

Conservative Party Science, Technology, Engineering and Mathematics Task-force

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As global competition intensifies, the UK has to capture and stimulate public and private sector R&D and innovation more effectively. Without the ability to create and retain high-quality, knowledge-intensive jobs and the innovative businesses that develop and apply new technology, our economy and well-being will suffer.

So when David Cameron invited me to chair a Conservative policy task-force to examine future policy on science, technology, engineering and mathematics (STEM), I was delighted to accept. With the help of a group of distinguished colleagues from across business, the universities and politics we have published two reports so far.

It has long been recognised that there is a gap between invention and innovation; that is, between the time when a new idea is shown to be possible and the time when it has been shown to be viable. Research funds, from Government or industry, support invention; venture capital supports applied innovation. There is little in the middle. Those inventions that make it might rely on years of passionate unfunded work. We believe that Government can tackle the gap between invention and innovation in two ways.

The first thing Government can do is to make better use of the £150 billion a year it spends on goods and services. The concept that we are developing is to shift the emphasis of governmental support for innovation from *input* (subsidising embryonic ideas) to *output* (procuring effective solutions to society's needs). Instead of offering capital, the Government could offer the much more effective incentive of revenue – what innovators lack are customers,

especially if an important part of the prospective market lies in the public sector where the risks and rewards are stacked in favour of the second customer, not the brave first one.

One way of using procurement to drive innovation is to offer challenge funds to stimulate industry and universities to come up with innovative solutions to important national problems. The *Longitude Act 1714* famously offered a reward to anyone who could come up with an accurate method of determining longitude. Such an approach could be used today to develop, for example, viable wave power schemes or affordable desalination.

A second bridge between invention and innovation can be built by better focusing some of the resources Government devotes to research and development. The best way to do that would be to take the Labour Government's Technology Strategy Board (TSB) and transform it into something bolder and more effective. We believe that there should be an Innovative Projects Agency (IPA) that uses targeted resources on specific projects. The budget of £1 billion would come not just from the TSB but also from the DTI's innovation programmes, the science aspects of the regional development agencies and some re-allocated from the existing Research Councils. Such an agency would ensure that when the market could not respond quickly to scientific and technological change, there was an effective mechanism for the state to ensure that someone did. All IPA projects would bring together those who have ideas with those who can see a use for a product (or service) that will come from developing the original discovery.

Our vision is of an IPA that would be

needs driven and tolerant of risk, working with staff recruited from industry and higher education. Projects would be time limited, goal orientated and selected through a competitive process. This process would both provide opportunities for funding beyond established research communities and companies and attract public attention. Establishing the IPA would raise the profile of STEM in society and show how it can contribute to a better quality of life for all.

It is important to understand that we are not proposing a diminution of the importance or resources of "blue skies" research. What we want to do is to raise the status of those who find viable applications for ideas arising from research or who can turn such ideas into products valued by customers. In many cases, this should enhance the esteem of engineers in this country.

Having examined how the UK Government can better stimulate innovation, my group is now turning its attention to the anti-science culture in Britain. Many of the problems with science education derive from cultural barriers that discourage young people from studying STEM subjects. Distrust of science is a major problem at a time when science has never been more crucial to our economy and society. The international dimension and how science policy should be made in Whitehall and Westminster are the two remaining areas of our work.

This is an exciting time to be looking at future science and technology policy. I am confident that the group I am privileged to lead will continue to develop new ideas for future Conservative policy.