long-term vitality of our university system.

Many areas of science are heavily dependent upon collaboration between nations. European cooperation makes possible scientific activities that would not be achievable at a national level, most notably space missions, large-scale research facilities such as CERN, and various technology development programmes. Whilst scientific cooperation is a global activity, and the UK also benefits hugely from its links with the US, Commonwealth and other major or emerging scientific nations, there is clear value in a European level of collaboration as exemplified through the Framework Programmes and other activities. It is to be highlighted that several leading scientific nations that are not Member States of the European Union, notably Switzerland, Israel and Norway, participate substantially within these collaborations and programmes. One question to be raised is whether significant benefits would be derived from the expansion of the Framework Programmes to allow more significant participation by other nations such as Russia and Ukraine that, whilst not part of the European Union, are part of the wider European research culture.

In addition there are now some areas of science and technology where the UK has been unable to invest sufficiently to retain its world-leading position. Hence, there has inevitably been some specialisation into our areas of strength. However, many technology programmes require combinations of excellence from both UK focus areas and other areas where the UK is demonstrably weaker. The opportunity to build and fund collaborative programmes with colleagues from European nations with complementary strengths has great value to both UK academia and industry. Being part of the EU, and in particular the Framework Programmes, allows the UK to retain its leading and specialist status whilst giving it the opportunity to access the international specialist input that may be needed for effective innovation that drives growth.

*"Research is a European success story on many levels. One of the greatest scientific achievements of all time, the discovery of the Higgs Boson by the most complicated machine ever built by humans, was possible only because of European collaboration building on UK research excellence. EU and national funding have worked together to give greater diversity and vitality to the UK research base. Long-term negotiation and cooperation has seen European mechanisms evolve to forms well suited to supporting UK universities in delivering their research missions. Whatever the UK's future relationships with the European Union in general, we must remain a part of the European research culture and associated funding system, as part of our global leadership in research."*

**Professor David Price – Vice Provost for Research, UCL**

## 7. University Autonomy within a National Framework

The UK has a uniquely successful framework for Higher Education, with universities acting as autonomous entities within a regulatory, assessment and funding system that reflects the needs of wider society. For a variety of reasons, Higher Education systems within other European nations are extremely different. The UK system has been carefully evolved to reflect our national needs, and has successfully allowed the development of a disproportionately large share of the world's strongest universities. It has also seen UK universities become highly adept at delivering goals set by UK society, such as supporting regional growth, providing excellent healthcare, or promoting economic recovery. We believe that the nature of this system is such that it must remain overwhelmingly determined at the national level, with a relatively small role for European-level regulation across the highly diverse EU Higher Education landscape. Thus it may be appropriate for the EU to support measures that make it easier for students to move from one country to another between or during degrees, but the EU should not be setting the fundamental regulatory framework for higher education or criteria for research assessment or similar.

UCL does not believe that there is any appetite for significant EU intervention in the UK framework of Higher Education at present, but believes that given the long-term nature of the balance of competency reviews, the significant benefits of national determination should be stated and defended robustly at this time.

London, 6<sup>th</sup> August 2013