



House of Commons
Science and Technology
Committee

Technology and Innovation Centres: Government Response to the Committee's Second Report of Session 2010–12

Third Special Report of
Session 2010–12

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The Science and Technology Committee

The Science and Technology Committee is appointed by the House of Commons to examine the expenditure, administration and policy of the Government Office for Science and associated public bodies.

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The Reports of the Committee, the formal minutes relating to that report, oral evidence taken and some or all written evidence are available in printed volume(s).

Additional written evidence may be published on the internet only.

Committee staff

The current staff of the Committee are: Glenn McKee (Clerk); Stephen McGinness (Second Clerk); Farrah Bhatti (Committee Specialist); Xameerah Malik (Committee Specialist); Andy Boyd (Senior Committee Assistant); Julie Storey (Committee Assistant); Pam Morris (Committee Assistant); and Becky Jones (Media Officer).

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Third Special Report

On 17 February 2011 the Science and Technology Committee published its Second Report of Session 2010–12,¹ *Technology and Innovation Centres* [HC 619]. On 3 May 2011 the Committee received a memorandum from the Government which contained a response to the Report. The memorandum is published as an appendix to this Report.

Appendix: Government response

The Government welcomes the Select Committee's report and its positive contribution to taking forward the establishment of a network of elite Technology and Innovation Centres.

Investments in science and innovation are key drivers of economic growth. They provide the flow of new ideas which drives technological progress, as well as the skills and know how needed to apply this to create new business models, products and processes—raising UK productivity.

The Government will target its support for business led technology innovation towards those areas of spend that will have the greatest impact on growth, and the elite network of Technology and Innovation Centres (TICs) will have an important role to play in commercialising new and emerging technologies in areas where there are large global market opportunities and a critical mass of UK capability.

Furthermore, by integrating TICs within the wider programme of work being taken forward by the Technology Strategy Board, we are taking forward an exciting new initiative while learning important lessons from the recent past. These lessons include the need for prioritisation of investment at a national level to ensure alignment with national technology priorities and UK academic and business strengths, and ensuring investments are of a scale and duration that is fit for purpose.

Since the publication of the Committee's report, considerable progress has been made including the announcement of the organisations that will form the first TIC in the area of High Value Manufacturing. A competition to establish a second TIC, in the area of Cell Therapy, has also been announced.

Detailed responses to specific recommendations from the Committee are provided below.

1. We expect that some existing research centres that are part funded by the Regional Development Agencies (RDAs) may become a part of new Technology and Innovation Centres (TICs), but many will not. There is a risk of losing much of the expertise built up with public resources over recent years. The Government should have, by now, set out further details of what will be done to support existing centres that are losing RDA money in March 2011. The Government should ensure that in the short-term any changes do not reduce the overall research and development spend in the regions. In

¹ Since the report was published it has been established that the session is expected to continue until 2012.

the long-term it should be the Government's objective to increase the overall research and development spend at both the regional and national level.

The Government's priorities include balanced growth across sectors and regions. It is also the Government's view that we must target our support for business R&D towards those areas of research activity that will have the greatest impact on growth, and leverage additional private sector investment.

This is why our growth focused support for business led technology innovation will be through the Technology Strategy Board and we will encourage it to develop relationships with those Local Enterprise Partnerships (LEPs) that can demonstrably help it extend its reach and engage with innovative businesses. This will help ensure that LEPs, as key drivers of economic growth at a local level, will raise awareness and take-up of support from the Technology Strategy Board through the contact they have with new and existing businesses who are looking to grow.

With regard to existing RDA funded centres, many were established with a clear expectation that they have plans in place to become self-sustaining when their grants came to an end at the end of March 2011. We are however considering the future of some on a case by case basis, in the context of existing RDA assets and liabilities, and will manage the associated risks by working with the Technology Strategy Board, where centres are well aligned with its priorities and show scope to contribute to and/or become a TIC. It is important to stress that these will be exceptions, as we must make hard choices and only provide sustained and substantive support for a small group of elite centres in areas that provide the greatest scope for boosting future UK growth and productivity.

The Committee may also wish to note that a number of these centres were established to focus on the area of manufacturing technologies and five (Advanced Manufacturing Research Centre, Nuclear Advanced Manufacturing Research Centre, Manufacturing Technology Centre, Centre for Process Innovation and National Composites Centre), along with the Scottish Advanced Forming Research Centre and WMG, have been successful in their bid to form the High Value Manufacturing Technology and Innovation Centre.

2. It is imperative that TICs build on existing centres and expertise. We found a lack of knowledge in the business world regarding existing UK capabilities. In assessing potential TICs, the TSB has already identified a list of nearly 100 centres operating in the UK. We recommend that the TSB maintain a public list in the form of an online catalogue of centres that are ready and willing to work with business, in particular SMEs (small and medium enterprises), in specific technology areas.

We agree with the Committee and will work the Technology Strategy Board and partners across Government to develop a communication plan including an easily accessible database that identifies the 'offer' of each of the newly established Technology and Innovation Centres and links to other publicly funded strategic capabilities such as the National Measurement Laboratories that provide services to business.

3. We expect the method of operation of each TIC will adapt to, and therefore vary, to meet the needs of the sector it is supporting. For example, TICs operating in sectors which focus on service provision for a particular industry may operate at higher

Technology Readiness Levels than others. The key issue is that each TIC will need to make the best use of existing resources in the sector. It follows that the work carried out in a TIC should reflect both the history of research in the sector it serves as well as an assessment of future demand within that sector.

We agree with the Committee. It is important that each TIC is established with the flexibility to respond to the particular needs of the technology area and related sectors it is focused on. We therefore expect the capability and 'offer' of the High Value Manufacturing TIC will be different to that of the Cell Therapy TIC, for example.

This is why each TIC will have a clearly defined role that will build on and complement other support, with the business led steering group that oversees the work of each TIC, defining and prioritising the programme of work to be undertaken by it.

Furthermore, in establishing the TICs, the Technology Strategy Board will ensure that they do not distort competition by displacing existing providers and TICs will also be incentivised to minimise duplication and draw upon the outputs of relevant parties including the research base.

4. We welcome the list of activities and objectives the TSB has set for TICs in its prospectus. However, it is not reasonable to expect all TICs to carry out the full range of activities. Each TIC should adapt to the needs of the sector it is supporting—by setting a clear vision, defining its objectives and outlining its method of operation—quickly and responsively. This should be developed in conjunction with business and academia. Furthermore, for the purpose of clarity, each TIC should set out the specific activities it will, and indeed will not, engage in.

We agree with the Committee. While there will be some consistency between all TICs in terms of their 'core offer' and objectives, each TIC will have operational freedom to deliver a service that is fit for purpose within a broad framework agreed with the Technology Strategy Board. This will be overseen by a business led steering group.

5. We appreciate that in locating the TICs the TSB and the Government must be careful not to compromise economic objectives. In an ideal world, there would be a good regional spread of centres, but this may not happen. The primary objective—when the TSB identifies which existing centres in the UK will become TICs—must be the quality of the science and the economic benefit to the UK. We consider that a hub and spoke model is useful in connecting existing centres working on similar areas, across the country. This model will be a good way to spread the economic benefit of TICs throughout the UK. Where the hub and spoke model is used, we would like the TSB to put into place a mechanism by which the hubs are clearly recognised and empowered so that they can provide leadership to the spokes. Where existing capabilities do not exist and new centres are required, it may be more appropriate for the TSB to consider regional strengths as set out in the regional innovation priorities table (see Annex 2).

We agree with the Committee. The first TIC, focused on the area of High Value Manufacturing was formed of a group of seven research and technology centres. The seven centres will come together to work under a single Technology Strategy Board managed governance framework with a view to exploiting synergies, responding optimally to future market needs and providing UK industry with an integrated and coherent manufacturing

offer. This TIC will have a broad, cross-sector approach embracing most forms of manufacture using metals and composites, in addition to process manufacturing technologies and bio-processing. In connecting these centres we also recognised the significant funding and capacity that was already in place as a result of investments by the RDAs in particular.

In areas where there are no existing centres from which to build, as is the case with the recent announcement to establish a 'Cell Therapy' TIC, it is likely that there will only be a single physical centre that forms the TIC. Furthermore, the choice of location will be informed by the location of, and need to develop, critical mass of research expertise, and business capability without which we inhibit the exchange of know-how and tacit knowledge, as well as the development of active collaborations, which are facilitated by co-location.

6. We do not comment on the candidate areas identified by the TSB, nor has the Government. We simply encourage the TSB to consult widely and transparently with industry and academia to ensure that the chosen candidate areas are the correct priorities.

We agree with the Committee. The Technology Strategy Board's consultation on candidate areas elicited over 400 responses and these inputs are now being analysed against the criteria identified in the Technology Strategy Board prospectus.

The first priority technology area identified as a result of the inputs received in the consultation is 'Cell Therapy'. This TIC will focus on cell therapies and advanced therapeutics, to support the development and commercialisation of therapeutics as well as the underpinning technologies for manufacturing, quality control and addressing safety/efficacy challenges for these new treatments. It will build on over £100m in public investment in basic and translational stem cell science since 2003, and the launch of the Technology Strategy Board's Regenerative Medicine programme in 2009. It recognises that the number of UK companies developing regenerative medicine and cell therapies has been growing since 2003, and that the UK is a world leader in this area, with a strong academic science base and a supportive clinical and regulatory environment. It also recognises that the company landscape is dominated by SMEs who collectively face inherent challenges of working with emerging technologies, including technological uncertainties. As part of a wider programme of support, the Cell Therapy TIC will play a critical role in positioning UK based companies to gain competitive advantage in the area of Regenerative Medicine which has the potential to cure chronic conditions such as stroke, diabetes and blindness through the replacement or regeneration of human cells, tissue or organs to restore or establish normal function.

7. In the light of the current economic climate the £200 million over four years for TICs is welcome and provides an acceptable foundation for this new initiative. It is important that the money is not spread too thinly and we consider that an initial target of six to eight centres seems to be sensible. Given the potential for these centres to stimulate economic growth, we also recommend that the funding for TICs be reviewed regularly, in order to increase investment in areas where the results justify it as well as

in areas of emerging technologies in which the UK has developed strengths. In the longer term, when compared with the level of investment in Germany, there is a strong case for widening the network of TICs and substantially increasing funding.

We agree with the Committee that funding must not be sub-critical as was previously the case and intend therefore to start the process of establishing an elite network of six to eight TICs with the funding secured in the Spending Review.

We will also monitor their role and impact carefully to develop the robust evidence base necessary for a strong case for funding in future Spending Reviews.

8. The dangers of centres suffering from a lack of core public funding and becoming too dependent on commercial income are exemplified by the Faraday Partnerships. We recommend that the Government provide permanent core public funding to keep the centres innovative and to give business the ongoing confidence to invest. If the centres become self-funded, we fear that the research priorities would be set by those providing the funding, rather than aligning with strategic national priorities. Whilst we acknowledge the difficulties in committing to funding beyond the next election, we consider that the Government should further investigate whether an innovation endowment would prove a practical solution to this problem. The Government should seek a cross-party commitment that gives confidence to the TICs.

We welcome the Committee's suggestion and will provide each of the TICs with core funding for the duration of the current Spending Review period. We will also explore options to put core funding for TICs on a more certain footing in the longer term.

We also agree that while the centres must attract private funds, the balance of funding must be such that they are established and operate to address clearly defined market failures.

9. There is already an imbalance in public funding between research and innovation. We are concerned by the prospect of further reductions in the core funding of TSB activities. We consider that, when it comes to innovation, the Government should not expect "more for less" from the TSB. While it is inevitable that TSB competitive grants will be in line with the priorities of TICs, it is important that limited funds for innovation are not monopolised by the TICs. The Government's and the TSB's funds for innovation have to be available to those outside TICs, as their work may be the basis of the TICs of the future.

TICs will complement the priority areas of activity identified and supported through wider Technology Strategy Board programmes. However, we agree with the Committee that it is important that Technology Strategy Board programme funding is not monopolised by the TICs and therefore programme funds will continue to be granted on a competitive basis with independent assessment of the technical and economic merit of the proposals for funding. TICs will have to bid for programme funding, and there will be no pre-allocation of programme budgets for TICs.

The Technology Strategy Board will also continue to support a balanced programme of work including an important strand on Emerging Technologies, where their joint investments with the Research Councils in Innovation and Knowledge Centres (IKCs), for

example, may form the foundation on which future technology areas for TICs are identified.

10. There is a huge opportunity for TICs to obtain European funding for themselves and to assist businesses trying to access this money. We conclude that, from the outset, TICs must have mechanisms in place to enable this to happen. We agree with the Minister that there should be a central team in either the TSB or BIS that provides, at the least, general guidance and assistance to the network of TICs. We consider that the TSB should ensure that there is a named individual within each TIC who understands the international funding opportunities within his or her area, and takes responsibility for liaising with the central team.

We agree with the Committee's view that there is a significant opportunity for TICs, in cooperation with other key UK stakeholders as appropriate, to leverage EU funding for the benefit of UK business. Experience shows that national centres can be the focus for the development of the core of a consortium that bids for European funding and many centres within the EU are highly successful in accessing funding from the EU Framework Programme through helping to build national consortia and also through collaborations with other centres.

The Technology Strategy Board has responsibility for increasing UK business participation in the EU Framework programme. As part of this work, it is responsible for eleven National Contact Points, who provide expert advice to UK enterprises and academics seeking to participate in the Framework Programme. The Technology Strategy Board will work with the TICs to develop their in-house capability so as to complement this service with a view to helping UK businesses increase their level of participation in EU programmes and for EU funds to be a key income stream for the centres themselves.

11. We conclude that there should be a cap on the amount of private sector funding each TIC can access in a given year. This will promote a more creative approach to innovation. TICs should have a clear objective to follow the “one third, one third, one third” funding model. We recommend that when a TIC earns the majority of its income from the private sector it cease being a TIC and no longer receive core public funding.

We agree with the Committee that core public funding for a TIC must be provided on the basis of addressing a well defined market failure and it is our view that a centre capable of earning a majority of income from the private sector cannot under normal circumstances justify receipt of core public sector funding.

However, given the historical investment in some of the existing centres, which may in some instances have greater breadth to their activity than defined by a TIC, it is our view that the key issue that should determine ongoing public sector funds must be the balance of funding for activities that fall within the remit of the TIC. This balance will be carefully reviewed and shaped by the Technology Strategy Board through ongoing management and reporting.

12. Like the Minister, we hope that SMEs' involvement with TICs will strengthen their financial base and increase lenders' and financiers' confidence in their commercial prospects. We are pleased that the TSB is already working with Capital for Enterprise

on the TICs initiative. We encourage the TSB to consult more widely with financial organisations, including venture capital providers and banks, to ensure that there are no barriers to SMEs engaging with TICs. We also expect lenders to engage with TICs to help develop a better understanding of the economic potential of technologies that SMEs are involved with.

We agree with the Committee. We recognise that there is a market failure in the provision of venture capital to high tech SMEs with key weaknesses being the lack of scale and understanding on the part of investors of the technologies involved.

The Technology Strategy Board and TICs can address this lack of understanding and confidence in the technologies concerned by working with the finance community to provide robust information on issues such as the technology, the associated market, and the scale of support necessary to commercialise such a technology. This information, together with the scale, and nature of, support they provide will in our view be an important factor to ensuring SMEs are sufficiently capitalised to both take advantage of the TICs and subsequently commercialise the technologies they are developing.

13. The TSB should coordinate the oversight of the network of TICs. We conclude that the Oversight Committee should consist of major players—with expertise in technology commercialisation and innovation—in business, academia, and from the public sector.

We agree with the Committee and the Technology Strategy Board will announce its plans for the membership of this oversight group in May.

14. We agree with the Minister that each TIC must have a very strong business element. While we understand his reluctance to specify the balance of the composition of the board, we recommend that, to ensure the interests of SMEs are fully taken into account, at least one board member represent small businesses.

We agree with the Committee. The membership of a TIC's steering board will be critical to determining its priorities and it is vital that each TIC provides both open access facilities and has a programme of work that pays due consideration to the needs of a wide range of high growth businesses, be they large or small.

15. The successful launch and operation of TICs will require individuals at the top of the organisation who are not only talented managers but can build bridges between business and academia. While it may be going too far to require chief executives of Technology and Innovation Centres TICs to be active academics, we encourage the TSB to help centres find suitable individuals who are well connected to the relevant research base.

We agree with the Committee that each TIC must have the expertise to draw on the outputs of our world leading research base. This could inform the choice of individuals for senior posts within the TICs as it is vital that we find talented leaders who straddle industry and academia.

We also believe schemes such as Knowledge Transfer Partnerships could play a key role in enabling the flow of knowledge and information between academe, TICs and industry.

16. We recommend that the TSB set out details of a preferred business model, including legal structure, for TICs. This model should draw on the experiences of existing centres and be capable of amendment as time goes on.

We agree with the Committee and both the Technology Strategy Board and BIS officials have sought to understand best practice in establishing centres through informal discussions with funders of centres and existing centres, in the wider context of also ensuring support is state aid compliant.

The Technology Strategy Board will also monitor and evaluate the performance of the TICs and will make any necessary amendments to the business model to ensure the TICs are able to operate effectively.

17. The management of intellectual property rights will be crucial to an effective working relationship between TICs, academia and business. We ask the TSB to set out principles for IP management, including an outline of current best practice, in its TIC implementation plan but we reject the need for prescription.

We agree with the Committee and the Technology Strategy Board will outline its principles on managing IP in its strategy document due to be published in May.

18. Progress towards the “one third, one third, one third” funding model may be slow, especially where new centres are established that need to build a reputation with business. However, attaining and maintaining this funding model is a good measure of the performance of individual TICs in the medium to long term. The “one third” of funding that is drawn in from the private sector, in particular from repeat business, will be key.

We agree with the Committee that newly established TICs may take some time to develop a balanced funding portfolio and agree that monitoring their ability to leverage private sector contract funding in addition to other measures such as their ability to attract grant funding from EU and national research programmes; the number of businesses they support and help create; and the nature and scale of their interactions with the knowledge base, will be key.

19. There are a number of potential short to medium term measures that can be used to show whether TICs are working satisfactorily. The framework used by Rolls-Royce to assess its own centres is typical of how a business will judge TICs. Businesses will want TICs to prove that they are meeting their needs. The best judge of this will be demand from businesses for TICs' services, in particular, if they offer repeat business to TICs. In the longer-term, innovation is notoriously difficult to measure. As the Minister suggested, the Government and the TSB must be patient in attempting to assess the success of TICs. In the light of the long-term importance of this initiative and of the need to make a convincing case to the Treasury for increasing investment, we recommend that the Minister regularly report progress to the House.

We welcome the Committee's interest in monitoring the progress of TICs, agree on its importance and will work with the Technology Strategy Board to find a suitable mechanism for reporting on this. It is important however to recognise that TICs will be established and supported in the context of a wider programme of work being taken

forward by the Technology Strategy Board, and it will be important therefore to ensure that any report on the role of TICs is presented and understood in the context of their contribution to the wider objectives for specific technology areas.

20. We recommend that the network of TICs be called “Turing Centres”, after the founder of computer science, Alan Turing. We consider that this country owes him a debt of obligation for the way in which he was treated. It is important, however, to remember that it will take time for TICs to build a reputation. The TSB must ensure that the brand and the reputation are well managed. If the centres are effective at doing their work, they will be recognised across the world by business as being the place to go to innovate in the UK.

We agree with the Committee that the brand and reputation of TICs must be well managed, and that they can play an important role in promoting the UK's innovation 'offer' overseas. We also welcome the Committee's proposed name of 'Turing Centres'. The Technology Strategy Board will outline its plans for choosing an appropriate name for the network of centres in May.