

Technology and innovation centres: a prospectus

Maximising the commercial
impact of UK R&D

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development

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opportunities

investment

working with business

Foreword



Iain Gray
Chief Executive,
Technology Strategy Board

Prime Minister David Cameron announced recently that the Technology Strategy Board would be spearheading a new network of elite technology and innovation centres for the UK.

As the UK's national innovation agency, we are delighted to be taking on responsibility for establishing and overseeing this new initiative, which offers a high degree of synergy with our other activities that drive innovation for the benefit of UK business.

This prospectus begins the process of establishing these world-leading centres, which represent a significant long-term investment in the UK economy. It sets out our proposals for the objectives, role, governance and funding for each technology and innovation centre. We identify potential candidate areas for centres and would like to hear feedback and comment on this list and on our plans in general by 18 February 2011.

This activity is taking place in parallel with the House of Commons Science and Technology Committee inquiry into technology innovation centres. We look forward to seeing the recommendations of the Committee which we will take into consideration as we move forward.

We are seeking to establish the first centre in high value manufacturing. We would like to hear from organisations interested in forming all or part of such a centre by 31 January 2011.

To make the most of the new network of technology and innovation centres we need to hear from business, academia and researchers. This is an opportunity to get involved and help shape this exciting new initiative.

I look forward to hearing your views.

A handwritten signature in black ink, appearing to read 'Iain Gray'.

expertise

Executive summary

This prospectus provides the framework and sets out the process for establishing a UK-wide network of elite technology and innovation centres. It describes:

- what technology and innovation centres are
- how they will be run
- the process for their development
- how to get involved.

We will invest over £200m over the next four years in these centres. You are invited to help shape this important initiative by responding to this prospectus.

Technology and innovation centres will be drivers of future economic growth. They are physical centres that will attract substantial investment to establish world-leading capability and global impact, in pre-commercial development. They will provide access for business to the best technical expertise, infrastructure, skills and equipment, which individual companies cannot afford to invest in on their own. This requires significant, coordinated, long-term public investment and a competitive element to ensure that the centres remain relevant and valued by business long into the future. It is expected that in the steady-

state these centres will be funded on the basis of one-third core funding from the Technology Strategy Board, one-third from competitive grants and one-third from business contracts.

The Technology Strategy Board will establish a network of six to eight world-leading technology and innovation centres. In the first phase (for centres to come into existence in 2011-12) we propose to select three or four centres from the following initial list of candidate areas. Further centres from within these broad areas may be selected in the second phase.

- High value manufacturing
- Energy and resource efficiency
- Transport systems
- Healthcare
- ICT
- Electronics, photonics and electrical systems

What do you think?

We would welcome input on the initial list of candidate areas for technology and innovation centres by 18 February 2011,

What's in a name?

We believe that the network of elite technology and innovation centres should have a suitably prestigious and globally recognised name.

We would welcome suggestions for suitable names by 18 February 2011 through the **technology and innovation centres forum** on **_connect** or by emailing **centres@tsb.gov.uk**.

including suggestions to provide a more specific technical focus within or across these broad areas.

Email your comments to **centres@tsb.gov.uk** by **18 February 2011** (limiting your response to four pages).

A further announcement will be made in April on the implementation of the first phase of centres in the light of views expressed. Organisations with an interest in making proposals to operate centres are encouraged to input into this process and will be invited to express their interest formally in April.

We would also welcome views on other areas, which might be candidates for centres in subsequent phases of the programme, where the UK has particular strength and a technology and innovation centre would meet the criteria identified in this prospectus.

Please email your views on this to **centres@tsb.gov.uk** by **18 February 2011** (limiting your response to four pages).

We expect to launch a second phase of centres for implementation during 2012-13.

More general responses to this prospectus are also welcome, please email **centres@tsb.gov.uk**. Or join the debate on the **technology and innovation centres forum** on the **_connect** collaboration site.

High value manufacturing technology and innovation centre

We are seeking to fast-track a centre in high value manufacturing. Organisations with an interest in forming all or part of this centre are invited to register their interest with the Technology Strategy Board by **31 January 2011**. It is possible that centres may be formed from consortium bids.

Please complete the form on the **technology and innovation centres page** at **www.innovateuk.org** (under Delivering innovation).

The Technology Strategy Board will hold discussions with a range of parties in January and February with the intention of announcing a decision on the establishment of a manufacturing centre in March 2011. We propose to maintain a broad, cross-sector approach to high value manufacturing, in line with our strategy, embracing all forms of manufacture using metals and composites, in addition to process manufacture including bio-processing.

Introduction and background

The report prepared in March 2010, by the entrepreneur Hermann Hauser, *The Current and Future Role of Technology & Innovation Centres in the UK*, made a robust case for long-term UK investment in such centres and identified best practice from around the world. The justification for such investment was reinforced by James Dyson in his report *Ingenious Britain*.

In October 2010, the Prime Minister announced an investment of more than £200m over the next four years in a network of technology and innovation centres, to be overseen by the Technology Strategy Board as part of its wider programme of investment in innovation in the UK. David Willetts, Minister for Universities and Science, is the minister with responsibility for this policy. The centres will accelerate the exploitation of new technologies by providing infrastructure that bridges the gap between research and technology commercialisation and will deliver a major step forward in the UK's ability to commercialise research in areas where the UK has the potential to gain substantial economic benefit.

We are proposing to create a strong network of centres that:

- attract work from a wide cross section of businesses ranging from multinationals to small businesses
- have the prestige to work closely with the best universities and other technology organisations in the UK and internationally
- are recognised as a mark of excellence in the UK and aspire to be the best in Europe and the rest of the world
- share expertise between the centres and across the wider knowledge base.

An integrated approach to boosting business success

These business-focused centres will form part of a coordinated investment in innovation and will be integrated into the overall UK innovation system. They will complement and draw on other programmes of national investment, such as our investments in Innovation Platforms, Collaborative R&D, Knowledge Transfer Networks, Knowledge Transfer Partnerships and the Small Business Research Initiative (SBRI). They will also link into and access EU programmes. The new technology and innovation centres will also complement other types of centre which operate at different points in the research and development cycle, from research council institutes, through innovation and knowledge centres to contract research organisations, public sector research establishments, consultancies and virtual centres.

We will continue to work with business to support coordinated and increased investment in innovation in the UK as well as with our other partners such as the research councils, devolved administrations and government departments. We expect centres to play an important part in this investment for decades to come.

global market
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What is a technology and innovation centre?

A technology and innovation centre will be a physical centre with substantial investment to establish world-leading capability and global impact, in pre-commercial development. It will provide access for business to the best technical expertise, infrastructure, skills and equipment that would otherwise be outside the reach of individual companies. A centre will provide an environment in which multi-disciplinary teams from a diverse range of backgrounds can work together.

A technology and innovation centre will:

- provide businesses with access to world-leading technology and expertise
- reach into the knowledge base for world-leading science and engineering
- be able to undertake collaborative applied research projects with business
- be able to undertake contract research for business
- be strongly business-focused with a highly professional delivery ethos
- create a critical mass of activity between business and the knowledge base
- provide skills development at all levels.

A centre may be based at one location or across a small number of sites, where there is a clear rationale for this in providing links to research capability or to customers. It will need an integrated business plan and governance model. We expect a centre to be run with a commercial mindset but with any surplus being reinvested into the centre itself.

Funding and operational model

Establishing and maintaining a network of centres with world-leading technical capabilities will require a substantial investment – from both public and private sector. Centres also need to create a critical mass of activity surrounding them which will anchor the activities of globally mobile companies in the UK.

The centres will gain their funds from a mix of competitively earned commercial funding and core Technology Strategy Board investment. The funding model will vary through the life of the technology and innovation centre and can be expressed in simplified terms as following the one-third, one-third, one-third model. Under this model centres would be required, when fully established, to generate their funding broadly equally from three sources:

- business-funded R&D contracts, won competitively
- collaborative applied R&D projects, funded jointly by the public and private sectors, also won competitively
- core public funding for long-term investment in infrastructure, expertise and skills development.

On the basis of international experience, we estimate core funding in the order of £5m to £10m per annum per centre, initially for five years, and renewable in similar increments. This is required to ensure centres are sustainable, to give business the confidence to invest and to enable them to leverage additional funding.

We envisage that each centre will grow to an annual turnover of around £20m-30m, which corresponds a productive technical staff of the order of 150 highly qualified individuals. Each centre, once established, will need to attract around £10m to £15m per annum from business to be viable. We expect there to be differences between technology areas: some may require larger more capital-intensive facilities or justify more than one centre.

Core funding

The Technology Strategy Board will provide the technology and innovation centres with their core funding, which in line with the recommendation from the review by Hermann Hauser, will provide long-term sustained investment (within the constraints of the public finance system). The core funding agreement will:

- provide sustainable investment over a minimum of five years, with an expectation of continuing for at least 10 years, subject to continuing demonstrated performance in line with the agreed business plan and performance metrics
- define the remit and the bounds for each centre
- define the governance arrangements and role of the UK technology and innovation centre oversight committee (see section on governance arrangements)
- define success metrics and performance measures
- specify quarterly reporting to the Technology Strategy Board against agreed metrics and performance measures
- require an annual performance review with the UK oversight committee, to ensure a flexible outcomes-based assessment of performance
- require annual plans to be submitted to, and approved by, the UK oversight committee and the Technology Strategy Board
- specify financial liabilities, step-in rights, equipment ownership, liens, and the like
- encourage the technology and innovation centre to link with, and draw on the outputs of, the research base and other centres (including commissioning work where appropriate)
- define the 'membership agreement' to be a member of the technology and innovation centre network covering branding, networking communications, publicity, environmental sustainability and the like
- outline the principles for intellectual property management.

Metrics and performance measures

The ultimate measure of success for the new centres will be increased UK wealth creation from more effective commercialisation of new technologies. But given the long timescale to deliver such benefits, and the practical difficulties in attributing them to specific sources, we will also need to develop intermediate measures. These will include the value of work won competitively such as number of new customers, successful projects, new and repeat customers/year, intellectual property developed and new businesses created. Environmental sustainability should underpin the requirement for all technology and innovation centres.

Governance arrangements

A strong governance structure is critical to ensure strategic direction and the quality of services provided to business. The governance arrangements must ensure that key decisions are seen to be credible, robust and transparent.

The main elements of the governance structure will be:

- an advisory oversight committee to be created by the Technology Strategy Board, which will oversee the national network of technology and innovation centres and report to the Technology Strategy Board's own Governing Board. More details on the establishment of this committee will be announced shortly.
- an autonomous, business-led management board for each centre, which will oversee the programmes of activity and provide guidance on all aspects of its work.
- a small programme team within the Technology Strategy Board to support the UK oversight committee and provide day-to-day delivery of the core funding programme.

Governance of individual technology and innovation centres

The centres should have a large degree of operational autonomy, within their agreed objectives, allowing them to adapt to the changing needs of their customers and the business base.

Each technology and innovation centre will be required to establish a business-led management board, comprised of business users and experts in the technology, that will oversee the programmes of activity and provide guidance on all aspects of the work within the centre.

A single-integrated governance structure will be required for each centre, including any operating on a multi-site basis. Each technology and innovation centre is expected to be an independent legal entity, constituted on a 'not for profit' basis separately from any host organisation or other major partners. It will need its own independent governance to ensure that ideas and knowledge can be brought in from a wide variety of sources and that access will be open to all companies who wish to use it.

Individual centres will be responsible for business planning and delivery of their objectives within the core framework. They will also be responsible for assets and liabilities, ownership and management of facilities, equipment and intellectual property.

The performance, culture and feel of any organisation inevitably come down to a few key individuals, such as CEO, Chair of the Board and other senior staff, who must have the right blend of enthusiastic entrepreneurial spirit, industrial experience and knowledge of the academic base. We will work with each centre, to create an appropriate framework for the appointment of these key individuals to ensure the technology and innovation centres are run by highly networked and competent individuals.

Role of Technology Strategy Board

The Technology Strategy Board will establish and maintain a network of centres in areas where the UK has the potential to gain substantial economic benefit. We will maintain a vision for the development of the centres and define the criteria for their establishment. We will maintain the governance framework within which the technology and innovation centres operate, and monitor and report on the performance of the centres and network.

The Technology Strategy Board will ensure that the focus of the centres is consistent with the wider programme of national investment in innovation by working with key partners including business, research councils, devolved administrations, the Department for Business, Innovation and Skills (BIS) and other government departments. We will ensure effective coordination of the network of centres and their engagement with the wider science and innovation system in the UK and internationally.

The Technology Strategy Board will make use of external experts to supplement our internal expertise in assessing technical proposals and business cases.

investment

Criteria and candidate areas for the centres

We propose to follow a phased approach to establishing centres with a first phase of three or four centres to be set up from 2011-12, followed by a second phase from 2012-13 onwards.

We propose to adopt the following criteria that potential centres would need to meet in order to secure funding, which draw on the Hauser and Dyson reports and examples of international best practice:

- the potential global markets which could be accessed through the centre are predicted to be worth billions of pounds per annum
- the UK has world-leading research capability
- UK business has the ability to exploit the technology and make use of increased investment to capture a significant share of the value chain and embed the activity in the UK
- technology and innovation centres can enable the UK to attract and anchor the knowledge intensive activities of globally mobile companies and secure sustainable wealth creation for the UK
- technology and innovation centres should be closely aligned with, and essential to achieve, national strategic priorities.

We expect to use these five criteria in assessing proposals for potential centres. In the first phase for centres to come into existence in 2011-12 we propose to select up to three or four centres from the following initial list of candidate areas:

- High value manufacturing
- Energy and resource efficiency
- Transport systems
- Healthcare
- ICT
- Electronics, photonics and electrical systems

This list represents very broad areas and we would expect the majority of centres to have a tighter technical focus and definition within, or across, these broad areas. Some areas may warrant more than one centre and we are not necessarily looking to establish a centre for every candidate area. The centres will integrate with other UK investments within these areas and complement other activities that drive innovation in the UK. For further information about our approaches and strategies see www.innovateuk.org.

The high value manufacturing technology and innovation centre

We are proposing that the first centre we establish will be in high value manufacturing. Manufacturing is one of the primary ways we create wealth from new technologies and the UK is the sixth largest manufacturer in the world by Gross Added Value (GVA). High value manufacturing is a key strand of the Government's investment in growth, and a key priority area for the Technology Strategy Board. It is anticipated that a centre in manufacturing is likely to be formed of a consortium that recognises a broad, cross-sector approach to high value manufacturing; embracing all forms of manufacture using metals and composites, in addition to process manufacture including bio-processing, in line with our strategy. We are confident that a centre can provide an early contribution to economic recovery and growth, and there is already demonstrable business demand for applied research services reaching into a world-leading UK research base.

For further information about our approach to high value manufacturing and strategy see www.innovateuk.org.

If your organisation is interested in running this centre or forming part of the high value manufacturing centre we would like to hear from you now. Please register your interest by completing the brief form on the **technology and innovation centres page** at www.innovateuk.org (under Delivering innovation) by **31 January 2011**.

What do you think?

We would welcome input on the initial list of candidate areas for technology and innovation centres by **18 February 2011**, including suggestions to provide a more specific technical focus within or across these areas.

Email your comments to centres@tsb.gov.uk by **18 February 2011** (limiting your response to four pages).

We would also welcome views on other areas, which might be candidates for centres in subsequent phases of the programme, where the UK has particular strength and a technology and innovation centre would meet the criteria identified in this prospectus.

Please email your views on this to centres@tsb.gov.uk by **18 February 2011** (limiting your response to four pages).

More general responses to this prospectus are also welcome, please email to centres@tsb.gov.uk by **18 February 2011**. Or join the debate on the **technology and innovation centres forum** on the **_connect** collaboration site.

Next steps

We will be supplementing the information in this document with further updates on **_connect** and through our website **www.innovateuk.org** under Technology and innovation centres.

Timeline for centre development

October 2010	Announcement of £200m investment in technology and innovation centres by Prime Minister David Cameron.
January 2011	<p>Publish outline prospectus</p> <p>Request input to shape detailed strategy and implementation plan on _connect</p> <p>Interested parties register for the high value manufacturing technology and innovation centre by end of January</p>
February 2011	<p>Meetings and workshops with organisations with an interest in running the high value manufacturing technology and innovation centre</p> <p>Workshops and discussion to develop details of strategy and implementation plan with business, partners, academia and other interested parties</p> <p>Review of inputs received.</p>
March/ April 2011	<p>Announce results of fast-track technology and innovation centre in high value manufacturing.</p> <p>Publish final technology and innovation centres strategy and implementation plan</p>
2012-13	Second phase of centres

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