

EDINBURGH NAPIER UNIVERSITY

RESEARCH, KNOWLEDGE TRANSFER and COMMERCIALISATION STRATEGY 2009-15 (Amended 01 March 2010)

VISION, MISSION and VALUES

Our vision is that by 2015 we will be established as one of the best modern universities in the United Kingdom for applied research and knowledge transfer with an international reputation for the quality of our output, the relevance of our commercial activities and the employability of our research graduates.

Our mission is to carry out research and knowledge transfer with both a strong international reputation and highly relevant to the economic growth, societal needs and cultural identity of 21st century Scotland. We will collaborate with other educational establishments regionally, nationally and globally to develop intellectual property for the benefit of industry, commerce and society in general. We will engage with small and medium sized businesses and assist in the process of innovation, company growth and wealth creation essential for the development of a strong and vibrant Scottish economy.

We will value creativity and innovation in all aspects of our research in the pursuit of excellence; we will value the potential of all of our postgraduate research students; we will value the skill and expertise of our academic, research and support staff engaged in the process of research and knowledge transfer; we will value relevance, responsiveness and will be demand-led and client-focussed; and we will value collaboration through pooling and similar joint initiatives to maximise our intellectual output and effective delivery throughout the innovation chain.

CONTEXT

The first comprehensive review of research strategy *Research and Scholarly Activity 2001-05* identified two principal objectives:

- to develop a culture of research and scholarship;
- to develop a limited range of pillars of research excellence in selected areas

The 2001 strategy can be considered a success in terms of research as demonstrated by the improvement in both output and quality as shown by the outcome of RAE 2008. In terms of pillars, two additional centres were added to the pre-existing Employment Research Institute and Transport Research Institute, these being the Centre for Timber Engineering in 2003 and the Building Performance Centre in 2005. The strategy, however, did not address the need to develop knowledge transfer and commercialisation, with the result that external income declined during this period.

The problems associated with KT and Commercialisation were investigated by a task group in 2004 and the recommendations incorporated in *Research and Knowledge Transfer Definitions*¹, *Policies*² and *Strategies* as part of the Strategic Plan 2004 -10.

Three aims were identified:

- To foster and support high-quality applied and near-market research
- To gain international recognition in selected areas
- To be a national leader in knowledge transfer

We have made good progress in achieving these aims, including implementation of a collaborative project with Queen Margaret University - designated 2kT - which has helped to develop applied and near-market research, particularly through the Scottish Enterprise Proof of Concept programme. We have achieved international recognition through the outcome of the RAE 2008, which demonstrates that 21% of submitted research at Edinburgh Napier University is rated as being either internationally excellent or world-leading, with a further 43% being recognised internationally. Furthermore, in all the areas in which Edinburgh Napier submitted entries, there is research being carried out which is internationally excellent, with six units of assessment recording world-leading activity. (Annex C)

Our aim to become a national leader in knowledge transfer is currently being developed through the 2kT project. Public policy continues to be supportive of research and knowledge transfer, with the Scottish Government's single overarching purpose of increasing economic growth aligning well with the University's strategy to develop its knowledge transfer and commercialisation capability, notably involving engagement with the SME sector. The case for increased collaboration between universities and industry has been well articulated recently in major reports such as the Sainsbury Report, *Race to the Top*, (Oct. 07), Scottish Government's *Engaging with the Economic Strategy*, (Dec. 07) and the UK Government's White Paper, *Innovation Nation* (Mar. 08). These documents were published prior to the current economic slowdown and the case for engagement with industry has since taken on a new urgency.

The launch of this Strategy will coincide with a deep world recession giving rise to significantly reduced global economic growth with unpredictable effects on demand. This may well result in a different industrial and commercial landscape in Scotland as elsewhere, with new opportunities for growth and innovation. The need for fiscal stimulus of the economy through increased government borrowing during 2008 and 2009 is likely to be followed by a prolonged squeeze on public expenditure during the whole of this Strategy period.

Notwithstanding the obvious fiscal constraints, the Scottish Funding Council has indicated its commitment to supporting the research base in Scottish HEIs and to ensuring that it is maintained to operate at the highest international levels. While Edinburgh Napier can expect a modest increase in grant support over the Strategy period, the decision by SFC to moderate the element of the Research Excellence Grant, involving *other activity indicators*, by applying the RAE score of a department as a multiplier, does create a significant loss of income, reduces flexibility and introduces constraints on the scope for investing in new areas of activity.

¹ Annex A - Definitions of Research and Knowledge Transfer

STRATEGIC DIRECTION

Research and Knowledge Transfer are essential functions of any successful university. Edinburgh Napier University has proven itself effective in the transfer of knowledge to business and society, and is recognised for the excellence and relevance of its research. We must ensure that Edinburgh Napier's excellent applied research continues to be translated through knowledge transfer and knowledge exchange, in partnership with the private and public sectors, into deliverables which have measurable impact upon, and benefit for, economy and society in Scotland, the UK and beyond. To this end, the University has closely aligned its strategic direction for research and knowledge transfer with that of the Scottish Government's Economic Strategy.

In November 2008, the Cabinet Secretary for Education and Lifelong Learning wrote a letter of Ministerial Guidance to the Scottish Funding Council requesting consideration of how outcomes for further and higher education in Scotland could support Scotland's key economic sectors (energy, financial and business services, food and drink, life sciences, tourism and creative industries) including shared working with Scottish Enterprise. The letter indicated: *that meeting the needs of Scottish business, especially those of micro businesses and SMEs, is important in moving Scotland's productivity into the top OECD quartile by 2017, even more important in the current economic climate.* Referring specifically to Research, Knowledge Transfer and Innovation the Minister wrote:

- **Re World Class Research:** *Scotland has an enviable record but we must continue to work hard at this and focus our resources so that we remain nationally and internationally competitive, globally engaged and continue to be regarded as 'world class' and have a number of universities ranked in the world's top performers.*
- **Re Knowledge Transfer and Innovation:** *You, the colleges and universities, SE and HIE must work together more effectively to ensure that Scotland increases the demand side 'pull' for new knowledge created in universities and delivers knowledge into the Scottish economy which creates additional wealth. Strong alignment between the Funding Council, the colleges, universities and other agencies in order to grow knowledge-based businesses of scale is required to take Scotland to the next stage. Our Economic Strategy sets out the key sectors which the Scottish Government believes have high growth potential and the capacity to boost productivity.*

From the foregoing it is clear that there is urgent acknowledgement in Government that the research excellence present in Scottish universities is not being transferred effectively into the Scottish industrial base, with the Scottish business community underachieving relative to the UK average in R&D performance. Expenditure in 2004 was only 3.8% of the UK total despite the number of employees with higher qualifications in Scotland being 14% above the UK average. Scottish companies

employ only 4.3 % of the UK R&D workforce; yet Scotland accounts for 8.5% of the population of the UK.

While Scottish Government, Scottish Enterprise and Highlands and Islands Enterprise have been proactive in supporting near-to-market research through the Proof of Concept and SMART initiatives, (Annex D) much needs to be done to improve Scotland's performance in the early stages of commercialisation. In other words, the task of transforming process-based manufacturing to product developers in the absence of intermediate technology institutes cannot and must not be underestimated.

Against this context, the Strategy now proposed places Edinburgh Napier University firmly at the interface between business and academia in terms of regional economic growth, particularly in support of the SME sector. In order to achieve this, we require to focus upon excellence and relevance in all that we do both in applied research and in KT; and we require to disinvest in areas of under-performance or low priority in terms of Scotland's economic and social needs. The Strategy also takes appropriate account of the key recommendations contained in the Final Report of the University's major Strategic Review, conducted in 2008-9, one strand of which focussed on *Increasing Commercial Income*.

Thus the University will:

- continue to reward excellence through a policy of incentivising the earning of commercial income, with contributing units receiving a proportion of the benefits for re-investment;
- review the operation of the links between the Research & Knowledge Transfer and Commercialisation functions and Financial Services with a view to ensuring that these are as efficient and effective as possible;
- reconsider the shape of the infrastructure to support, as well as the channels of access from external businesses into, the University's commercial activities' portfolio and commercial development expertise.

Within the framework of an improved and streamlined support and development function for Research & Knowledge Transfer and Commercialisation, we will focus our research translation and business facing activities on the priority sectors identified by Scottish Enterprise (Annex E). We will identify and invest in key knowledge transfer and exchange areas of economic, social and health policy research as well as supporting activity in our stronger areas of cultural and creative output (Annex F). We will use our SFC research and knowledge transfer grants strategically to build capacity and to ensure an appropriate balance of research leadership, research staff and research students in the areas selected for investment. The environment for Research and Knowledge Transfer within the University will be specifically designed to support innovation, foster creativity and reward achievement.

STRATEGIC OBJECTIVES

1) To foster and support high-quality applied and near-market research

We will aim to raise the international profile of our research, enhance our academic reputation and sustain a vibrant research culture that promotes research excellence and encourages enterprise and innovation. We will ensure that our research is responsive to changes in the external markets and wholly relevant to the economic, social and cultural needs of Scotland.

We will promote and develop cross-disciplinary research linkages, internally and with external partners in Scotland and throughout the world, linking to international centres of excellence through collaboration and strong partnerships. We will engage in pooling initiatives and joint collaborations, involving other universities and colleges, sponsored by the Scottish Funding Council's Horizon Fund.

We will aim to increase our external income for research by developing a greater diversity of funding, with particular emphasis on seeking grant support from the EU and from international aid-funding agencies such as the UN and World Bank. We will ensure that the procurement and operation of the EU research projects is closely harmonised across the University.

All of this must continue within the context of an economic downturn which makes it even more essential that research excellence at Edinburgh Napier University, is translated - through knowledge transfer and knowledge exchange - into identifiable benefits for economy and society, in line with Scottish Government policy for Higher Education Institutions.

Key Linked strategies:	Academic Strategy; International Strategy; Financial Strategy
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Key Performance Indicators:	External research grant and contract income (£)
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2) To enhance the research environment, leadership and the quality of research training

We will continually aim to improve the standard of our research activity as measured by the quality of our publications and the impact of citations. We will aim to provide a supportive environment and sustainable infrastructure to allow staff to perform to their highest potential.

We will ensure the highest standards of research leadership and management and, in line with the Sector's recent Research Concordat, we will provide excellent mentoring and career development for our research associates, as well as for our

academic staff and our postgraduate research students, within an environment that promotes ethical behaviour and best practice.

Over the period covered by the Strategy we will strive to increase the number of early career researchers and postgraduate research students and proactively develop policies to enhance their training and experience. We will invest our resources through careful distribution of the Research Excellence Grant and the allocation of T-stream time to maximise the effectiveness of the investment.

We will engage in the development of strong research-teaching linkages as a very valuable and direct expression of knowledge exchange internally within Higher Education; and, through pedagogic research, we will identify learning processes which can inform the curriculum and support learners in developing the attributes which are valued in graduates.

Key Linked strategies:	Academic Strategy; Estates Strategy; Human Resources Strategy; International Strategy;
Key Performance Indicators:	Number of postgraduate students

3) To be a national leader in knowledge transfer

We will aim to become the leading modern university in Scotland for knowledge transfer and commercialisation through our engagement with industry and the public sector by maximising the economic, cultural and social benefits generated from our research.

We will aim to increase our external income from commercial activities by developing a greater diversity of funding, with particular emphasis on Overseas Programmes, CPD, Consultancy and Contract Research.

We will aim to develop a framework of nine Research & Knowledge Transfer Institutes serving as umbrella business development units covering all research centre activities across the University and closely aligned with the priority sectors identified by Scottish Enterprise (Annex G)

We will seek to establish Edinburgh Napier as a Regional Business and Technology Hub working in close liaison with our local university and college partners to serve SMEs across the Lothians, Borders, Fife and East Central Scotland Regions. (Annex H)

Key Linked strategies:	Academic Strategy; Community Engagement Strategy; Estates Strategy; Financial Strategy; Human Resources Strategy; International Strategy;
Key Performance Indicators:	Funding Council knowledge transfer metrics income (£)

4) To embed a culture of enterprise and innovation across the University and to exploit ideas for commercial application

We will implement policies to promote and develop entrepreneurship in line with the SFC's ongoing SPIRIT initiative, building upon our demonstrable track record in conventional STEM areas, recent successes in business-related areas, and recognisable potential in the creative industries.

We will invest in facilities and infrastructure for CPD by re-examining supply chain management at faculty and university level to determine the best mix of centralised and devolved activities.

We will develop a centralised repository for knowledge transfer and exchange that can facilitate the use and reuse of learning objects, and will function as both a showcase for our excellent outputs and an exemplar of best practice in supporting online learning.

We will continue to reward excellence through a policy of incentivising all units and staff contributing to growth in external income. This will be achieved by redistributing a proportion of that income in order that investment in new commercial opportunities, research and teaching can be made in those areas.

We will create a 'one-stop-shop' for commercial activity by providing support to academic staff on commercial matters, IP management; contracts management; marketing and market assessment.

Key Linked strategies:	Academic Strategy; Community Engagement Strategy; Estates Strategy; Financial Strategy; Human Resources Strategy; International Strategy;
Key Performance Indicators:	Funding Council knowledge transfer metrics income (£)

5) To increase our involvement in non-commercial knowledge exchange by influencing debate on policy, culture and society

We will implement policies to translate our research expertise on key issues for the public sector and government into output designed to deliver efficiency and effectiveness in public service delivery and to benefit society more generally; and we will implement policies for the promotion and fostering of public engagement, through the nurturing of cultural outreach and science awareness activities.

We will ensure that our research knowledge which is relevant to local government, central government, NHS and other public bodies is transferred to practitioners and policy-makers, so that key lessons from past policy and practice are disseminated to those who are building the public services and cultural policy of the future. We will maintain and expand growing reputations in skills development and capacity building

for the public sector, and in leading debate and promoting best practice in the areas of public policy, notably transport policy, employment policy, health policy and cultural policy.

We will reach out to the communities within which our University is physically based, and to which our University is connected virtually, through the vehicle of public engagement; by raising science awareness and fostering cultural outreach through participation in festivals, public lectures, concerts, master-classes, training workshops, exhibitions and web-based dissemination into a wider public arena.

Key Linked strategies:	Academic Strategy; Community Engagement Strategy; Estates Strategy; Human Resources Strategy; International Strategy;
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IMPLEMENTATION AND REVIEW

Edinburgh Napier University's Research, KT and Commercialisation Operational Plan 2009 -12 sets out our detailed objectives and associated plans and targets through which this Strategy will be implemented. The framework for implementation will involve optimisation of strategic and operational effectiveness across all fronts in order to maximise and diversify commercial and non-commercial income portfolios and to maintain and enhance reputation within the sector.

Professor Robin K Mackenzie

Vice-Principal (Research & Knowledge Transfer)

18 June 2009 (Amended 01 March 2010)

Annex A

Definitions of Research and Knowledge Transfer

The University recognises that research and KT form a continuum, ranging from fundamental, curiosity-driven research through to commercial activities. The University places value on all of these activities, particularly where they coincide with identified priorities of the Scottish Government and are likely to have an impact on the Scottish economy, on business and on public sector practice. It is acknowledged that funding priorities developed by external funding bodies will influence the type of work conducted in the University.

Recognised categories of research include:

- a) Fundamental or basic research that is experimental or theoretical in nature and leads to new knowledge or insights.
- b) Strategic research, meeting needs identified by external partners, but not yet at the stage of application.
- c) Applied research, generating new knowledge specifically to further or facilitate a particular application, or to provide insight into problems of an applied nature.
- d) Near-market research, designed to take pre-competitive work closer to commercial development.
- e) Creative work, particularly in the arts and performance-based disciplines.
- f) Advanced pedagogic research, leading to improvements in the teaching of particular disciplines or general insights into teaching methodology.

Recognised categories of KT include:

- a) Consultancy or applied services aimed primarily at income generation and based primarily on the application of available knowledge.
- b) Research-based consultancy aimed at the generation of new knowledge or the creation of new applications, but conducted on a contractual basis to achieve a specific outcome.
- c) Outreach activities, relating to work conducted with business and public sector partners. These may range from workplace training, to research-related activities such as Knowledge Transfer Partnerships.
- d) Enterprise activities involving near to market research, such as Proof of Concept programmes.
- e) Commercial exploitation of intellectual property generated within the University, leading to a range of possible outcomes including patents, licensing agreements, and the creation of spin-out companies.
- f) Teaching-based activities delivered on a commercial basis, such as CPD.

Annex B

Research and Knowledge Transfer Policies

- a) Research and KT activities are embedded as core functions across the University. Members of academic staff in all schools have opportunities to engage in these activities, through the Faculty Research and KT Centres. It is expected that research active staff will make every effort to secure external funds to support their activities, wherever possible on the basis of full economic cost. KT conducted on a consultancy, commercial or applied basis is expected to fully cover costs, and to generate income for the University.
- b) The University recognises that, in addition to financial resources, successful research and KT activity requires space, infrastructure and staff time. Within the envelope of resources available, as determined by agreed priorities and selectivity policies, the University undertakes to provide the faculties with the maximum resource possible to support research and KT activities. This includes the provision of effective central professional services. As a guiding principle, the University will also seek to return to faculties the majority of the financial surplus generated through research overheads and commercial activities.
- c) Overall responsibility for research and KT activities at Edinburgh Napier University resides with the Vice Principal (R&KT). Priorities and strategies are set out in the University Strategy and the University Research, Knowledge Transfer and Commercialisation Strategy documents. Implementation is carried out in line with the University Research, Knowledge Transfer and Commercialisation Operational Plan. However, it is recognised that development of research and KT can only occur through deployment of the expertise and insights residing with staff located in the faculties. Therefore, each of the faculties will be responsible, through its own R&KT Committee, for its own co-ordinated proposals. Projects and targets will be agreed annually through the planning round.
- d) Faculties will be expected to monitor their own performance in line with the University Research, Knowledge Transfer and Commercialisation Strategy and to produce an Annual Report for consideration by the University R&KT Committee. These annual reports will inform the subsequent annual strategy through the planning process. The Faculty Annual Reports should include details of the criteria applied in making individual time allocations for research and KT.
- e) Members of academic staff active in research or KT will receive an allocation of time for the conduct of these activities through the University Workload Allocation process, as agreed with their Head of School in consultation with the Faculty Associate Dean (R&KT). For any individual member of academic staff, involvement in research and KT will be determined through the PDR process. For academic staff not involved in either research or KT, there is the expectation that they will continue to be engaged in academic scholarship.

- f) The University acknowledges the key role played by students at all levels in the development of research and KT activity. The University places involvement in these activities at the core of its undergraduate programs, particularly at Honours level, and expects all programmes at this level to provide an appropriate research or KT experience. Masters-level research and KT activities will be co-ordinated with the interests of the Faculty R&KT Committee, and research work undertaken by students studying for a research degree will be conducted through the Research Centres.
- g) Quality matters relating to the provision of research degree programmes, and the content of the taught components of these courses, will be addressed by the Research Office. Progression through research degree programmes will be governed by the University Higher Degrees Committee. The Research Office will produce an Annual Report summarising research degree-level activity across the University, including data on recruitment, finance, progression and completion.
- h) New appointees to the academic staff of the University will be supported, mentored and encouraged to develop their research and KT activities. It is expected that all new appointees to the academic staff will hold at least a Masters degree in an appropriate discipline, and normally staff appointed as University lecturers or above will be qualified at PhD level. Where this is not possible, the appointee will be supported and encouraged to study for a research degree.
- i) All research and KT activity at Edinburgh Napier University is expected to be conducted with due regard to all appropriate Codes of Practice as published by the University and by the funding bodies. Such work must comply with all relevant legislation. Ethical approval of projects, and monitoring of practice, will be conducted by the University Ethics and Governance Committee, which will produce an annual report of the projects considered.
- j) The University is committed to participation in the Research Excellence Framework and any subsequent research assessment exercises, in recognition that this process provides external validation of the quality of research conducted at the institution. In preparation for RAE 2013 and subsequent exercises, the University will seek to include as many staff as possible, consistent with agreed policies of prioritisation and selectivity.
- k) In developing the Edinburgh Napier research strategy, cognisance will be taken of pooling proposals developed by the Scottish Funding Council, and other collaborative opportunities. Whenever possible, Edinburgh Napier will work with its partners to build the research base and will be pro-active in developing such collaborative projects.
- l) Edinburgh Napier University regards excellence in fundamental research, applied research, knowledge transfer activities, professional practice, course development, teaching and management to be of equal value and deserving equal esteem. These values will be reflected in the University's promotion criteria at all levels, including appointments to personal Chairs.

Annex C

RAE 2008 Results

		Overall quality profile (percentage of research activity at each quality level)					
Unit of Assessment	FTE Category A staff submitted	4*	3*	2*	1*	unclassified	
11	Nursing and Midwifery	11.80	5	35	35	15	10
12	Allied Health Professions and Studies	17.80	5	5	40	45	5
17	Earth Systems and Environmental Sciences	13.00	0	20	45	30	5
23	Computer Science and Informatics	26.70	0	20	60	20	0
27	Civil Engineering	31.35	5	25	45	25	0
30	Architecture and the Built Environment	11.00	5	30	45	20	0
36	Business and Management Studies	31.00	0	15	45	35	5
37	Library and Information Management	5.50	10	50	25	10	5
38	Law	6.00	0	5	20	55	20
41	Sociology	6.80	0	10	40	45	5
44	Psychology	6.80	0	5	30	55	10
57	English Language and Literature	6.50	5	15	55	20	5
63	Art and Design	10.75	0	25	35	25	15
67	Music	7.10	0	5	25	40	30

Definitions of quality levels

- Four star** Quality that is world-leading in terms of originality, significance and rigour.
- Three star** Quality that is internationally excellent in terms of originality, significance and rigour but which nonetheless falls short of the highest standards of excellence.
- Two star** Quality that is recognised internationally in terms of originality, significance and rigour.
- One star** Quality that is recognised nationally in terms of originality, significance and rigour.
- Unclassified** Quality that falls below the standard of nationally recognised work. Or work which does not meet the published definition of research for the purposes of this assessment.

Annex D
Support for SMEs in Scotland

Type of Aid	Market Identification	Research	Definition	Feasibility	Design	Development	Testing	Manufacture	Marketing
Finance	ITI, 2kT innovation fund, CT, NESTA	SMART Feasibility, ITI, PoC EU, SE RD grants, Research Councils, Technology Strategy board, CT	SMART, SE Toolkit, ITI	SMART, ITI, Technology Strategy board, CT, 2kT innovation fund	ITI	SMART: Research and development, Technology Strategy board, CT	SMART, Technology Strategy board	SMAS	SBRI, Business transformation partnership
Technical Knowledge		KTP	KTP, POC	KTP, POC	KTP	KTP	KTP	KTP, Universities	
Business Knowledge		KTP, TSB, NESTA	KTP, TSB	KTP, TSB	KTP, NESTA	KTP, TSB, NESTA, CT	KTP, TSB, CT	KTP	KTP
Technical Resources		Research Councils, Universities,	Universities, PoC	Universities, PoC	Universities,	Universities	Universities,	Universities,	
Human Resources		KTP, TSB, RSA, CT	KTP, POC, CT	KTP, POC, CT	KTP	KTP, TSB, RSA, CT	KTP, TSB	KTP, RSA	RSA
Market Knowledge	SBRI, ITI, CT, NESTA	SBRI, CT, NESTA	SBRI, CT, NESTA						SBRI

Annex E

Scottish Enterprise Priority Sectors

SE Priority Sector	SE Priorities	Related Edinburgh Napier Expertise
Aerospace, defence and marine	Maintenance, Repair and Overhaul (MRO) Manufacture and design Avionics Electronics Naval Ship Building and Repair	Materials Selection Manufacturing processes Mechanical processing Sensors Fuel Efficiency Light weighting
Chemical Sciences	Basic chemicals (oil industry) Speciality chemicals automotive, food, textiles and printing sectors. Pharmaceutical/Fine Chemicals	Biosurfactants Biodegradation Bioremediation Biofuels
Construction	Strategy: Positioning Procurement People Planet Priorities: Be more connected and networked Achieve higher levels of research and development and innovation Increase involvement in planning	Low Carbon buildings Thermal Performance Microrenewables Modern Methods of Construction Waste Management Implementation of Code for Sustainable Home - Energy and Acoustics New sustainable methods of construction
Digital Markets	Digital Media ICT Markets Games and animation Mobile technology Broadcast and New Media Content Creation	Digital Media Animation Mobile technology Broadcast Content Creation
Enabling Technologies	Human-System Interaction Security and Trust Sensors Information and Imaging Informatics Devices and Systems Communications and Networks Advanced Engineering	Human-System Interaction Security and Trust Sensors Information and Imaging Informatics Devices and Systems Communications and Networks Advanced Engineering
Energy	significantly grow Scotland's share of global energy markets develop emerging renewable energy industries, including marine, offshore wind, fuel cells and hydrogen develop expertise in offshore and nuclear decommissioning by transferring skills and experience from other energy sectors	Microrenewables Biofuels Distributed Power Low Carbon Technologies CO2 capture Transmission and Power electronics
Financial services	People - strengthening workforce Profile - building reputation within and beyond Scotland Infrastructure - supporting and improving transport and business infrastructure	Customer Contact Centres - accreditation, CPD, management training Developing workforce skills Consumers Business Infrastructure - transport and communications
Food and Drink	food safety sustainability of markets / supply chains provenance & origin health & wellbeing	Energy and efficiency Supply chain Management Food Safety Waste Minimization Food Packaging

SE Priority Sector	SE Priorities	Related Edinburgh Napier Expertise
Forest Industries	<p>Become a demand-led industry that is competitive with the best in the world</p> <p>Grow and develop markets for higher value products and services</p> <p>Encourage a domestic wood-using culture where wood is the natural choice of customers</p> <p>Build a connected and innovative industry that understands and responds to new consumer demands</p>	<p>Supply Chain Management</p> <p>Quality control and processing efficiencies</p> <p>Logistics</p> <p>Use of Pesticides / Insecticides</p> <p>Increasing use of Scottish Timber in Value Added products</p> <p>Use of Scottish Timber in construction</p>
Life Sciences	<p>oncology, diabetes, neuroscience, cardiovascular, reproductive</p> <p>Performance management, life style management, disease management, post event home care, independent living (WHIP)</p> <p>fundamental biology, translational medicine, novel therapeutics, prevention vs cure, wellness, e-health, convergent technologies (SE)</p>	<p>Diabetes</p> <p>Cancer</p> <p>Management of Enduring Conditions</p> <p>Sport and Exercise, Wellbeing</p> <p>Public Health</p> <p>Nanotoxicology</p> <p>Mental Health</p> <p>Hospital acquired infections</p> <p>PCR and QPCR validation</p> <p>Biomarkers</p> <p>RFID</p>
Manufacturing	<p>Waste reduction</p> <p>Lean manufacturing</p> <p>Product design and quality</p> <p>Overall equipment effectiveness</p> <p>Process Engineering</p> <p>Fuel Efficiency</p> <p>Sustainability</p>	<p>Product Design</p> <p>Materials Selection</p> <p>Manufacturing processes</p> <p>Mechanical processing</p> <p>Sensors</p> <p>Fuel Efficiency</p> <p>Light weighting</p> <p>Electronics</p>
Textiles	<p>Build the industry's profile</p> <p>Encourage innovation</p> <p>Strengthen people and business</p>	<p>Technical Textiles</p> <p>Design Innovation</p>
Tourism	<p>Business Leadership - access to UK & International best practice on key business issues.</p> <p>Innovation - Supporting tourism businesses with tools & resources to identify market opportunities, work collaboratively & develop & implement new business ideas</p> <p>Product Development - Supporting tourism businesses to develop new visitor experiences around key Scottish assets (e.g. golf, food, whisky, forestry, ancestry and country sports)</p> <p>Destination Development - Working with industry & local partners to deliver a distinctive and all-round quality visitor experience in Scotland's main tourism destinations.</p>	<p>Sustainable/green events.</p> <p>Socio-cultural impacts of festivals and events</p> <p>Visitor Experience.</p> <p>Upskilling the workforce</p> <p>Sports and Culture</p> <p>Scottish Heritage</p> <p>E-technology</p>

Annex F

Areas of Economic, Social and Health Policy, Culture and Creative Industry

Social & Economic Policy

Transport
Employment and Equality
Children and Family Policies
Crime and Criminal Justice
Social Inclusion and Social Justice
Social Movements and Social Identities
Communication and Media
Arts and Cultural Heritage

Health Policy

Lothian Health Policy Forum
Health and Wellbeing
Health
Public Health

Culture

Music,
Film and Image
Literature and Writing
Scotland's History and Cultural Heritage

Creative Industries

Publishing
Advertising
Screen Industries
Design – product, interior, graphic

Annex G

INSTITUTES and RESEARCH CENTRES

NEW or EXISTING INSTITUTE

RELATED CENTRES

Institute for Creative Industries

Centre for the Book
Centre for Literature & Writing
Centre for Media & Culture
Edinburgh Skillset Screen and Media Academy
Sonic Fusion Research Centre

Institute for Informatics Research and Digital Innovation

Centre for Distributed Computing & Security
Centre for Emergent Computing
Centre for Information & Software Systems
Centre for Interaction Design
Centre for Social Informatics

Edinburgh Institute

Leadership & People Management
Festival and Event Management
Entrepreneurship
Accounting and Financial Services
Tourism
International and Collaborative
Hong Kong

Employment Research Institute

Institute for Science and Health Innovation

Applied Microbiology & Biotechnology Research Centre
Biofuels Research Centre
Centre for Environmental & Marine Sciences
Centre for Applied Nursing & Healthcare Research
Centre for Integrated Healthcare Research
Centre for Nano Safety
Biomedicine & Sport Science Research Group
Applied Psychology & Social Science Research Group

Institute for Product Design & Manufacture

Advanced Materials Research Centre
Electronic Manufacturing Services
Electronic Design Technology Centre

Institute for Sustainable Construction

Building Performance Centre
Centre for Infrastructure Research
Centre for Sustainable Communities
Centre for Geotechnics
Centre for Regeneration and Re-use of Buildings
Centre for Offsite Construction and
Innovative Structures
RMP Consulting
Scottish Energy Centre

Forest Products Research institute

Centre for Plant Sciences
Centre for Renewable Materials
Centre for Timber Engineering
Centre for Wood Science Research
Wood Studio

Transport Research Institute

Annex H

Indicative arrangement for a Regional Business and Technology Hub

