

$$\pi = \frac{T}{4A^2G} \oint \frac{ds}{t}$$



Science for Scotland

magnet for talent and investment

powerhouses of technology, innovation and enterprise

$\oint_c \mathbf{B} \cdot d\mathbf{l} = \mu_0 I_{enc}$

$\int_a^b f'(x) dx = f(b) - f(a)$



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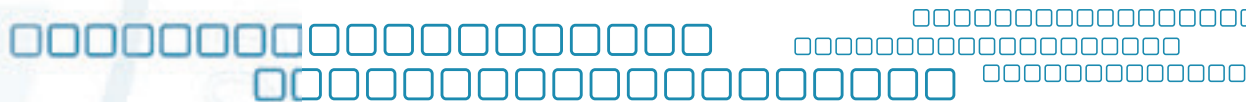
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Foreword



Recently I met the best of the new generation of Scotland's scientists to celebrate their success and encourage them to achieve even more.

The Government is ambitious for Scotland. Our purpose is to create a more successful Scotland with opportunities for all to flourish through increasing sustainable economic growth. We want Scotland to be smarter, safer and stronger, wealthier and fairer, greener and healthier.

Of course our nation is not immune from the turbulence affecting all countries and global markets. We are, however, better placed than at any time in the past to address these challenges, using our strengths to establish competitive advantage and position Scotland to recover fast and well as recession ends.

Science is key to that. It will help:

- ⑦ Deliver improvements in public services, such as to the NHS;
- ⑦ Identify strategic growth opportunities for existing businesses using science to solve their problems, develop new products or exceed their customers' needs;
- ⑦ Attract inward investment, and provide jobs – for the highly skilled and qualified – in sectors that underpin our economy;
- ⑦ Find answers to global issues which impact our daily lives such as climate change and food security, and develop technology to enhance our living and work spaces and keep us connected or entertained.

The Economic Strategy published in 2007 confirmed plans to prepare a new science framework focused on developing the science base, international profile and attracting inward investment, and developing knowledge exchange.

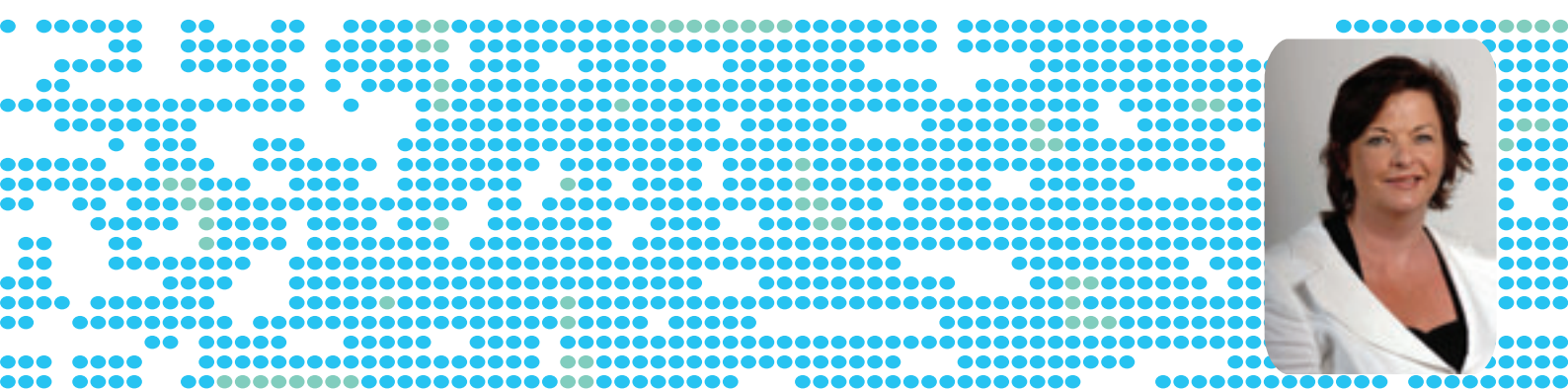
Science for Scotland does that. It sets out what Government will do – in partnership – to support and build on our world-class science community, and to use that strength innovatively to support growth in businesses in Scotland. In response to feedback from stakeholders, it also sets out actions to build on *Curriculum for Excellence* and aspects of *New Horizons* to foster the varied but highly skilled science and engineering workforce of the future. Together we will foster skills for learning, life, work and business, and make science in schools, colleges and universities more challenging, relevant, and exciting, helping future generations reinvent our world.

Science for Scotland is about making better connections and changing cultures. It is about using the strength of our science base to better support innovation and growth. Together we can create a more successful Scotland.



FIONA HYSLOP MSP

Cabinet Secretary for Education and Lifelong Learning
November 2008



Introduction

Our vision is of a nation of world-class scientific achievement, a magnet for talent and for investment, a powerhouse of technology innovation and enterprise, increasing sustainable economic growth.

01. Science is vital for Scotland's future. It is a keystone in delivering the Government's Purpose of creating a more successful Scotland with opportunities for all to flourish through increasing sustainable economic growth. We want to make Scotland smarter, safer and stronger, wealthier and fairer, greener and healthier. These objectives focus government and public services nationally and locally – and challenge the private and third sectors.

02. Science¹ will underpin:

- ⑦ Our contribution to global issues which are relevant to us all, such as climate change and sustainable energy;
- ⑦ Improvements in public services and quality of life, including health and the environment;
- ⑦ Growth opportunities for existing businesses using science to solve their problems, develop new products, exceed their customers needs and increase competitiveness;
- ⑦ New businesses and inward investment;
- ⑦ New jobs and careers – particularly for the highly skilled and qualified;
- ⑦ Growth in the contribution our universities will increasingly make to Scotland and the world, and their reputation.

¹ In the remainder of this document, science is used as shorthand for science, engineering and technology (SET), and where appropriate, social sciences

03. To make our vision a reality, we need to build on our scientific strengths, exploit major opportunities and address a range of key challenges which have been identified and prioritised through extensive consultation. The key challenges for science in Scotland are:

- ⑦ Maintaining our global pre-eminence in science teaching and research and continuing to attract science-related inward investment;
- ⑦ Encouraging more young people to study science subjects and build careers in science, technology and engineering in Scotland; developing a science workforce which is aligned and responsive to the future needs of the science base and the economy as a whole;
- ⑦ Increasing business research and product development capacity, and business demand for **and** utilisation of the science base in ways which support economic growth, including deriving more from intellectual property and growing companies of scale;
- ⑦ Ensuring that the science base responds effectively to business demand, producing research and knowledge that is of economic value and supports sustainable economic growth;
- ⑦ Taking advantage of the opportunities provided by the challenges of climate change and sustainable energy to build on our excellent research base to develop new industries, technologies and products;
- ⑦ Improving the international marketing of Scotland's science and seeking broader and deeper international collaborations with existing and new partners.

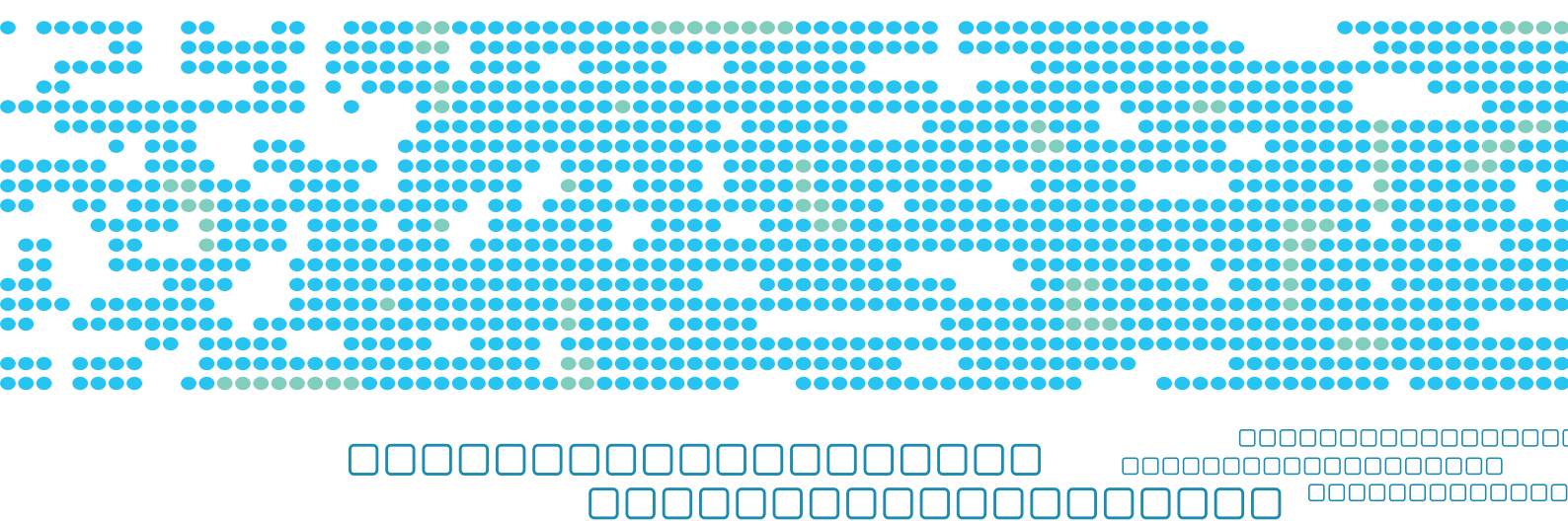
04. Meeting those challenges requires time and a shared commitment. Government has a key role to play, creating a fertile academic and business environment, recognising and rewarding success and investing in people and

infrastructure. Government also promotes enhanced public engagement with and understanding of science by funding science centres and stimulating and co-ordinating the wider network of science engagement providers. Much of the remainder of this framework describes what Government will do to support and use science in Scotland to achieve increased sustainable economic growth. However success depends on **all** of the individuals and organisations that make up the science base in Scotland – in the public, private and voluntary sectors. This includes our leading science-based companies and small and medium-sized businesses, the financial investment sector, our universities, colleges and our local authorities and schools, the NHS and research institutes and charities.

05. In common with *Skills for Scotland* and the proposed Innovation Framework, we need to work together to:

- ⑦ Nurture a culture in which creative, enterprising people are empowered and rewarded within organisations and which attracts creative people to Scotland;
- ⑦ Develop systems that support and facilitate interchange of existing ideas, concepts and intellectual property between and within organisations and people;
- ⑦ Grow and support networks which facilitate co-creation of economically valuable knowledge and ideas through creative interaction within and between organisations and people.

06. As such, this strategic framework is focused on: Developing individuals; Scientific Research; Economic and Business Demand; International; Connections in Scotland and in Government.



What Scotland needs to do

DEVELOPING INDIVIDUALS

07. The *Government Economic Strategy* states that: "...our people are our greatest economic asset. A skilled and educated workforce is essential to building our comparative advantage and to the delivery of sustainable growth. Investment by all individuals and by the state in early years, school, further and higher education has a proven impact on the employability and productivity of individuals and, in turn, business growth."

08. Government will promote the development of the science, technology and engineering workforce of the future in ways which are adaptable and responsive to the aspirations of our young people and the changing needs of the science base and, in particular, business. This is, of course, wholly consistent with the established wider goal of education in Scotland, which is to produce successful learners, confident individuals, effective contributors to society and responsible citizens.

09. Government will:

⑦ Encourage more young people to prepare for, and pursue, science careers by:

- ⑦ Actively promoting a more positive and realistic image of modern science and the diversity and rewards of careers which are science-based. A 3-year *Do something creative. Do science* marketing campaign will be launched in 2009 to begin changing perceptions of science courses and careers.
- ⑦ Developing *The Path is SET*, a new science careers programme which will provide improved advice and guidance in schools and colleges across Scotland, helping students, parents and teachers make more informed choices.

⑦ Make science in schools and colleges more challenging, relevant, interesting and exciting by:

- ⑦ Enhancing attainment in and experience of science in schools and colleges through the ongoing implementation of *Curriculum for Excellence* (CfE) and related reform of science qualifications.
- ⑦ Supporting our brightest scientific talent with the introduction of the new Science Baccalaureate, and working with businesses to provide project opportunities which connect science and business innovation. This will include exploring potential links to the Knowledge Transfer Programme.
- ⑦ Supporting teaching and learning in schools through increased investment in continuous professional development of teachers in primary and secondary schools, and input from scientists in the network of Science Centres, colleges, universities, research institutes and business.
- ⑦ Fostering interaction between teachers, lecturers (in colleges and universities) and business so that science education continues to address industry challenges and new scientific knowledge and understanding. Links between education institutions and employers will continue to be supported through *Determined to Succeed*, work with COSLA and Local Authorities to reform Excellence in Education through Business Links (EEBL) as part of CfE capacity-building, and expansion of the Science Ambassador network.
- ⑦ Supporting the delivery of the new science curriculum in schools through the development a new self-assessment tool, to help benchmark the quality and relevance of input from scientists in colleges, universities, research institutes and businesses.



⑦ **Improving the match between science course provision and demand by:**

- ⑦ Working with the Scottish Funding Council, colleges and universities to consider costs and funding arrangements – within the overall resources available in any year – and how to optimise their capacity to respond to future student and employer demand for science courses.
- ⑦ Encouraging the Sector Skills Council for Science, Engineering and Manufacturing Technology (SEMTEA) to progress plans for a science skills forum which improves collaboration and responsiveness to changing cross-sectoral skills requirements.
- ⑦ Asking the Funding Council and SEMTEA to ensure these actions are connected.

10. The Scottish Government will also consider targeted and sustained growth in postgraduate number as one of the principles for future funding of universities as proposed by *New Horizons*. The Scottish Government has already increased the numbers of its prestigious Royal Society of Edinburgh Research Fellowships to six a year, extending their total duration from 3 to 5 years.

SCIENTIFIC RESEARCH

11. Scottish Government investment in basic research infrastructure sustains and enhances the excellence of Scotland’s science research base – which of course extends beyond the university sector, to the NHS and Research Institutes. That investment attracts significant gearing in terms of project funding from the UK Research Councils, Research Charities and business. That excellence provides international profile and collaboration, attracts a significant proportion of inward investment and provides the potential

for participation in future as yet unknown markets and industries. The most significant element of this framework for scientific research is to confirm that the **Scottish Government will continue to support science infrastructure which underpins existing and emerging world-class research** in order to sustain and enhance our international standing and competitiveness. This was previously signalled in the *New Horizons* report which:

- ⑦ Aligned university funding with the Government’s Purpose; and
- ⑦ Noted the general principle that *“the integrity of the dual support model... should be maintained”* and that advice on the *“investment in learning and teaching, research and knowledge exchange activities”* required to *“maintain broad overall comparability with the rest of the UK”* would be offered through the new Tripartite Advisory Group.

12. Government will also:

⑦ **Provide an integrated agenda linking strategic research through to science application in government-funded rural, environmental and marine scientific work by:**

- ⑦ In 2009, publishing a framework for rural, environmental and marine science which is informed by policy priorities.
- ⑦ Supporting the formation of a new environmental research institute by encouraging two of the research institutes which it supports – the Macaulay and Scottish Crop Research Institutes – to come together.

⑦ **Promote growth in medical and related research by:**

- ⑦ In 2009, publishing a new research strategy for health and healthcare.



- ⑦ Establishing a Scotland-wide network of academic medical centres. This will help the NHS and medical research community in Scotland operate as a large integrated research body, and build capacity to attract research funding from UK bodies and international pharmaceutical companies.
- ⑦ Establishing a single NHS R&D approval system and improved access to NHS datasets.

⑦ **Build on the success of research pooling to promote inter-disciplinarity by:**

- ⑦ Working with the Funding Council and with universities to further develop the pooling model within available resources, promoting collaborative and inter-disciplinary working across pools and also with business to improve knowledge exchange.

⑦ **Enhance links with the UK Government, Research Councils and with the EU by:**

- ⑦ Promoting opportunities for Scotland to influence a shared agenda for science and research, building productive links at every level.
- ⑦ Contributing to the development of the EU's proposals for the creation of a European Research Area and promoting Scottish interests and priorities in European mechanisms for cross-border projects and infrastructures, such as the 8th Research Framework Programme and the European Institute of Innovation and Technology.

ECONOMIC AND BUSINESS DEMAND

13. A key challenge for Scotland is to bring about radical change in cultures and performance to increase business research and development, and business demand for and use of the science base in ways which help support growing businesses and sustainable economic growth. Science can help business respond to the new challenges such as moving to a low-carbon economy. Many existing businesses use science to solve their problems, develop new products, exceed their customers' needs and increase competitiveness – but not enough.

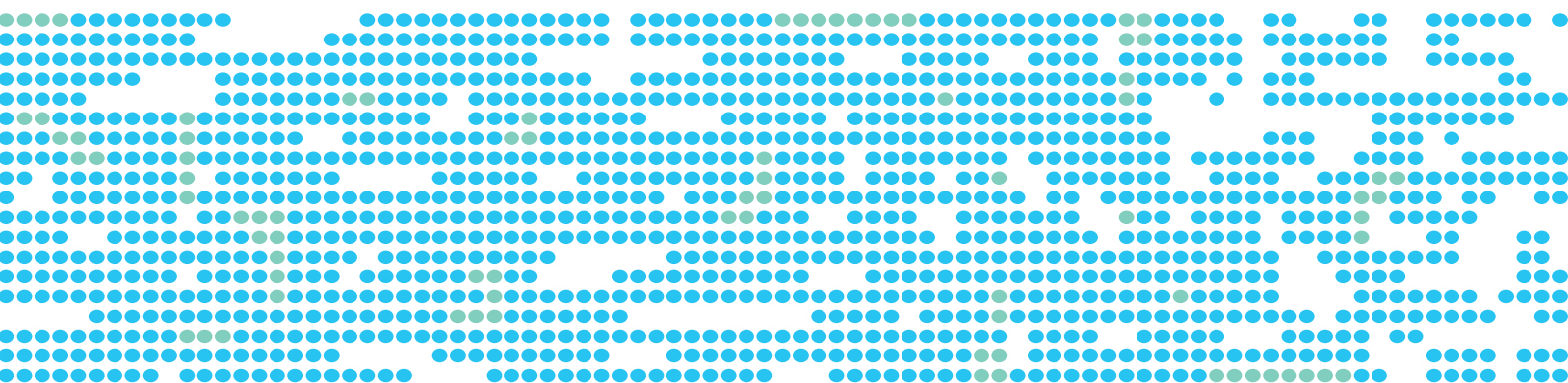
14. The Innovation Framework and the new delivery focus of Scottish Enterprise and Highlands and Islands Enterprise will present a new approach to boosting innovation performance in Scotland – moving beyond science and technology to impact on areas such as services, business model innovation and procurement. This will address the key issue of how – over time – to work with businesses in Scotland to help them increase their absorptive capacity² for science based innovation. Equally, the science base must understand and respond to what businesses require in order to support their growth. The extent to which science can immediately underpin higher levels of research and product development and innovation will vary across the key industrial sectors. A broad, sectorally focused, business-led approach is necessary to identify strategically important projects which have real business benefits and the capacity to contribute to higher and sustainable economic growth. ITI Scotland is already pursuing intellectual property potential within three global market sectors: digital media and communications; life sciences; and energy. A key element of this framework for science is to signal that Government will, through the Scottish Funding Council, Scottish Enterprise and Highlands and Islands Enterprise:

⑦ **Prioritise both research excellence and strategic knowledge exchange by:**

- ⑦ Increasing investment in knowledge exchange faster over time in order to support industry-led strategic projects which will help key business sectors articulate their research needs and better utilise science to deliver increased and sustainable economic growth.

⑦ **Optimise the economic contribution of intellectual property from publicly-funded research by:**

- ⑦ Working with Universities Scotland and business to enhance the way intellectual property from public sector research is managed in order to optimise economic benefits for Scotland. An outline proposal from Universities Scotland to create a single forum for all available IP from Scottish universities is being developed. A substantive proposal will be considered early in 2009.



² A firm's ability to value, assimilate, and apply knowledge

⑦ **Encourage research collaborations between business and academia that focus on growing businesses in Scotland by:**

- ⑦ Tasking Scottish Enterprise and Highlands and Islands Enterprise to assist businesses to identify research collaboration opportunities where businesses can share knowledge, costs, risks and benefits of their R&D and innovation activities, for example through participation in European R&D programmes.

⑦ **Ensure Scotland is well positioned to take advantage of emerging science-based market opportunities by:**

- ⑦ Utilising industry expertise to identify emerging market opportunities where Scotland has both the research capacity and commercial potential to exploit scientific advances.

15. Government will also:

⑦ **Promote overseas investment in Scotland's R&D base by:**

- ⑦ Tasking Scottish Development International to work with key partners (including universities, Interface, research pools and industry bodies) to target and grow inward investment which links the requirements of international business with the research excellence of Scotland's academic researchers, including new strengths identified by RAE 2008.

⑦ **Influence the creation of the most appropriate fiscal and taxation regime to stimulate business innovation and R&D that will contribute to Scotland's sustainable economic growth.**

INTERNATIONAL

16. The key to science supporting Scotland's international profile and inward investment growth is to sustain the science base and the current prioritisation of research and teaching excellence. In addition, the Scottish Government will work with partners to:

⑦ **Build on the international profile and wider benefits of the Saltire Prize**

- ⑦ With the support of SDI, the Saltire Prize will encourage new international partnerships/ collaborations between academia and industry to bring ground breaking new marine renewable technology to Scotland. The Prize will also be used as a platform to promote information exchange on international renewables technology development, including and beyond marine renewables, and seek to leverage this to Scotland's advantage.

⑦ **Develop the International Lifelong Learning Strategy further**

⑦ **Strengthen Scotland's international reputation for science by:**

- ⑦ Integrating science in wider activity to improve Scotland's standing in the Anholt Nation Brand Index, and by developing core messages for use by a wider range of individuals (including travelling scientists and Global Scots) able to represent Scotland and capitalise on opportunities to enhance marketing of Scotland's science reputation.
- ⑦ Exploring opportunities to enhance the international profile of existing scholarship initiatives through consolidation and common marketing. This will also help attract and retain international science talent to Scotland.
- ⑦ Considering opportunities for international partnership and co-funding of research in key areas of research such as health, climate change and sustainable energy.
- ⑦ Encouraging greater partnership within the science base in Scotland to enable a stronger contribution to development and poverty reduction.

⑦ **Promote increased science interchange with the EU by:**

- ⑦ Encouraging scientists to participate in existing *stagiaire* secondment opportunities in the EU.



Raising Scotland's profile and ensuring that more scientists have relevant experience and are better able to influence policy.

- ⑦ Encouraging Scottish universities, research institutes, companies and other organisations to make full use of EU opportunities for collaborative working and exchanges of best practice.

CONNECTIONS IN SCOTLAND AND IN GOVERNMENT

17. Government will increase activity, including themed conferences and smaller events, to promote improved connectivity within Scotland. This will help disparate parts of the science base – across business and academia – to come together to discuss progress and prospects focused on Scotland's needs, and to promote collaboration and linkages between these areas.

Government will also continue to draw on the independent advice of the Scottish Science Advisory Council to reflect the views of the science community and to identify new opportunities and challenges.

18. In pursuit of greater efficiency and effectiveness and to improve arrangements for science in government, Government will:

- ⑦ **initiate a cross-cutting review of Scottish Government science and research expenditure to inform the next Spending Review;**
- ⑦ **improve collaboration and identification of strategic opportunities for key science industry sectors to lead global markets by:**
 - ⑦ Redefining the role and membership of an existing inter-agency group in order to support proactive and improved joint assessment of strategic investment options. The group will work very closely with business representatives on industry advisory boards and others to identify emerging strategic opportunities to lead global markets through the capacity of the science and business base in Scotland.

⑦ **Continue to develop effective funding and organisational structures by:**

- ⑦ Looking for opportunities to enhance collaboration between all those public bodies in receipt of funding for research, knowledge exchange and innovation.

CALL TO ACTION

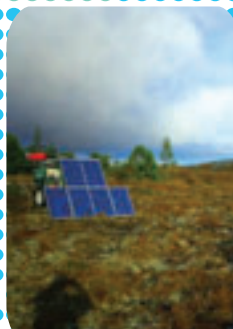
19. Achieving the vision set out earlier depends on all of the individuals and organisations that make up the science base in Scotland – in the public, private and voluntary sectors. The focus of previous sections has been on what Government will do. This section lists a number of shared challenges. It is not exhaustive or prescriptive, but it is a call to action.

Local Authorities and schools should:

- ⑦ Take forward robust implementation of science elements of *Curriculum for Excellence* in primary and secondary schools, and work with colleges and universities to produce and sustain effective, articulated learning pathways for learners.
- ⑦ Engage with science CPD programmes and *Determined to Succeed* links to the world of work.
- ⑦ Use *Do something creative*, *Do science* and *The Path is SET* material to encourage young people to study science.

Colleges should:

- ⑦ Support implementation of the science elements of *Curriculum for Excellence* and the new Scottish Science Baccalaureate.
- ⑦ Enhance the match of skills, competencies and qualifications to the needs of science industries through flexible learning opportunities, tailored courses, vocational qualifications, and a wide range of task-orientated competency-based learning.
- ⑦ Increase their capacity further to work collaboratively with businesses to develop science skills and knowledge programmes which enhance personal effectiveness, technical ability, productivity and support sustainable business growth.



- ⑦ Work with universities to meet the needs of learners and employers through comprehensive integrated provision, science research and knowledge transfer, while promoting skills utilisation.
- ⑦ Work collaboratively with universities to enable a stronger contribution to international development and poverty reduction through harnessing an enriched combined capacity making possible increased 'research into results' and the securing of external funding from Scottish business, UK and international sources.
- ⑦ Enhance the range of work-based vocational learning, assessment and accreditation opportunities, working in partnership with employers and Skills Development Scotland.
- ⑦ Promote increasing participation in science, engineering and technology.

Universities should:

- ⑦ Support implementation of the Science Baccalaureate and science elements of *Curriculum for Excellence* in primary and secondary schools, and work with schools and colleges to produce and sustain effective, articulated learning pathways for learners.
- ⑦ Aim to better match science course provision to student and employer or sector demands and work with the Scottish Funding Council to address systemic barriers.
- ⑦ Work collaboratively with local businesses to respond to their needs and develop their capacity to use science, research and product development to deliver innovation and sustainable growth.
- ⑦ Grow the volume and economic value of research funding they secure from UK, EU and international bodies and business.
- ⑦ Work towards the *New Horizons* shared ambition for the university sector.
- ⑦ Work together and with HIE, SE and SFC to develop proposals for enhancing the way available IP is managed to optimise economic benefits for Scotland.

- ⑦ Work collaboratively with colleges to enable a stronger contribution to international development and poverty reduction through harnessing an enriched combined capacity making possible increased 'research into results' and the securing of external funding from Scottish business, UK and international sources.
- ⑦ Encourage scientists to participate in EU secondment programmes.

The Royal Society of Edinburgh should:

- ⑦ Progress its plans to establish a business-led Forum to explore ways in which business demand for the exchange of scientific knowledge and its investment in R&D can be stimulated.
- ⑦ Create an Education Committee to draw on the Society's fellowship and its partners to contribute authoritatively to the development of the science component of the *Curriculum for Excellence*, the Scottish Science Baccalaureate and the new qualifications framework.
- ⑦ Plan, with partners and the Scottish Government, a seminar designed to highlight the opportunities for the development of science provided by *Curriculum for Excellence*; and for opportunities for partnership with schools.

The Scottish Qualifications Authority should:

- ⑦ Ensure through a process of review that the content and assessment arrangements for science qualifications are both up-to-date and relevant.
- ⑦ Take opportunities offered by the development and promotion of Scottish Science Baccalaureates to encourage greater uptake of science in the later stages of secondary and enhance both links and transition between school, college, university and employment.

The Scottish Funding Council should:

- ⑦ Support research infrastructure which underpins existing and emerging world-class science.
- ⑦ Prioritise both research excellence and strategic knowledge exchange.



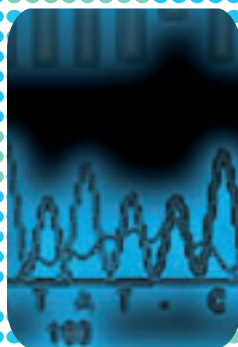
- ⑦ Increase support for knowledge exchange in order to support – with SE and HIE – industry-led strategic projects which will help key business sectors deliver increased and sustainable economic growth.
- ⑦ Work with colleges, universities and others to better match science course provision to student and business demand.
- ⑦ Work with universities to develop the research pooling model within available resources, by promoting inter-disciplinarity, knowledge exchange and the international profile of science in Scotland.
- ⑦ Support the development of research assessment arrangements which better recognise excellence in basic and applied research.
- ⑦ Work with Universities Scotland, HIE and SE to develop the sector's proposals for enhancing the way available IP is managed to optimise economic benefits for Scotland.
- ⑦ Work with colleges and universities to develop an enriched combined capacity for 'research into results' aimed at international development and poverty reduction and facilitate external resourcing from Scottish business, UK and international sources.
- ⑦ Support *Curriculum for Excellence* and the delivery of National Outcomes.
- ⑦ Work with colleges and universities to promote and support improved and more effective progression routes in science.

Scottish Development International should:

- ⑦ Target and grow inward investment which links the requirements of international businesses with the research excellence of Scotland's science base.
- ⑦ Work with the Office of the Chief Scientific Adviser and others to enhance the international marketing of science in Scotland and mobilise Global Scots and scientists to exploit their capacity to promote Scotland when travelling and working internationally.

Scottish Enterprise and Highlands and Island Enterprise should:

- ⑦ Encourage the commercial exploitation of scientific and technological breakthroughs that contribute to business growth in Scotland.
- ⑦ Direct increasing support to key business sectors, using business demand to define strategic projects focused primarily on sustainable economic growth for Scotland. (Many of Scotland's key business sectors are dependent on science based innovation for their growth opportunities.)
- ⑦ Assist science-based businesses to achieve accelerated growth by facilitating their access to investment and/or international calibre business management.
- ⑦ Directly assist businesses with growth potential in Scotland to identify, and to implement, science-based business innovation.
- ⑦ Nurture opportunities for co-creation of new scientific knowledge, which is of value to businesses in Scotland, by stimulating new demand led business-academia collaborations.
- ⑦ Work with key industries to identify emergent market opportunities where Scotland has world leading research capability and the potential to become a world player in its exploitation, and to work collaboratively with the business sector and agencies of Government to align public investment with these market opportunities.
- ⑦ Work collaboratively with Government and its agencies to assist in balancing the priorities for research excellence and strategic knowledge exchange, recognising that the latter is critical in realising exploitation in Scotland.
- ⑦ Work collaboratively with Government and its agencies to ensure that science and technology students are encouraged to develop entrepreneurial, business leadership and marketing skills.
- ⑦ Work with Government to influence the creation of the most appropriate fiscal, regulatory and taxation regime to stimulate business investment in R&D and innovation.



- ⑦ Work with Universities Scotland and SFC to develop the sector's proposals for enhancing the way IP is managed to help grow successful businesses and optimise the economic benefits for Scotland.

Skills Development Scotland should:

- ⑦ Support improved science skills utilisation, workplace innovation and business demand for science as part of skills, training and development skills.
- ⑦ Support and build on the *Do something creative, Do science* marketing campaign by developing and sustaining a new, national careers programme – *The path is SET*.
- ⑦ Work with businesses and learning and training providers to foster improved management, marketing and product development (the D in R&D) skills and capacity in Scotland.
- ⑦ Work jointly with SE and HIE to gain better business intelligence on what businesses require in terms of science for shaping skills and training interventions.

SEMTA should:

- ⑦ Establish a science skills forum to engage stakeholders and delivery partners and to improve collaboration and responsiveness to changing cross-sectoral skills requirements.
- ⑦ Develop an MA in Life Sciences to help support the growing need for technicians to support industry and monitor stimulation provision in other science areas.

Businesses in Scotland can and should:

- ⑦ Deliver profitable business growth using science as a source of product and process innovation to build competitive advantage in existing and emergent markets.
- ⑦ Articulate the science and innovation challenges which key business sectors face in delivering to upcoming customer and market needs – thereby setting key challenges to which the science base can be asked to respond.
- ⑦ Be more ambitious and demanding consumers of Scotland's capabilities in science and research.

- ⑦ Work with Scottish Enterprise, Highlands and Islands Enterprise, industry advisory boards, colleges, universities and others to build capacity to use science and innovation to deliver economic growth across Scotland's key business sectors.

- ⑦ Engage in business-with-business and business-academia research collaborations, as appropriate, recognising that collaborative approaches can deliver increased benefits through sharing of knowledge, resources, costs and risks in delivery of the strategic research that underpins future product and process innovation.

- ⑦ Develop and enhance the management, marketing and product development (the D in R&D) skills and capacity within Scotland's businesses.

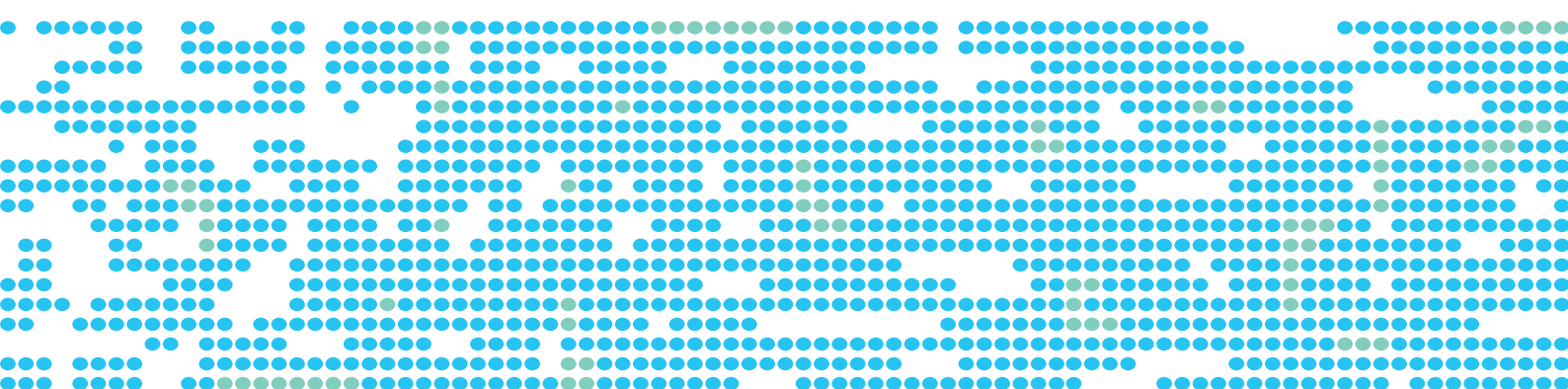
- ⑦ Support science education in schools by helping to develop *Curriculum for Excellence*, supporting teacher CPD or joining the Science Ambassador programme.

- ⑦ Work with universities and colleges to ensure that Scotland's student population is aware of (and is inspired by) the challenges, opportunities and rewards of a career within a science-based key industry.

20. Detailed implementation of *Science for Scotland* will be driven forward and monitored through:

- ⑦ The National Performance Framework, and Scottish Government's corporate and business planning arrangements.
- ⑦ The corporate and delivery planning and reporting arrangements in place in respect of key bodies such as Scottish Enterprise, Highlands and Islands Enterprise, the Scottish Funding Council, Scottish Development International, NHSScotland, Skills Development Scotland and Rural, Environmental and Marine Delivery partners.

21. Each individual public body must review their detailed performance metrics – relating to for example the scale, impact and outcomes of improved knowledge exchange – to ensure they remain fit for purpose over time in terms of accountability and delivery.





The Scottish
Government

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