

million+ response to the Department for Business Innovation and Skills consultation on proposal for long term capital investment in science and research: July 2014

KEY QUESTION 1: *What balance should we strike between meeting capital requirements at the individual research project and institution level, relative to the need for large-scale investments at national and international levels?*

Our world class research environment is underpinned by funding for the capital requirements of individual research projects and institutions. To complement this, strategic decision making at the national and international level is often required to coordinate investments in the national interest. This consultation seeks views on how to balance these complementary needs.

million+ is a university think-tank which works with universities in England and Scotland and other stakeholders. We are pleased to respond to this important consultation. We welcome the Government's commitment to invest nearly £6bn from 2015-16 to 2020-21 in capital requirements for the UK's science and research base but this is against the backdrop of a significant reduction in funding levels since 2010.

million+ supports the rationale, expounded by successive governments, that public investment in science and innovation is important for economic growth not only at national level but also in the regions. It is notable that the UK has not kept pace with many other nations in the developed world and in the emerging economies in terms of the level of investment allocated to research and development (R&D).

Level of UK investment

The UK continues to invest less in R&D than the Organisation for Economic Cooperation and Development (OECD)¹ average when taken as a percentage of gross domestic product (GDP). In the last five years, the UK has been outside of the top 10 OECD members by this percentage of GDP measure. In addition to being outside the OECD average, the UK is also outside the averages for the EU 15 and EU 28 countries.² In 2012, the UK's gross domestic expenditure in research (known as GERD in OECD terms) was 1.73% of GDP.³ The OECD average was 2.4%, and the corresponding figure for the EU 28 was 1.98%. The UK has also *decreased* its investment in research and development as a percentage of GDP since 2009, while the EU averages have increased each year since 2010. As a

¹ <http://www.oecd.org/>

² EU 15 and EU 28 refer to the average of particular groups of EU countries. EU 15 refers to the countries in the EU prior to the accession of 10 new countries in 2004. The EU15 comprised the following 15 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom. EU 28 refers to the number of countries in the Union at July 2013

³ This figure is the total investment by the UK. It includes government spending and private, business, industry and other spending.

result, the UK is now significantly behind other countries in terms of the publicly funded levels of investment in research and development – with the UK government investing only 0.59% of GDP, placing it 23rd in the OECD table.

- **The Government's capital investment strategy therefore needs to address this disparity of investment.**

The concept of 'world-leading research intensive universities' applies to very few institutions, nationally and globally. However, the idea has come to dominate the global HE and R&D investment strategy in some countries including in the UK. As a result, successive UK governments have pursued funding policies that concentrate resources for research into a smaller number of institutions and favour STEM at the expense of other national priorities. To move forward the UK and its governments will need to develop a more holistic view about what all universities deliver and capture in their policies and capital investment strategy for science and innovation, the intrinsic links between research, teaching, innovation, university-business collaborations and graduate supply at both undergraduate and postgraduate level.

In a separate but related consultation, million+ has called for a significant increase in government investment in the Science and Innovation Framework over a ten year cycle. We believe capital investment in science and research needs to reflect this increase and recommend that the government invests additional funding as the economy returns to growth. This additional funding should increase the percentage share of R&D investment, including capital funding, so that it at least matches that of the EU 28 country average. Ideally, the UK needs to be more ambitious and exceed this figure otherwise the UK risks losing its place in the global science and innovation system with wider domestic consequences.

The funding scenarios

million+ believes that of the scenarios outlined in the consultation draft, scenario 1 is the most appropriate. Over recent years, there has been significant underinvestment in the capital research base in the UK's universities. Levels of investment were substantially reduced in 2010 as the government reacted to the economic crisis – the Higher Education Funding Council for England reduced capital funding from around £524m in 2009/10 to around £238m the following year, and the Scottish Funding Council reduced capital investment from around £129m to £76m. In both cases, investment has tended to reduce further since that date. The indicative allocations for HEFCE and SFC for the 2014/15 funding year are approximately £162m and £39m respectively.

Capital investment at the levels indicated in scenario 1 has the potential to provide two things. First, committing to enhanced resources and a stable pattern of investment will provide UK universities with expanded capacity to plan with confidence, enabling the development of research infrastructure over the long term. Second, by ensuring the balance of funding favours universities and Research councils over larger scale major projects, decisions about research investment can be made by universities. One of the key strengths of the UK's university system is autonomy in decision making, backed by expert peer review, and we see no reason to change this.

A further reason to ensure a larger proportion of the available investment is targeted towards universities via the HE funding bodies is to ensure that they can manage, maintain and sustain a strong research base that is capable of partnership with other research organisations, industry and business. Ensuring the strength of the research infrastructure across all universities assessed to be producing work of national importance is vital if partnerships with businesses and other interested organisations are going to be effective. Businesses are unlikely to engage and fund research with higher education institutions if they do not have confidence that government is backing a partnership approach with adequate investment.

To promote growth as well as scientific enquiry and discovery, the allocation of this capital investment should not simply mimic what has gone before: capital funding to universities is heavily influenced by the rules governing recurrent research funding allocations, and as such there has been a concentrating effect in a small number of universities since 2009-10. In the short and long term the decline in investment in other universities will reduce the capacity and strength of the UK's research base.

KEY QUESTION 2: *What should be the UK's priorities for large scale capital investments in the national interest, including where appropriate collaborating in international projects?*

The impressive strength and breadth of the UK research base means that we are presented with a huge range of potential investment opportunities. Demand inevitably outstrips funding. Therefore, there is a constant need to prioritise, and this consultation seeks your views to inform our approach. These strategic judgements require us to look first at what international competitors are investing in, and identifying where it is in the UK national interest to collaborate in international infrastructure projects. This may involve significant contributions to projects around the world or hosting them in the UK. We are seeking views on which of the important projects laid out in this consultation (pages 54-58) should be the highest priority. We are also welcoming suggestions of new potential high priority projects not identified here.

million+ believes that specific decisions about large scale capital investments related to the national interest should principally be taken by government. However, in order for government to receive appropriate advice, these decisions should be taken in close consultation with the research community to be certain that investments add value to the UK's research capacity and output.

In our response to Key Question 1 million+ highlighted concerns about the concentration of research funding in a smaller number of universities, and with the significantly reduced investment in capital infrastructure since 2010. Large scale capital investment projects may have a major part to play in the research base (e.g. national shared research institutes, international collaborative projects such as CERN) but they should not displace long term, stable, sustainable investment in university research infrastructure.

Since 2010, opportunities for many universities to secure capital investment for their research infrastructure via the funds made available to the Funding and Research councils have been increasingly difficult due to a focus on large scale projects and a requirement to provide match-

funding. In particular, some research council policies have restricted access to investment and can require previous success in order for applications to be considered.

The lack of public investment in university infrastructure will impact on the capacity of institutions to maintain internationally recognised research and limit opportunities to compete for external funding. Research infrastructure is also important for other reasons: it provides a base to invest in new and emerging disciplines, supports the development of research staff and provides a foundation for postgraduate study including in areas in which many research-intensive universities are not as engaged.

Capital investment in university research infrastructure must be fundamental to the government's consideration when making any other decisions about capital investment in the science and research base.

- **As in many Nordic countries, the UK should adopt a policy of guaranteeing public investment in research infrastructure to all universities which have been awarded research degree awarding powers.**

Sub-questions

How can we maximise collaboration, equipment sharing, and access to industry to ensure we make the most of this investment?

It is too often assumed that modern universities should be collaborating with research intensive universities when the reality is that different universities are engaged in different areas of research with different partners. Collaboration needs to be driven by academic considerations and not as an excuse for under investment in university research infrastructure.

What factors should we consider when determining the research capital requirement of the higher education estate?

Capital investment has to be a long term, stable, sustainable endeavour. Universities need certainty in order to plan and manage investments, particularly when it comes to maintaining and renewing their estates. Though some of these investments may not, on the surface, be as dynamic or high profile as major large scale projects, it is through the maintenance and renewal of universities' estates that researchers are able to produce the work that encourages additional investment from businesses and other research organisations. Cutting capital investment to institutions or managing it on a short term basis is damaging and detracts from core research activity. Moreover, investment in research infrastructure provides a base to invest in new and emerging disciplines supports the development of research staff and provides a foundation for postgraduate study including in areas in which many research-intensive universities are not as engaged. It therefore also has huge benefits for students, as well as academic staff and business partners.

The government should not simply settle on a minimum requirement for university capital investment. Instead, it needs to be ambitious and forward looking so that the UK is able to develop a 21st century research infrastructure across all universities and for the benefit of all students.

Should - subject to state aids and other considerations - science and research capital be extended to Research and Technology Organisations and Independent Research Organisations when there are wider benefits for doing so?

The research councils, funding councils and individual universities are best placed to make decisions about science and research investment. This principle is applied through the allocation of recurrent research funding. We believe it is equally appropriate for it to be applied to capital investment. There may be occasions when particular capacity or expertise means that it is beneficial for RTOs or IROs to be involved, but this should be in collaboration with universities.

What should the criteria for prioritising projects look like? Are there new potential high priority projects which are not identified in this document? Are the major international projects identified in the consultation the right priorities for this scale of investment at the international level? Are there other opportunities for UK involvement in major global collaborations?

UK governments have tended to emphasise the importance of research investment in some key sectors e.g. pharmaceuticals. This risks creating an over-dependency on a limited number of sectors and large global businesses which have the capacity to transfer research facilities anywhere in the world. Important though these sectors are, a more comprehensive approach should be developed which includes a positive strategy to ensure that universities are supported to use their research expertise to engage with small businesses.

STEM is an important area in which the UK needs to have sufficient skills and research capacity. The development of a wider STEM skills base needs a 20 year strategy in which the role of universities in teacher education needs to be valued. However, there is also a need to ensure that other areas are not marginalised due to a disproportionate focus on STEM disciplines. The government's focus on STEM is limiting in its ambition and lacks reference to key strengths in other disciplines – such as the creative industries, social science, humanities and the arts – that would also benefit from capital investment.

Should we maintain a proportion of unallocated capital funding to respond to emerging priorities in the second half of this decade?

Given the long term underinvestment in capital infrastructure in universities, it would be unwise to deny funding to institutions in order to respond to emerging priorities in future years. Any emerging priorities will no doubt require a strong, effective and sustainable research base if the UK is to respond appropriately. Therefore, if any proportion of funds is held back, it should be from the allocation made to major projects, not to the research councils or the funding bodies.