



Department of

**Enterprise, Trade
and Investment**

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**Consultation
Strategy
Progress**

The Regional Innovation Strategy for Northern Ireland

**Action Plan
September 2004 to August 2006**

Stimulating
innovation
enterprise and
competitiveness

**Department of Enterprise,
Trade and Investment**

The Regional Innovation Strategy for Northern Ireland

**Action Plan
September 2004 to August 2006**

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EQUALITY IMPLICATIONS

DETI is fully committed to the fulfilment of its Section 75 statutory obligations as set out in its revised Equality Scheme.

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think | create | innovate:
The Regional Innovation Strategy
for Northern Ireland

Executive Summary

1

INTRODUCTION

“think|create|innovate: The Regional Innovation Strategy for Northern Ireland” (RIS) was published in June 2003 to provide a coordinated and consensual framework for the creation of a globally competitive, innovation-driven regional economy in Northern Ireland. This RIS Action Plan is designed to sustain and lead that agenda through to August 2006.

PRESENT STATE OF R&D AND INNOVATION IN NORTHERN IRELAND

Northern Ireland has many components of a competitive innovation economy including: a high quality Higher and Further Education system; two universities carrying out world-class R&D; a developed innovation infrastructure; and some of the most innovative companies in the UK. Northern Ireland’s general expenditure on R&D (GERD) in 2003 was £261.8 million, of which £121.3 million (46%) was business expenditure (BERD) and £127.8 million (49%) was higher education expenditure (HERD). It is encouraging to note that between 1996 and 2003 there was a real terms increase in BERD of some 8%, and that HERD in 2003 was up 20.2% on 2002.

However, during 2003, intramural R&D expenditure (that which is carried out within companies) as a proportion of Gross Value Added (GVA) was 0.53%, placing Northern Ireland only eleventh out of the twelve UK regions, and at less than half the UK average (1.4%) for intramural BERD against GVA. Indeed, between 2002 and 2003 there was a real terms decrease in BERD of 24.7% (from £161 million to £121.3 million), although this can largely be explained by the cyclical nature of private sector investment in R&D and the fact that the 10 largest R&D intensive companies in Northern Ireland have a disproportionate influence on the calculation of the regional R&D statistics. Indeed, excluding these 10 firms, there is some evidence that a diversification of the research base is taking place, with the R&D spend among medium-sized SMEs increasing by 28% between 2002 and 2003.

R&D AND INNOVATION CHALLENGES

Challenges include the large proportion of SMEs, particularly at the smaller end of the scale, which are not directly engaged with R&D, the region’s comparative peripherality and small size, and

ongoing industrial restructuring. To overcome these, the recent A D Little report “Research & Development Business Expenditure in Northern Ireland”, commissioned by DETI, suggests that:

- Key stakeholders in the innovation economy should be encouraged to work together to foster a greater number of more robust HE/FE-Business and Business-Business interactions;
- Greater focus is needed on developing the key people, skills and training for the innovation economy;
- Companies, especially SMEs, should be encouraged, by a variety of means, to invest more in R&D and to adopt more innovative business practices.

RIS VISION

The Vision, as stated in the RIS, is:

“To create a culture and environment within which Northern Ireland will prosper by using its knowledge, skills and capacity to innovate”.

REGIONAL INNOVATION STRATEGY ACTION PLAN SEPTEMBER 2004 TO AUGUST 2006

Northern Ireland’s future economic success requires a coordinated partnership between the universities, FE Colleges, businesses of all sizes, and the public sector to exploit and commercialise its unique R&D and innovation capabilities. This Action Plan for the period September 2004 to August 2006 provides an orchestrating framework through which greater

focus can be applied to the creation of a globally competitive, knowledge driven economy in Northern Ireland.

In this RIS Action Plan there are 6 key areas for action with a number of key action points associated with them. These action areas, and some key actions, are:

Resourcing R&D & Innovation

- Develop funding for those areas of university research activity that have the potential to realise commercial benefit.
- Reinvigorate the NI Foresight Programme.
- Encourage the development of innovative and creative content by the NI Creative Sector to take advantage of 100% broadband coverage.

Supporting Knowledge & Technology Transfer

- Coordinate technology transfer and the commercialisation of university R&D.
- Work with universities and FE colleges to enhance and promote consultancy services available to SMEs and microbusiness.
- Develop proposals for a technology transfer facility for the HPSS and other public sector research in Northern Ireland.

Developing Awareness of Intellectual Property Management

- Ensure that relevant information on Intellectual Property (IP) is provided to Invest NI clients, taking account of UK wide model IP contracts which will be adapted for use in Northern Ireland.

Leading the Regional Innovation System

- Establish a Regional Science-Industry Council (RSIC) or equivalent.
- Establish niche areas in the agreed Priority Technologies.
- Promote use of all aspects of design.

Promoting Cross-Sectoral Collaborations

- Improve collaboration between HE, FE and local businesses at sub-regional level.
- Work to develop the R&D and innovation infrastructure in the western counties of Northern Ireland through a pilot programme aimed at microbusinesses.

Enhancing Interregional Collaborations

- Review and enhance links with strategic innovation partners across the UK, Ireland, EU and beyond.

KEY FUTURE PRIORITY TECHNOLOGIES

Resources will be principally concentrated on niche areas within key broad generic technologies for which Northern Ireland has the relevant skills, people and institutions to be internationally competitive and from which it is considered that Northern Ireland can derive the greatest economic benefit. Based on existing research, recent innovation and technology policy developments, and the views of key stakeholders, the broad generic technologies have been identified as:

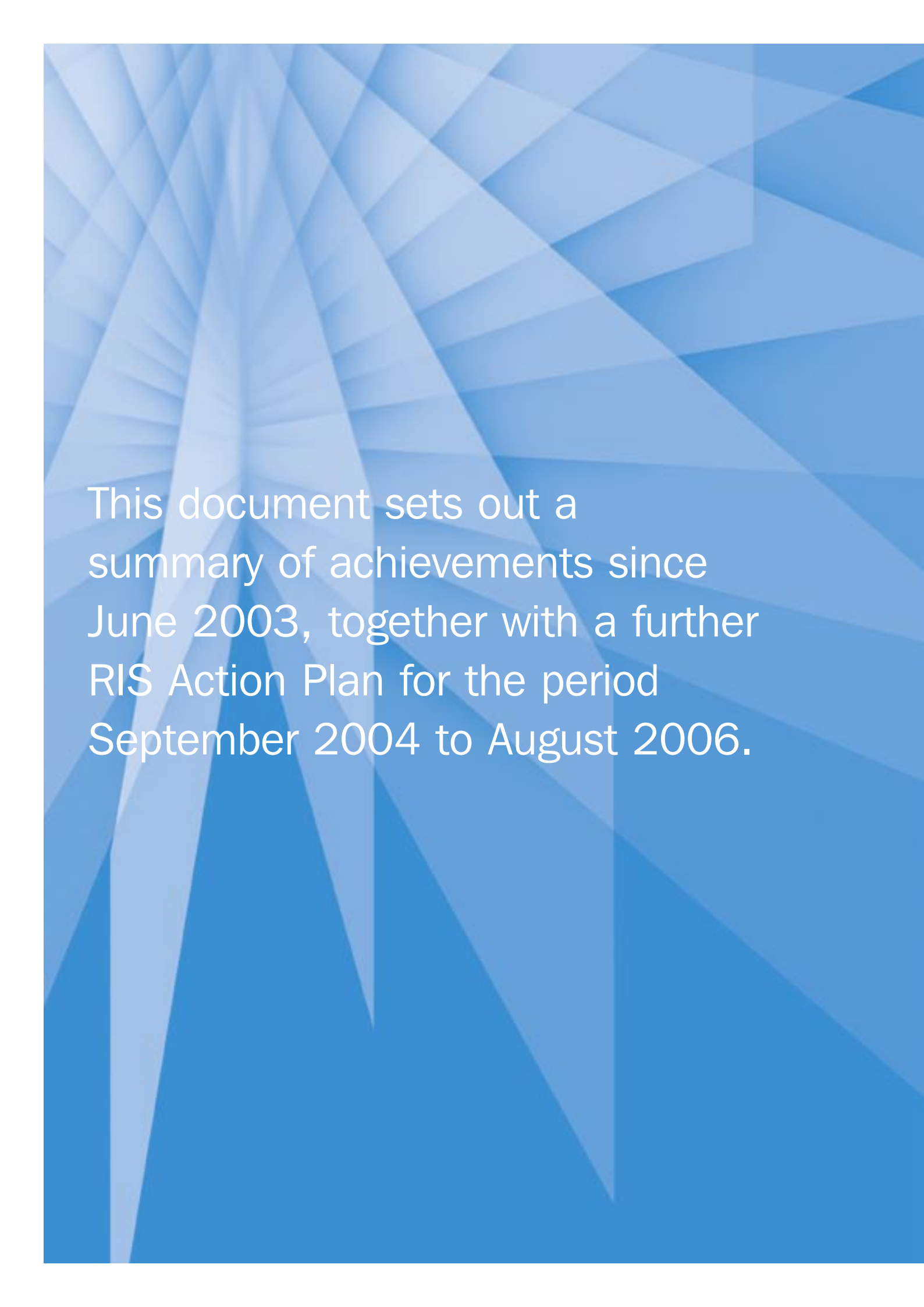
- Information & Communication Technologies.
- Life Sciences (encompassing Biotechnology).

- Aerospace Technologies.
- Nanotechnologies.
- Agri-food Technologies.

Selecting and exploiting specific niche areas within each of these fields will ensure that Northern Ireland derives the maximum economic benefit from its suite of unique high-technology capabilities.

CONCLUSION

While the increase in Northern Ireland HERD between 2002-03 is a positive development, the contemporaneous decrease in BERD suggests that the region does not yet have a critical mass of innovative firms. Therefore, this RIS Action Plan will direct its efforts onto those areas of activity which are of demonstrable significance to Northern Ireland's competitiveness as an innovation economy, and which will involve the coordination and collaboration of all the key partners - Government, business, and education/academia. Special emphasis will be put on developing the interface points between R&D, skills development, creativity, innovation in its broadest sense, and commercialisation. This RIS Action Plan sets out the means by which we intend to achieve this.



This document sets out a summary of achievements since June 2003, together with a further RIS Action Plan for the period September 2004 to August 2006.

Regional Innovation Strategy Action Plan

September 2004 to August 2006



INTRODUCTION

“think|create|innovate: The Regional Innovation Strategy for Northern Ireland” (RIS) was published in June 2003. Its primary purpose was to provide a framework for the creation of a globally competitive, innovation-driven regional economy in Northern Ireland and it was developed with the active participation and the consensus of all the key regional stakeholders and partners.

This document sets out a summary of achievements since June 2003, together with a further RIS Action Plan for the period September 2004 - August 2006. The actions as set out here will be continuously monitored and assessed over the next 2 years, culminating in a complete root and branch review of the RIS’ effectiveness in adding value to the Northern Ireland R&D and innovation infrastructure in September 2006.

It was originally intended that the Action Plan would be published by September 2004. The majority of the actions were agreed within this timescale and

implementation was set in train; but publication of the Plan was postponed to allow further consideration of the implications of research, commissioned by DETI and carried out by Arthur. D. Little Ltd, into business expenditure on R&D (BERD) in Northern Ireland. The delay also provided an opportunity to consult further with key stakeholders, including the University of Ulster, Queen’s University Belfast and the Northern Ireland Business Alliance. The Department’s response to the A D Little report is now set out in Annex A.

PRESENT STATE OF R&D AND INNOVATION IN NORTHERN IRELAND

Northern Ireland already has many key components of a competitive innovation economy. A high quality Higher and Further Education system provides a constant supply of well-qualified graduates and is increasingly focused on developing a better skilled workforce. The universities carry out world-class R&D in specific areas and have strong brand reputations nationally and internationally. Our network of FE Colleges is becoming ever

more coordinated and well-equipped to play a crucial role in the regional innovation system. The region can claim some of the most innovative companies in the UK, working across cutting edge, multi-disciplinary technology areas such as ICTs (including the digital media and creative industries), nanotechnologies, aerospace technologies, life sciences (encompassing biotechnology), and the agri-food sector. And elements of our innovation infrastructure are truly world-class, with assets like the extensive broadband network marking a clear commitment to investing intelligently in our future innovation economy.

The most recent data shows that Northern Ireland's general expenditure on R&D (GERD) in 2003 totalled some £261.8 million, of which £121.3 million (46%) was business expenditure (BERD), £127.8 million (49%) was Higher Education sector expenditure (HERD), and the remainder was miscellaneous Government expenditure (GOVERD). It is encouraging to note that between 1996 and 2003 there was a real terms increase in BERD of some 8% and that HERD in 2003 was up 20.2% on the 2002 level.

However, these figures must be set in context. Intramural R&D expenditure (that which is carried out within companies) as a proportion of Gross Value Added (GVA) in 2003 was 0.53%, placing Northern Ireland only eleventh out of the twelve UK regions (above London). Northern Ireland's intramural BERD against GVA is less than half the UK average of 1.4%. To reach this benchmark

Northern Ireland businesses would have needed to invest around £193 million more on R&D in 2003.

And the figures go further to reveal a real terms decrease in BERD between 2002 and 2003 of 24.7% (from £161 million to £121.3 million), although this can largely be explained by the cyclical nature of private sector investment in R&D and the fact that the 10 largest R&D intensive companies in Northern Ireland have a disproportionate influence on the calculation of the regional R&D statistics. Indeed, excluding these 10 firms, there is some evidence that a diversification of the research base is taking place, with the R&D spend among medium-sized SMEs increasing by 28% between 2002 and 2003.

The 2004 research report "Research & Development Business Expenditure in Northern Ireland" - prepared by Cambridge-based consultants A D Little Ltd on behalf of DETI - indicates that many of the perceived barriers to developing an internationally competitive innovation economy in Northern Ireland can be overcome by the coordinated action of the key stakeholders. Issues such as peripherality, the small size of the region, the large proportion of SMEs, ongoing industrial restructuring and a tradition of comparatively low levels of R&D investment are not insuperable challenges. The report's key recommendations lend support to the ongoing implementation of the RIS, and the main findings can be summed up in brief as:

- Key stakeholders in the innovation economy should be encouraged to work together to foster

a greater number of more robust HE/FE-Business and Business-Business interactions;

- Greater focus is needed on developing the key people, skills and training for the innovation economy;
- Companies, especially SMEs, should be encouraged, by a variety of means, to invest more in market focused R&D and to adopt more innovative business practices.

The report establishes a further platform of evidence to support and inform our key innovation policy initiatives aimed at improving BERD in particular and the innovation system in general. This RIS Action Plan takes full account of the report's findings, in the context of previous research and the ongoing consultation and liaison with our key partners and stakeholders. Therefore, through the RIS we are focusing on: improved funding for science; developing better incentives for knowledge and technology transfer; building innovation-driven networks and clusters; and intensifying the focus on Northern Ireland's knowledge and skills base.

The full A D Little report on BERD in Northern Ireland can be found on the DETI website (www.deti.gov.uk/BERD) and a detailed DETI response to the recommendations in the report is attached to this RIS Action Plan 2004-06 at Annex A.

RIS PROGRESS TO 30 JUNE 2004

As a result of the first RIS Action Plan, considerable

progress has already been made in several key areas. When it was published in June 2003, the RIS contained 103 deliverables under which there were 106 individual targets. Of these targets, just under half were to be delivered within the first year of the strategy's life; around 11% had completion dates beyond 2004/05; and the remainder were to be implemented on an ongoing basis.

Monitoring indicates that some 74 targets (70%) either have been or will be achieved within the prescribed timeframe, while a further 28 targets (26%) will be successfully completed with some slight slippage from the projected time scale.

Some of the most notable innovation initiatives promoted through the first RIS Action Plan include:

- the enhancement of the Support Programme for University Research (SPUR);
- the establishment of the Northern Ireland Higher Education Innovation Fund (HEIF);
- developing a pilot Proof of Concept Fund;
- establishing the Invest NI 'International Advisory Panel on Biotechnology';
- the ongoing development of the Northern Ireland Science Park (NISP);
- the establishment of 18 Research & Technological Development (RTD) Centres of Excellence, some of the most notable examples of which are:
 - Nanotec NI.
 - Electronic Communications & Information Technology (ECIT) Centre.
 - Centre for Functional Genomics & Molecular Biodiversity.
 - Integrated Aircraft Technologies.

And while these R&D and innovation initiatives add value to our high-level R&D and innovation capabilities, Invest Northern Ireland's complementary pre-competitive research, near market, and technology transfer programmes ensure that participation in the R&D and innovation system is made accessible to SMEs and micro-businesses across the region. These programmes include: Knowledge Transfer Partnership (KTP), which seeks to partner universities and graduates with some of the most innovative companies across cutting-edge multi-disciplinary technology areas, and has an annual target of 35 partnerships with 80% SME involvement; the recently launched Technical Advisory Service, which also provides SMEs with a valuable and accessible source of technical expertise; Compete; START; SMART, for businesses of less than 50 employees; and Product and Process Development (PPD), which is exclusively applied to small/micro-businesses. For the mainstream private sector Research and Development projects and activities undertaken in Northern Ireland, the START (Research) and Compete (Development) programmes have successfully leveraged approximately £20m of private sector investment during the first year of the RIS. The Invest NI "Innovation Service" will also facilitate the development of internal innovation processes in companies of all sectors and sizes, while encouraging the development of new knowledge and skills among employees.

A detailed account of activity during the first year of the RIS is set out in Annex B.

INNOVATION POLICY CONTEXT

Since the RIS was published we have continued to ensure that it is aligned with contemporary good practice and with current UK Government thinking on innovation. The most notable recent UK national innovation policy developments have influenced the future objectives and implementation of the RIS. These are: the Lambert Review of Higher Education - Business Links; the DTI Innovation Report "Competing in the Global Economy: The Innovation Challenge"; the DTI report on reform of the dual support system of research funding, "The Sustainability of University Research"; the UK Technology Programme and Technology Strategy; and the "10 Year Science & Innovation Investment Framework", which was announced by the Chancellor of the Exchequer as part of the Treasury Spending Review 2004, and which pulls together many of these themes.

In terms of Northern Ireland's regional economic and social development agenda the RIS has also been progressed in the context of the Economic Vision for Northern Ireland, the Economic Development Forum's Medium Term Strategic Priorities, DEL's "Further Education Means Business" Strategy, Invest NI's "Accelerating Entrepreneurship" and Creative Industries strategies, DCAL's "Unlocking Creativity" agenda, the work of DARD, DETI and Invest NI towards developing a vision for the agri-food industry in Northern Ireland, and the ongoing DARD modernisation programme.

Some of the most significant new proposals to emanate from these interactions include:

- The recognition that R&D and innovation policy planning and development requires a longer term view than traditional policy development has usually demanded;
- The planned establishment of new funding streams for business-relevant research, along with increased and improved 'third stream' (i.e. research at the point of commercialisation) funding for knowledge transfer from the universities;
- Business and universities to consider developing new model contracts and a protocol for Intellectual Property (IP) to speed-up IP negotiations;
- Efforts to be made to encourage new forms of formal and informal networks between business people and academics;
- Businesses of all sizes and across a range of sectors, together with the academic/education sector, to be encouraged to develop mutually beneficial networks and clusters;
- Interregional and international networks to be developed and enhanced to ensure that all R&D and innovation activities are benchmarked against comparators which are truly competitive internationally;
- The introduction of a transparent approach to costing (TRAC) accounting procedures for university research from September 2005, along with the concomitant requirement for Research Councils and other funders to pay for research on a full cost basis from April 2006;
- SMEs - especially at the smaller end of the scale - with less direct engagement with R&D and the high-technology sectors should be encouraged to adopt incremental innovation practices, focusing on service delivery and product/process development with a view to staying ahead of the competition.

NORTHERN IRELAND'S PRIORITY TECHNOLOGIES

As a small region, Northern Ireland does not have the capacity to play a leading role in every branch of science and technology. This RIS Action Plan therefore sets out to establish priorities through which we can generate real economic and social value, both in terms of building or maintaining expertise in Northern Ireland's universities, and in enhancing the competitiveness and innovation capabilities of our business sector. This does not rule out consideration and work in other areas that have the potential to contribute to the growth of a competitive economy.

Set out below is a list of priority generic technologies. These are based on existing research, recent UK innovation and technology policy developments, and the views of key stakeholders in

the public, private and education/academic sectors. These generic technologies are also considered to be of greatest relevance to the future growth of the Northern Ireland economy:

- Information & Communication Technologies.
- Life Sciences (encompassing Biotechnology).
- Aerospace Technologies.
- Nanotechnologies.
- Agri-food Technologies.

Northern Ireland has the relevant skills, people and institutions to be internationally competitive in these areas. It is a core objective of this two year RIS Action Plan to identify and exploit more specific niche areas within each of these technologies to ensure that Northern Ireland derives the maximum economic benefit from its suite of unique high-technology capabilities. Some key examples of planned and ongoing work are set out in Annex C.

RIS VISION FOR NORTHERN IRELAND

The RIS Action Plan for 2004-06 will concentrate resources on the areas and sectors that are likely to be of most future significance to the Northern Ireland economy.

It is recognised that innovation goes further than investment in cutting edge R&D in hi-tech companies. It encompasses all aspects of knowledge creation, adaptation and exploitation for commercial ends. So, while the high technology sectors will be to the fore, other major areas for targeted support have also been identified, including

the media & creative industries sector, all aspects of design, the promotion of innovative business practices to smaller firms, and the establishment of cross-sectoral business networks and clusters for firms of all sizes, to act as mechanisms for the transfer of knowledge.

It should also be noted that in the context of an SME dominated economy with evolving HE-Business collaboration, Northern Ireland's Further Education sector has an increasingly important role to play in creating the highly skilled and flexible workforce necessary to confront the challenges ahead. Therefore, all levels of industry and academia/education must be encouraged to work ever more closely together in the key sectors, across the whole region and at sub-regional level, to develop a fully interactive "Business Pull" and "HE/FE Push" dynamic.

More generally, to prosper as an innovation led economy, Northern Ireland must also be linked into the global knowledge base, networking interregionally and internationally, with innovative businesses, research organisations and universities in other parts of the UK, EU and beyond. It is only by benchmarking our innovation system's performance against credible comparator regions, and by exploiting mutually beneficial cross-regional partnerships that we can become truly competitive in the global marketplace.

In essence, the vision for the Regional Innovation Strategy continues to be: “To create a culture and environment within which Northern Ireland will prosper by using its knowledge, skills and capacity to innovate”.

Its four priorities remain:

- **Priority 1** - Create a Coherent R&D and Innovation Infrastructure in Northern Ireland;
- **Priority 2** - Enhance the Use of R&D and Innovation by the Business Sector;
- **Priority 3** - Develop a Culture of Innovation & Enterprise;
- **Priority 4** - Sustain the Regional Innovation Network.

RIS FUTURE IMPLEMENTATION

The key aims for the next 2 years will be directed onto those areas of activity which are of demonstrable significance to the region’s competitiveness as an innovation economy, and which will involve the coordinated and collaborative efforts of all the key regional innovation partners - Government, the business sector, the universities and the FE Colleges. These are:

- Increasing the transfer and adaptation of new technologies to business needs, by encouraging supply push from the colleges’ and universities’ research base, and by encouraging demand pull from the business sector;

- Setting agreed technological and sectoral priorities, of highest future economic potential, on which to focus resources;
- Encouraging and facilitating increased R&D expenditure by business with a view to closing the BERD gap between NI and the UK average;
- Developing stronger interregional collaboration and partnerships on the themes of R&D and innovation in order to develop new skills and to establish benchmarks for NI innovation and R&D performance against comparable best practice exemplars (UK, RoI and international);
- Raising levels of awareness of networking and helping to identify market opportunities across and between sectors and disciplines;
- Disseminating knowledge and technology through the transfer of people between businesses, Government and HE/FE institutions.

The approach in taking the Northern Ireland RIS forward, therefore, is to concentrate efforts on the interface points between R&D, skills development, creativity, innovation and commercialisation. This RIS Action Plan sets out the means by which we intend to achieve this.



Regional Innovation Strategy Actions

September 2004 to August 2006

3

RESOURCING R&D & INNOVATION

1. DETI/Invest NI and DEL will monitor the NI universities' activities under the HEIF Programme, which will run for three years commencing autumn 2004. The first evaluation will be commissioned in autumn 2006, with a view to aligning future 'third stream' activities ever more closely to the priority areas for Northern Ireland's innovation economy.
2. DETI/Invest NI, in consultation with DEL, will reinvigorate the Northern Ireland Foresight Programme from early 2005. It will become more tightly focused on identifying the key areas to enhance Northern Ireland's R&D and innovation base, and it will seek to anticipate the strategic priorities and key technologies which will impact on economic policy development in the region over the next 10 years.
3. DETI/Invest NI will audit the effectiveness of UK national innovation support programmes to business in Northern Ireland - and the region's links with DTI on innovation policy and related matters - by April 2005. Recommendations arising will be used to ensure that NI is fully engaged with UK policy development and that the R&D and innovation needs of NI businesses are being fully addressed - with particular regard to SMEs.
4. By May 2005 DETI/Invest NI will begin work with the Northern Ireland financial services sector to consider how they might develop more flexible and imaginative funding products for knowledge intensive businesses.
5. DEL will consider the most effective way to use the outputs of the new form of the UK-wide Research Assessment Exercise, which will next run in 2008, to fund university research for the benefit of the region. This will take into account the funding instruments put in place in other UK jurisdictions. DEL will commence this process by October 2005, the timescale beyond this being subject to the UK-wide RAE timetable.
6. DETI/Invest NI and DEL will work with DFP to secure the necessary resources for permanent 'third stream' funding in Northern Ireland's universities (based on UK proposals set out by the Chancellor on 26 January 2004 and HM

Treasury's "Science and Innovation Investment Framework 2004-14" published in July 2004). The resultant programme - to commence with the conclusion of NI HEIF in July 2007 - should be fully developed by April 2007.

7. DETI will take the lead in encouraging the development of innovative and creative content by the NI Creative Sector to take advantage of 100% broadband coverage. Working with Invest NI, DCAL and in partnership with the private sector we will commission a range of flagship broadband content projects. The objective will be to develop collaboration between companies and the creation of virtual clusters focusing on the development of commercially viable broadband content for global markets. Preliminary meetings will take place by December 2004 with a view to commissioning content by April 2005.
9. From April 2005, DETI/Invest NI and DEL will begin work with the universities and FE colleges to consider how best to exploit their expertise and experience as an advisory service to Northern Ireland business, including SMEs and micro-businesses. Extending the deployment of KTP or similar initiatives will be a key part of this process.
10. A new DARD NDPB - the 'Agri-food & Biosciences Institute' - will be established to carry out R&D in areas such as agri-food, bioscience and veterinary science. An independent expert advisory panel will be established to advise on DARD funded R&D. The "Agri-food & Biosciences Institute" and the advisory panel will be in place by April 2006.
11. HPSS R&D Office - as a participant in the UK Clinical Research Collaboration - will contribute to bringing together the HPSS (NHS), MRC, Medical Charities and industry to speed up the development of new medicines, treatments and diagnostics from the laboratory to the clinic, with benefits to both the region's health and wealth. This process to be established by 31 July 2006.

SUPPORTING KNOWLEDGE AND TECHNOLOGY TRANSFER

8. DETI/Invest NI, DEL, UU and QUB will work together to agree a coordinated approach to technology transfer and the commercialisation of university R&D based on the key technologies and economic priorities for Northern Ireland's innovation economy. The agreed approach will also inform the prioritisation of funding for 'third stream', relevant additional R&D programmes, and technology transfer activities. These partners will - by August 2005 - agree a set of clear, common principles to establish the role of the respective partners and to ensure that the universities' technology transfer activities are ever more closely related to the agreed regional priorities.
12. By 30 June 2005, DHSSPS/HPSS R&D Office, DARD, and DETI/Invest NI will bring forward proposals, for consideration by the IDWG, for a technology transfer facility for the HPSS and other public sector research in Northern Ireland, including the "Agri-Food and Biosciences Institute".

DEVELOPING AWARENESS OF INTELLECTUAL PROPERTY MANAGEMENT

13. Invest NI will ensure that its Client Executives are trained to provide relevant information to its clients on Intellectual Property (IP) related matters. DETI/Invest NI and DEL will bring forward proposals for promoting the use of the DTI's "Lambert Model Agreements" (a HMT and DTI initiative to support and facilitate research collaboration across the UK) in Northern Ireland during March 2005.

LEADING THE REGIONAL INNOVATION SYSTEM

14. DETI/Invest NI and DEL will establish a Regional Science - Industry Council (RSIC) or equivalent for Northern Ireland (as recommended for all UK regions in the DTI Innovation Report) during 2005. Preliminary proposals for establishing the RSIC or equivalent will be developed by April 2005.
15. Information & communication technologies, life sciences, aerospace technologies, nanotechnologies, and the agri-food technologies have been identified as the key broad generic technologies that have the most potential for adding value to the Northern Ireland innovation economy. By April 2005 proposals will be developed by IDWG to work towards the identification of specific niche areas within these technologies upon which support for R&D should be focused, with appropriate consultation with key partners and stakeholders from business and academia . Some key examples of already planned and ongoing work are set out in Annex B.
16. The effectiveness of this 2-year RIS Action Plan in adding value to the Northern Ireland regional innovation system and infrastructure will be monitored and assessed on an ongoing basis. A full "root and branch" review of the Regional Innovation Strategy will begin in January 2006 to ensure that it remains future focused and continues to lead the regional innovation and R&D agenda into the longer term.
17. DARD and DHSSPS/HPSS R&D Office will bring forward proposals to IDWG for a detailed audit of their SET, R&D and innovation related activities, to identify areas of possible commercial potential, by December 2004. These pilot audits will be completed by April 2005, and IDWG will then seek to roll this out across Northern Ireland Government for completion by October 2005.
18. DETI/Invest NI (with ANIC, QUB, UU, the Business Alliance and the FSB as required) will audit the range of existing R&D and innovation networking programmes across Northern Ireland by May 2005. Specific focus will be placed on promoting innovation among SMEs. Recommendations for improvements will be brought forward for consideration by August 2005. These will include proposals for encouraging high-technology small/micro-businesses to engage more readily with the universities and FE sector, and for low-technology businesses of all sizes to become more aware of incremental forms of innovation, supported by the HE/FE sectors as appropriate.

19. From January 2005, DETI/Invest NI will implement an action plan to enhance the capability and use of design as a key innovation tool within Northern Ireland Business. Particular emphasis will be put on encouraging the use of design by SMEs.
20. By April 2005 IDWG will bring forward proposals for a cross-departmental strategy aimed at increasing the understanding and use of design in economic, social and cultural development.
21. In response to the DTI Innovation Report recommendation that UK Government will use its considerable purchasing power to become an exemplar of innovative public procurement and sub-supply management, DFP (Central Procurement Directorate) will implement DTI guidance on public procurement as a spur and exemplar to business.

PROMOTING CROSS-SECTORAL COLLABORATIONS

22. By June 2005 Business Alliance, UU and QUB will bring forward proposals for establishing a programme of regular secondments from business/industry to the Technology Transfer Office of each university.
23. By May 2005 DETI/Invest NI, DEL, ANIC, UU, QUB and Business Alliance will bring forward practical proposals to improve the collaboration between HE, FE and local businesses at sub-regional level. Local business representative bodies and specific FE colleges will be engaged as appropriate.

24. From January 2005, in the western counties of Northern Ireland, DETI/Invest NI, in partnership with the Northern Ireland Business & Innovation Centre (NORIBIC), will work to enhance the innovation infrastructure and promote a range of innovation and R&D activities to approximately 800 micro-businesses through a pilot innovation programme. It will also seek to increase and stimulate awareness of the business potential of the information society and to stimulate the development of "new economy" businesses in the western counties of Northern Ireland.

ENHANCING INTERREGIONAL COLLABORATIONS

25. Commencing February 2005, DETI will review and enhance links with strategic innovation partners across the UK, Republic of Ireland and European Union. Interregional networks- both national and international - will continue to be developed to ensure that Northern Ireland is aware of current best practice in R&D and innovation, and can benchmark its overall innovation performance against comparable regions competing in the global economy. Specific partners for future collaboration will include: ONE North East (NE England RDA); the UK Regional Innovation Science & Technology Group; DTI/OST and other UK Government representatives as appropriate; InterTradeIreland; Republic of Ireland innovation partners and appropriate officials; and the Innovating Regions of Europe (IRE) Network. The finalisation of the agreement of the US Research Partnership will play a key role in increasing the level of collaborative R&D among researchers and industry in Ireland (North and South) and the US in the broad areas of ICT and Biotechnology.

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BERD Report Policy Response

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Glossary of Terms

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“RESEARCH AND DEVELOPMENT BUSINESS EXPENDITURE IN NORTHERN IRELAND - A COMPARISON WITH THE UK AND OTHER INTERNATIONAL REGIONS.” BY A.D. LITTLE

DETI RESPONSE

BACKGROUND

The DETI Corporate Plan for the period 2002-2005 committed the Department to creating a policy making capacity based firmly on a robust evidence base, supported by a quality research agenda and a rigorous policy evaluation programme. A comprehensive research and evaluation protocol was developed to ensure that commissioned research and available evidence is used in a systematic fashion to inform policy making.

One of the first pieces of research to be undertaken by the Department under the new arrangements was an investigation of the structural factors affecting business expenditure on R & D (BERD) in Northern Ireland, with the purpose of helping to guide the development of Northern Ireland's Regional Innovation Strategy (RIS) Action Plan for September 2004 to August 2006. This was carried out by consultants Arthur D. Little Limited (ADL). Their report has strongly influenced the development of the RIS Action Plan, and will continue to provide a platform of evidence to guide its implementation and evaluation over the next 2 years. The research has also brought forward a number of new or revised policy options aimed at

improving R&D Business Expenditure in the region, and these are now either incorporated into the RIS actions or are being used to develop policy in key areas.

The full ADL BERD report may be found on the DETI website at www.detini.gov.uk/BERD.

POLICY CONTEXT

The ADL report has validated and reaffirmed the basis on which DETI's R&D and Innovation policy for Northern Ireland's economy has been built since the June 2003 launch of the RIS. The research evidence has highlighted that the key challenges in encouraging continuous growth in BERD in Northern Ireland are diverse: the size of the region; its perceived peripherality; the SME dominated industrial structure; the highly specialised nature of the region's economy; and a general lack of entrepreneurship. It also establishes that these challenges need not be insuperable barriers to effective action to build a knowledge-based economy, and it deploys analyses of comparator regions, such as Southern Sweden, North East England, and Queensland (Australia) to establish benchmarks and set out proposals as to how Northern Ireland might address these issues. The experience of these comparator regions suggests that policies aimed at increasing the level of BERD in Northern Ireland are key to developing an internationally competitive knowledge-based economic infrastructure.

BERD REPORT RECOMMENDATIONS & INNOVATION ACTIONS

ADL's recommendations have influenced the development of the RIS Action Plan. Some of them are also being addressed through other policies and programmes. An indication of what is being done under each of the recommendations is given below:

(1) Rationalise the methods for telling business about support schemes, and improve the promotion of the schemes

- ADL found that the lack of awareness of applicable innovation and R&D support mechanisms that are available to companies appears to be distinct from general awareness of innovation support.
- DETI/Invest NI will continue to provide an "Innovation Service" to client companies from high and low technology backgrounds and to businesses of all sectors and sizes, who can demonstrate potential for external growth. This programme will assist companies in the identification and implementation of innovation opportunities. It will also facilitate the development of businesses' internal innovation processes and encourage the development of skills in the workforce and the transfer of knowledge to employees.
- Invest NI's Technology Executives will play an increasing role in providing advice on the range of support available to businesses for R&D,

from other sources as well as from Invest NI and a marketing and communication strategy has been developed to take this forward. A focus on the use of client teams to work with businesses will also assist in the holistic application of R&D within the wider development needs of the business.

- On the supply side DETI/Invest NI is engaged as part of the RIS in an audit to identify the range of R&D support interventions available (e.g. RIS Actions 3,8 & 18). This will inform future rationalisation of support. On the wider awareness front, Invest NI is currently involved in the development of a Publicity Action Plan to raise specific awareness of the range of National R&D Programmes that can be accessed by NI businesses. This includes targeted promotional activities linked to the next round of the UK wide Technology Programme Competition for funding and will build on the regional awareness days that were previously poorly attended by NI businesses.

(2) Sharpen the focus of some of the priority clusters

- ADL recommend that DETI should consider carefully the niche areas in which it already enjoys a competitive advantage over other European or international regions and decide how resources can best be used to support these.

- The RIS Action Plan has identified information & communication technologies (ICT), life sciences, aerospace technologies, nanotechnologies, and the agri-food technologies as the key broad generic technologies that have the most potential for adding value to the NI innovation economy. By April 2005 detailed plans will be developed by the RIS Inter-Departmental Working Group (IDWG) - in consultation with appropriate partners and stakeholders - to identify specific niche areas within these technologies upon which support for R&D should be focused. This will be an important part of the work to be taken forward by the Science - Industry Council or equivalent proposed in the RIS Action Plan. (e.g. RIS Actions 14 & 15).
- Fundamental to promoting enhanced levels of R&D within these sectors has been the formation of 18 Research and Technological Development Centres of Excellence, with centres established in the ICT, nanotechnology and biotechnology and life-sciences sectors.
- In the food sector, DETI/Invest NI and DARD have been actively involved in the development of a strategy that will seek to maximise future growth for this sector. Additionally Invest NI is engaged with key stakeholders in the food sector in the development of a Food Foresight initiative which will seek to identify future trends in the sector and will complement the work on the Food Strategy Implementation Partnership (e.g. RIS Actions 2 & 10).

(3) Rebalance the emphasis placed on different qualification levels

- ADL suggest that the need for applied or technical skills to enable graduates to make the best of their qualifications is not being fully met. They cite the Knowledge Transfer Partnership (KTP) scheme, which places graduates within companies to promote knowledge transfer and develop practical skills, as an effective example of how this can be achieved.
- DETI, Invest NI and DEL are working with the universities to ensure that the potential of KTP to provide a 3-way benefit to the universities, businesses and the participating graduates is fully realised, both by raising awareness and ensuring that KTP, as it operates here, is fully aligned to NI's strategic priorities. As part of the on-going development of KTP, Invest NI has signed up to a new marketing strategy which will deliver a strong regional focus. A key objective of this marketing strategy is to broaden the range of businesses participating on the scheme, particularly into the service sector. A key emphasis will also be placed on the need to engage with the FE sector and to increase their participation on the programme as well as identifying more projects suitable for joint sponsorship arrangements, particularly with Research Councils. The proposed appointment of a KTP regional co-ordinator will provide a stronger profile for the programme in NI (e.g. RIS Action 9).

- DETI/Invest NI have been working with DEL to ensure that the skills pipeline in the priority sectors is fully addressed and is revised on an on-going basis dependent on the demand/supply situation (e.g. RIS Actions 5, 9 & 23).
- Within the wider Invest NI spectrum of support, actions have been taken within the priority sectors to invest in enhanced levels of training for staff. In the Biotech sector, for example, nine biotech businesses have development plans under the Company Development Programme (CDP) representing a total investment in training of almost £8m.

(4) Expand the criteria used to assess eligibility of applications from business and ensure a better match of conditions of use to the size of support given

- ADL consider that, although there is now plenty of proof of concept support available to university-based businesses and entrepreneurs, there does not appear to be appropriate funding that is readily accessible to wider businesses. They also recommend the introduction of tiered criteria to allow different approaches, depending on the level of funding sought.
- DETI and Invest NI have established a working group to analyse and address the difficulties faced by knowledge-based, high growth, high value-added companies in obtaining the type

and level of support needed from Invest NI.

One immediate action being taken by Invest NI is to introduce a standardised approach to small offers of assistance, which would permit a 'fast track' approach.

- In addition to the current range of support programmes for businesses wishing to engage in R&D, Invest NI has recently established the NITECH fund, which seeks to address an identified gap in the market by providing finance to aid the commercialisation of technology within new-start or existing businesses.

(5) Reward university - business initiatives that increase the level of applied R&D activity

- ADL consider that there are inadequate incentives for the results of university research to be applied to meeting user needs.
- To this end DETI/Invest NI and DEL have introduced a number of schemes. Examples are: (i) the Higher Education Innovation Fund (HEIF), to encourage HE institutions to increase their capability to commercialise new research and reach out to the needs of business and the wider community, with a clear focus on the promotion of wealth creation; and (ii) the Proof of Concept programme, which supports the pre-commercialisation of leading-edge technologies emerging from NI's universities by providing individuals and small groups of academics with pre-seed funding to enable them to prove a

base technology with the potential for commercial exploitation through the creation of a new spin out business or a license agreement (e.g. RIS Actions 1, 5, 6, & 8).

- DETI/Invest NI and DEL are monitoring the NI universities' activities under the HEIF Programme, which will run for three years commencing autumn 2004. The first evaluation will be commissioned in autumn 2006, with a view to aligning future 'third stream' activities ever more closely to the priority areas for NI's innovation economy. DETI/Invest NI, DEL, UU and QUB are also working together to agree a coordinated approach to technology transfer and the commercialisation of university R&D (e.g. RIS Actions 1,6 & 8).
- Invest NI does and will continue to support near market research in universities, where it can be proven that the outcome will result in an economic benefit to the NI economy, through its existing suite of R&D and Innovation support programmes.

(6) The devolvement of decision-making should be encouraged within relevant funding bodies

- ADL consider that funding required to support the needs of near market R&D is not delivered quickly enough.

- This is one of the issues being addressed by the steering group set up to consider the needs of knowledge-based businesses. DETI/Invest NI recognise that there is a need to challenge the existing appraisal procedures as part of the drive towards improving overall customer responsiveness. This has to be taken forward as a combined response by all parties involved in the approval process. Invest NI has also recently completed and reviewed a two year pilot Compete 'fast track' for ICT businesses to assist with more rapid commercialisation. The review of this programme was highly positive and will result in its continuation. Possible expansion to other sectors is under consideration.

(7) Publicise SME support schemes, and consider introduction of a voucher scheme to make university support more affordable

- ADL are concerned that the new requirement for universities to recover the full economic cost of research activities may damage knowledge transfer to SMEs.
- DETI, Invest NI and DEL have had on-going dialogue with the universities to discuss the implications of full cost recovery, and are also committed to working with the NI financial services sector to develop proposals for more imaginative funding products for R&D and innovation intensive businesses (e.g. RIS Actions 1, 4, 5, 6, 8 & 15).

- In respect of the recommendation to introduce a voucher scheme, DETI/Invest NI's view is that, in order for businesses to fully appreciate the value of R&D and the benefits that accrue from good research, subsidies should be kept to a minimum. Businesses also need to be aware of the potential to shop around to get the best deal for research. Access to university research need not be restricted to NI universities since better value propositions may exist elsewhere. Similarly, collaboration opportunities for the universities do not have to be limited to NI companies. (e.g. RIS Actions 18, 23 & 25).

(8) Identify and publicise company role models that can be used to increase aspirations within this group of companies

- ADL have identified a group of, mainly family-owned, businesses in NI, which are averse to the risk involved in expansion and the development of new activities.
- DETI/Invest NI fully accept the need to develop a culture in NI that is supportive of entrepreneurial and innovative behaviours. Comprehensive use has been made of role models and wide coverage is given to success stories in R&D. Award programmes such as SMART and Design and the bi-annual Innovation Awards are also important ways of raising awareness of how R&D can contribute to company growth.

- On the issue of the need to offer support to mitigate the risk of undertaking new R&D schemes, Invest NI is currently reviewing the possibility of introducing a Royalty Payment scheme instead of pure grant or equity support for R&D, to be paid in the event of successful commercialisation of the research.

(9) Introduce teaching of entrepreneurship in the school curriculum to engender this from an early age

- ADL comment that students from NI historically appear unwilling to pursue entrepreneurial careers in business.
- DETI and Invest NI, in liaison with DEL and DE, are committed to the incorporation of entrepreneurial knowledge and skills in the primary, secondary, FE and HE curricula. Invest NI has addressed this area extensively through the Accelerating Entrepreneurship Strategy. Modules on entrepreneurship are now included in the curriculum and initiatives such as Young Enterprise and Livewire seek to encourage young people to engage in entrepreneurial activity. Progress in this area is monitored annually through the GEM research project.

(10) Encourage cross-sector business development, and promote this work to regional business

- ADL also comment that poor linkages have existed between companies within sectors and between sectors and that this is an area where the public sector and bodies such as universities can provide an important additional element of support.
- DETI/Invest NI (with ANIC, QUB, UU, the Business Alliance and the FSB as required) have undertaken to audit the range of existing R&D and innovation networking programmes across NI. Recommendations for improvements will be brought forward for consideration in early 2005. These will include proposals for encouraging high-technology small/micro-businesses to engage more readily with the universities and FE sector, and for low-technology businesses of all sizes to become more aware of incremental forms of innovation, supported by the HE/FE sectors as appropriate (e.g. RIS Action 18).
- A range of initiatives exists within Invest NI to support cross-sector business development in areas of trade, business improvement and design. A number of specific cluster initiatives are currently taken forward by Invest NI under the RIS. Other cluster activity supported by Invest NI is the development of the ICT cluster in the Science Park.

(11) Celebrate success and offer funding after failure

- ADL suggest that the NI business community appears to place a great stigma on the failure of a new venture and that this fear of failure stifles innovation.
- Invest NI is about to launch a programme of publicity for R&D initiatives and ventures that will result in an increased profile for all Invest NI initiatives in this area.
- Companies that have failed are not barred from accessing future funding as long as they meet the criteria for support and have no outstanding legal or financial impediments to proceeding.

(12) Promote Staff Loyalty within NI to firms investing in the region

- ADL consider that the low level of staff turnover in NI companies is potentially a strong positive message for investors.
- Invest NI has a comprehensive marketing package to sell NI to potential foreign direct investment prospects. Reference to the loyalty of workers and the level of the skills base are both fundamental to the NI proposition.

CONCLUSION

Increasing the levels of Business Expenditure on R&D - along with enhancing Higher Education Expenditure on R&D and maintaining a high-quality R&D and innovation infrastructure - is a major component in developing a successful knowledge-based economy in NI. The ADL work will be a key point of reference during the implementation of the RIS Action Plan 2004-06, and it will provide a key evidence source and benchmarking tool during the ongoing review of the RIS Action Plan's effectiveness. Further contacts and collaborations with the comparator regions identified in the ADL work have been established - notably with NE England - and these will provide an invaluable means by which to communicate experiences and share policy guidance in areas of mutual interest. The DETI research agenda will also take forward specific studies deriving from the BERD report, and the analysis resulting from this work will continue to shape the development and implementation of innovation policy over the next 2 years and beyond.

Annex B

REGIONAL INNOVATION STRATEGY FOR NORTHERN IRELAND PROGRESS DURING FIRST YEAR OF IMPLEMENTATION

Some of the most notable achievements during the first year of the RIS implementation include:

- The launch of a £5 million pilot Northern Ireland Proof of Concept Fund in December 2003, aimed at academics, to provide pre-seed funding to prove the commercial potential of a base technology emerging from Northern Ireland's universities. 25 applications were made to the fund under the first call (closing date 31 January 2004), 9 of which have been supported;
- The establishment of the NI Higher Education Innovation Fund (HEIF). This £9m fund (£3m over three years) seeks to support university activity that increases their capacity to respond to the needs of business where this will lead to identifiable economic benefits. The first call for projects closed on 28 May 2004. Of the 18 proposals submitted, 14 have been selected for full or part funding;
- The development of the NITECH Growth Fund, to allow new or existing small to medium sized enterprises and public sector researchers to take an R&D project to proof of concept and commercialisation. The target was to have 25 participants in the fund by 31 December 2004. At June 2004, 4 investments had been selected for assistance, 2 of which have now been completed, and a further 7 proposals were under negotiation. While it is therefore unlikely that the target will be fully achieved by the target date, it is worth noting that although the number of projects submitted is less than anticipated, the levels of investment are higher than forecast;
- The establishment of 18 Research and Technological Development (RTD) Centres of Excellence, bringing the total of such centres in Northern Ireland to 40 (representing an overall investment of £170 million since 1991) and 13 Further Education Centres of Excellence. These centres include "Nanotec Northern Ireland", for the exploitation of the region's strengths in the fields of nanoscience and the nanotechnologies; the Electronic Communications and Information Technology (ECIT) Centre - a combined public, private and academic sector investment of some £38.7million in the converging fields of computing, digital communications and electronics; the Centre for Functional Genomics at the University of Ulster that has permitted the appointment in NI of leading scientists from across the globe; and, Integrated Aircraft Technologies, a new and major strategic research initiative on developing new technologies in aircraft engineering and modelling in a multidisciplinary environment. Other centres focus on disciplines such as automotive technologies; proteomics; pharmaceuticals; advanced engineering and informatics; hospitality and catering; construction and the built environment; and biomedical research;

- The Invest NI “International Advisory Panel on Biotechnology” held its inaugural meeting in June 2004. Comprising three distinguished members from the USA, one from New Zealand, one from the Republic of Ireland and two from Northern Ireland, this panel will provide advice and guidance to Invest NI on trends and developments within the biotechnology and medical device sectors. The panel members will promote Northern Ireland’s Biotechnology capabilities using their network of contacts through key individuals and organisations worldwide. They will identify opportunities for the sector in their respective areas as well as facilitate introductions that could lead to inward investment opportunities. Member’s expertise ranges from oncology to tissue engineering, venture capital and economic development. The panel will meet three times a year, both in Northern Ireland and internationally;
 - The excellent progress made in relation to the Support Programme for University Research (SPUR) projects. This initiative runs between 2001 and 2007 and will invest £94 million into the Northern Ireland university research infrastructure to increase the amount of research conducted that is of an international standard. 13 projects are being supported, including the £14 million Centre for Molecular Biosciences at UU and the £20 million Centre for Cancer Research at QUB. SPUR operates as a 50/50 partnership between DEL and Atlantic Philanthropies;
 - The establishment of the Clinical Research Support Centre and the progress that it is making in the area of clinical trials;
 - The ongoing work towards establishing DARD’s Non-Departmental Public Body - the ‘Agri-Food and Biosciences Institute’ - to undertake agricultural and related science services for both Government and the private sector, which continues apace; and,
 - The ongoing development of the NI Science Park (NISP), with the second phase of development now underway, including the construction of the new Whitestar Building in Belfast and an additional building on the UUSR site at the University of Ulster’s Magee campus. NISP will eventually occupy more than 420,000 sq ft and is expected to create more than 3,000 high quality jobs.
- There has been less progress in some areas**
Examples include:
- Participation in the 6th EU R&D Framework Programme (FP6). Evidence to date would suggest that there are lower levels of uptake within the NI universities. Invest NI is continuing to promote the programme as widely as possible and suggestions have been put forward for more streamlined administration of the next initiative under the 7th EU R&D Framework Programme which will run from 2006-2010;

- The uptake of R&D Tax Credits. This is a UK-wide problem and steps will be taken to encourage greater utilisation of the scheme by SMEs in the future. DETI remains closely engaged with HMT and DTI colleagues in looking for ways to address this matter effectively.

Outstanding activities which are considered to be achievable, to add value, and which meet the standards set by the most recent innovation policy planning have been revised and incorporated into the RIS Action Plan for 2004-2006. The specific examples above will be taken forward through renewed actions aimed respectively at enhancing Northern Ireland's participation and standing in interregional and international innovation networks, and at promoting new financial products and incentives for innovative businesses. Other actions will address important outstanding issues such as the promotion of all aspects of design for commercial purposes, and encouraging more commercial awareness in the public sector in addressing its own R&D and innovation investments.

Annex C

EXISTING INVESTMENTS IN THE PRIORITY TECHNOLOGIES FOR THE NI ECONOMY

The RIS brings greater focus, and adds value, to existing activities aimed at enhancing and developing our capabilities and national/international reputations in the priority areas of life sciences (encompassing biotechnology), nanotechnologies, agri-food technology, aerospace and ICTs. There are already considerable efforts and investments being made in these areas as set out below. It should be noted that while resources will principally be concentrated on these key technology areas, this will not rule out support for consideration and work in other areas that have the potential to contribute to the growth of a competitive economy. In particular significant investment has been made by Invest NI in the universities through both HEIF and Proof of Concept to promote higher levels of knowledge transfer and to support pre-commercialisation activity across a range of technologies.

Information & Communication Technologies

- The establishment of the Electronics, Communications and Information Technology Centre (ECIT) as a Centre of Excellence in ICT represents the single largest investment in leading edge R&D infrastructure ever seen in Northern Ireland. It will combine with the other RTD Centres of Excellence to enhance the market driven, technological capability within Northern Ireland industry and the universities. ECIT will

enable Northern Ireland to take full advantage of the fundamental changes in the electronic, telecommunications and computer industries in recent years.

Under the Invest NI START research programme, projects with some of the world's leading ICT companies are planned during the course of the next 12-24 months.

Nanotechnologies

- The RTD Centre of Excellence, Nanotec NI, is working towards a number of potential projects in the field of nanotechnologies. It is expected that these collaborative projects will involve leading edge companies and participation from both QUB & UU. Separately, facilitated by InvestNI, Nanotec NI has completed two nanotechnology missions in November 2004, the first to Beijing & Tokyo, followed by Taipei & Seoul. Invest NI's Foresight programme will play a key role in developing nanotechnology oriented networks, providing a coordination point, and ensuring that there is a continuous horizon-scanning element associated with the forward planning process in this area.

Life Sciences (encompassing Biotechnology)

- In the bioscience sphere, work is progressing on new collaborative research in fields of medicines and diagnostics. The establishment of an International Panel for Biotechnology will be instrumental in the strategic development by Invest NI of this sector. Under the Proof of

Concept programme, which supports the pre-commercialisation of leading-edge technologies emerging from Northern Ireland's universities, Invest NI has already committed £2million to 16 biotech and life science projects after only one year of the programme.

Within the Biotech Sector, Invest NI are supporting 5 Centres of Excellence to stimulate leading edge, industrially exploitable and commercially focused research.

Agri-Food Technology

- A number of agri-food projects are planned with both local and international businesses in collaboration with Northern Ireland's two universities. In addition, the recommendations of the Food Strategy group are also in the process of being implemented in terms of near market and applied research.

Aerospace Technology

- A number of START projects with leading Northern Ireland based companies will begin during the next 12 months, representing a significant investment in the aerospace and defence sectors.

In August 2005, the first International Conference on Innovation & Integration in Aerospace Technologies (CEIAT) will take place at QUB, with an array of internationally renowned experts as both speakers and attendees.

Annex D

GLOSSARY OF TERMS	
ANIC	Association of Northern Ireland Colleges
BERD	Business Expenditure on Research and Development
Business Alliance	Group comprising membership from Confederation of British Industry (NI), Institute of Directors (NI), NI Chamber of Commerce and Industry and the Centre for Competitiveness
CEIAT	Conference on Innovation & Intergration in Aerospace Technologies
Compete	Financial support programme to assist companies involved in developing innovative market-led products and manufacturing processes
DARD	Department of Agriculture and Rural Development
DCAL	Department of Culture, Arts and Leisure
DEL	Department for Employment and Learning
DETI	Department of Enterprise, Trade and Investment
DFP	Department of Finance and Personnel
DHSSPS	Department of Health, Social Services and Public Safety
DTI	Department of Trade and Industry
ECIT	Electronics, Communications and Information Technologies
EU	European Union
FE	Further Education
FP	Framework Programme
FSB	Federation of Small Businesses
GERD	General Expenditure on Research and Development
GOVERD	Government Expenditure on Research and Development
GVA	Gross Value Added
HE	Higher Education
HEIF	Higher Education Innovation Fund
HERD	Higher Education Expenditure on Research and Development
HMT	Her Majesty's Treasury
HPSS	Health and Personal Social Services
ICT	Information and Communications Technology
IDWG	Inter-Departmental Working Group
IP	Intellectual Property
IRE	Innovating Regions in Europe

GLOSSARY OF TERMS	
KTP	Knowledge Transfer Partnerships -a programme aimed at promoting the competitiveness of UK companies through collaborative partnerships with the UK knowledge base
MRC	Medical Research Council
NDPB	Non-Departmental Public Body
NHS	National Health Service
NI	Northern Ireland
NISP	Northern Ireland Science Park
NORIBIC	Northern Ireland Business and Innovation Centre
OST	Office of Science and Technology
PPD	Product and Process Development
QUB	Queen's University of Belfast
RAE	Research Assessment Exercise
R&D	Research and Development
RDA	Regional Development Agency
RIS	Regional Innovation Strategy
RoI	Republic of Ireland
RSIC	Regional Science-Industry Council
RTD	Research & Technological Development
SET	Science, Engineering and Technology
SMART	Financial support programme aimed at helping small companies and individuals develop innovative products and processes
SME	Small and Medium Sized Enterprise
SPUR	Support Programme for University Research
START	Financial support programme for technology based, industrially relevant, pre-competitive research
TRAC	Transparent Approach to Costing
UK	United Kingdom
UU	University of Ulster
UUSR	University of Ulster Science Research Park
USA	United States of America



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