

Innovation Strategy for the East Midlands 2010-2013

A strategy and action plan prepared by *emda*

2010

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east midlands **innovation**

bringing bright ideas to life



**Innovation Strategy for the
East Midlands**

2010 - 2013

funded by


east midlands
development agency

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Innovation is the successful exploitation of new ideas. It can be an exciting discovery, a cutting-edge technology, an easier way to travel, a more efficient way to communicate, a better way to meet people, a more effective way to treat disease, an advanced way to play, a new way to do business.



Foreword

Building our international reputation for innovation

It's important to all of us that we progress and prosper. And the way we move on and do better is by finding new ways of getting things done, whether it's how we do our jobs or live our lives...by being innovative.

The same is true in the business world. Those businesses with a culture of innovation – those that push boundaries and test the limits of what we know, those that pioneer new services, technologies and products to help us tackle the challenges of the future – are likely to **stand out from the crowd in a fiercely competitive world.**

We want the East Midlands to have an international reputation as a place for supporting innovators. And with our rich, decades-long tradition for innovative advances, as the seed-bed of the industrial revolution, we have a great base to build on.

This second Regional Innovation Strategy (RIS) – a key element in developing the future Regional Economic Strategy – is all about building that reputation for innovation; **making it easier for East Midlands' businesses to become more competitive and to harness the power of innovation for the economic benefit of the region.**

Times have been tough, with many companies battling to survive the global recession. This will have challenged businesses to review their investment in innovation. Now more than ever, it is vitally important that we all see **innovation as fundamental to longer term survival and growth.** Those businesses that do will come out of the recession in the best possible position to compete in global markets.

**Professor Barry Stickings CBE,
Chair, East Midlands Innovation**



Many businesses are already being innovative and may not even know it.

Others want to embrace innovation and don't know how.

The role of this Regional Innovation Strategy (RIS) is to help us take innovation to the heart of the business community.

emda's role is to act as the facilitator of the strategy and support its implementation, as well as playing a key part as an innovation partner.

The role of East Midlands Innovation (the region's innovation council) is to oversee and advise on the strategy.

Your role as innovation partners across the region is to use the strategy creatively to bring innovation to your business, clients and business networks in every sector in the East Midlands.

And *emda* will be with you every step of the way.

Executive summary

Supporting businesses to profit through innovation

“As we emerge from difficult economic circumstances, successful innovation has never been more important.” Dr Bryan Jackson OBE, Chairman, East Midlands Development Agency

The region's strengths

The East Midlands has firm industrial and academic foundations which we can build on. With a rich tradition in innovation, many technological advances have originated here, from the development of the jet engine, to the invention of the MRI scanner and DNA fingerprinting.

The region has world-class capabilities in a number of areas of national importance; growth industries that will create wealth and employment now and in the future:

We can make a major contribution to the move towards a **low carbon economy**, with our important work on low carbon buildings and as the home of the UK's Energy Technologies Institute.

We have a strong reputation for **advanced manufacturing** and this will increase with the establishment of the Manufacturing Technology Centre in the Midlands.

In **life sciences**, the region excels in medical technologies, and is home to BioCity in Nottingham which is one of the largest bioscience incubators in Europe.

We are at the forefront in the UK in the application of space technologies, with centres of excellence at the Universities of Nottingham and Leicester, examples of the region's capabilities in **digital enabling technologies**.

Evolving the RIS for 2010 – 2013

Good progress and considerable achievements have been made in implementing the first Regional Innovation Strategy (RIS). Now, this second RIS gives us the opportunity to make some changes of emphasis and to improve some aspects of delivery, while remaining broadly on the same strategic track. In developing the revised strategy we have taken the views of stakeholders in the region into account, as well as learning much from our experiences over the past three years.

Low carbon

Since the first RIS was published the low carbon economy has become a fundamental driver of economic development, and will be a prominent feature of all aspects of the RIS and regional growth. This second RIS has a major focus on low carbon, in developing new technologies and helping businesses take advantage of new opportunities.

iNets

The innovation Networks (iNets) will continue to play an important delivery role, and their strategic role in advising on innovation priorities for their sectors will increase. They will also do more to nationally important themes and the priorities in the Regional Technology Framework developed under the first RIS.

Widening our reach

More attention will also be given to helping businesses across all sectors to access innovation support, through more co-ordinated use of the many innovation facilities and initiatives in the region.



An innovation strategy for the region

The new RIS will be characterised by the **strength of commitment from stakeholders** to playing a part in its delivery and by its integration with other aspects of the future Regional Strategy, including the role of public procurement. We will be working with partners in the region to develop and agree a set of principles for co-ordinating resources on innovation, and then together we will develop an implementation plan.

The RIS provides a framework for the use of public funding to stimulate innovation in the region. With public finances likely to be under increasing pressure, resources will be tight over the next few years. In continuing the drive for innovation across the East Midlands, we will all need to be **smarter, more efficient and more effective** in everything we do.

Building on our achievements

The RIS recognises the considerable amount that has been achieved in the past three years, including the establishment of:

• iNets

The four iNets in healthcare and bioscience, food and drink, transport and sustainable construction have become UK exemplars of how to facilitate innovation on the ground.

They have provided over 1,375 businesses with innovation support, and linked 180 businesses with the region's universities.

The iNets have also awarded £2.1 million to 30 collaborative research projects involving universities and businesses, leveraging additional investment of £13 million.

• Regional Technology Framework

More than £5 million has been invested in collaborative projects and in educating businesses in markets for new products and processes.

• iFestival

Our annual celebration of innovation attracted some 21,000 people to 177 events in 2009, and has become a model of good practice in the UK.

• FP7 Service

Over 400 companies have engaged with the Framework Programme Seven Service (FP7 Service). Around 50 are companies now involved with project submissions. A further 10 projects being led by East Midlands companies at a combined value of €26 million.

The new RIS 2010 – 2013

- Is positioned more clearly as **the region's innovation strategy** and not just *emda's*
- Recognises **regional strengths** in relation to government policy
- Champions **low carbon opportunities** as key innovation drivers
- Gives **iNets** a greater role in developing regional priorities
- Extends innovation support to **businesses across all sectors**
- Encourages **stronger relationships** between all partners and elements of the innovation system.

Evolution

Moving the Regional Innovation Strategy forward

The first Regional Innovation Strategy (RIS) was a key element of the wider Regional Economic Strategy published by *emda* in 2006. This update moves the innovation priorities forward; it is an evolution of the original RIS which takes into account:

- An independent evaluation of the first strategy
- The region's innovation performance over the past three years
- Feedback from stakeholders in the region.

The new RIS aims to provide a framework for targeting public funding to stimulate innovation in the East Midlands, working in partnership with the region's business community.

For more information...

For information about the RIS, including the evaluation and other information supporting its development and the Regional Technology Framework (RTF), please visit www.eminnovation.org.uk/ris

East Midlands Innovation

East Midlands Innovation is an industry-led council providing strategic leadership on innovation. The membership draws on senior representatives of business, universities and the public sector.

East Midlands Innovation will oversee the development of the action plan for delivering this RIS and will monitor its implementation, producing an annual progress report.

For more information about East Midlands Innovation visit www.eminnovation.org.uk/council



East Midlands innovation strengths

Aligning our region with national priority areas

Thanks to our existing sector and technology strengths, the East Midlands is extremely well placed to take advantage of national industry and technology priorities. We are also poised to react to new, emerging sectors and additional areas for innovation, such as low carbon and satellite technologies.

Government has identified key industry and growth areas of current and future importance to the economy. These include, among others:

Advanced manufacturing

Low carbon opportunities

Life sciences

Digital enabling technologies

Low carbon, which will clearly be a driver of change for many years to come, is a particularly important area of focus for this second Regional Innovation Strategy (RIS). Furthermore, the East Midlands' strengths in all of the above priorities are significant and give us a sound basis for addressing existing and emerging markets, such as an ageing population, space technology applications and food security.

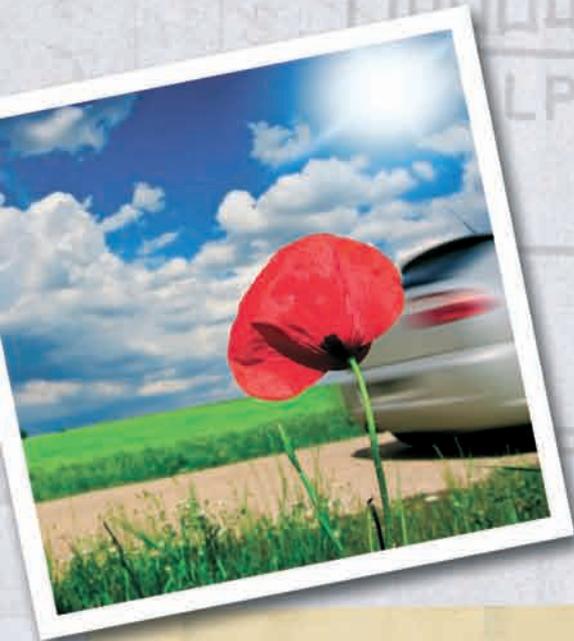
As a region, we must be able to both **exploit** our distinctive competitive advantages, **and benefit** through complementing capability elsewhere in the country and across the world.

The national context

Government highlights that for the UK to be globally competitive, it is vital that steps are taken to raise levels of innovation in British businesses and equip them for the future through:

- Improved skills
- Stronger research and development (R&D) capabilities
- More innovation in science and technology
- More successful commercialisation of ideas.

The UK Government's vision for *Building Britain's Future* – including *New Industry, New Jobs (NIN)* and culminating in the *Going for Growth* campaign – highlighted the need to work across key policy areas to achieve speedy and sustainable economic recovery, and to help businesses take advantage of new growth markets both at home and overseas.



Innovation is often misunderstood, but put simply it is the process of generating wealth from the creation of new or improved technologies, products and processes. It is a vital method for increasing productivity within the knowledge-driven economy.



Existing strengths in national priority areas

The East Midlands has significant existing strengths in the following areas of focus for the second RIS:

Advanced manufacturing

The East Midlands is traditionally recognised for its strong manufacturing base and excellence in high-value manufacturing, which involves advanced levels of design and scientific skills adding value to technologically complex products and processes.

- Key global innovators, such as Rolls-Royce and Bombardier, are based in the region where they employ highly skilled people
- The universities of Nottingham and Loughborough are renowned for world-class engineering strengths and global collaborations
- The Manufacturing Technology Centre is being created on the West / East Midlands border – specialising in high-integrity joining techniques, it will be a national asset and make a key contribution to the future of manufacturing in the UK.

With deep industry roots in the aerospace, rail, automotive, motorsport and marine sectors, the East Midlands has world-class strengths in the development of transport technologies. We also have niche strengths in complementary technologies, such as composite materials and the application of space technologies. The manufacturing field cuts across other priority areas, such as life sciences and low carbon, which puts the region in a good position to exploit new opportunities and to create a sound foundation for future competitiveness.



The RIS in action

Pentaxia Ltd produces complex models and patterns for use in the manufacture of parts for racing cars and more recently aeroplanes. However, the company needed a software upgrade to expand capabilities, enabling them to accept and manipulate artwork from customers.

A computer aided design (CAD) software supplier referred Pentaxia to the Transport iNet as a potential source of funding. After meeting with a **Transport iNet** adviser, Pentaxia was given guidance and support to successfully apply for a **£10,000 grant from the iNet**, with the same amount of investment being matched by the business. The funding enabled the company to buy an upgraded CAD software system, plus an additional software package which meant machines could be directly programmed with highly complicated designs and patterns.

08 As a result of being able to offer this highly flexible, cutting-edge capability, Pentaxia could bid for different contracts and business nearly doubled in just a three-month period. The company has also been able to give wider opportunities to its team, increasing their skills in CAD and exposing them to another transport sector.

Low carbon opportunities

Diminishing energy supplies and natural resources mean energy producers, large scale manufacturing and in fact all business and human activities need to be reappraised in response to the changing world.

The East Midlands is home to many low carbon companies including environmental services, and renewable energy technologies. Between 2007 – 2008 the region was second only to London for low carbon growth. In the region:

- Low carbon sectors were worth £7.1 billion in 2007 / 08, representing 9.2% of regional gross value added (GVA) and 6.6% of the UK's total low carbon activity
- The sector supports 3,368 companies in the region, that employ 61,600 people, including E.ON's global R&D headquarters, Rolls-Royce Intelligent Energy, BAE Systems Integration, Toyota and Bombardier

Our growing low carbon presence is built on a unique low carbon asset base incorporating:

- Our energy and manufacturing heritages, including energy conversion and coal heritage
- Physical opportunities for the developing new energy technologies (for example off-shore wind)
- World-class energy and low carbon research facilities, including the Energy Technologies Institute; Loughborough University's Centre for Renewable and Sustainable Technologies, The University of Nottingham's specialist facilities in the built environment, Northampton University's SITA Centre of Excellence for Sustainable Wastes Management; and CENEX, the UK's first centre of excellence in low carbon fuel cell technologies
- A vibrant food and drink industry that is an early adopter of new technologies but facing a substantial challenge to reduce its carbon footprint. Assets at Brackenhurst Campus of Nottingham Trent University and Holbeach Campus at the University of Lincoln will feature strongly in improving the carbon impact of this sector.

In short, the East Midlands is a region with the foundations of a world-leading location for low carbon excellence.



The RIS in action

Led by the Centre for Renewable Energy Systems Technology at Loughborough University, **SHINE-ZC** is on course to be the East Midlands' first truly zero-carbon social housing demonstrator, and illustrates how an integrated whole-system approach can lead to truly sustainable dwellings at a realistic cost.

Building on initial work with the **Sustainable Construction iNet**, SHINE-ZC is a Regional Technology Framework project that brings together the universities of Loughborough, Northampton and Nottingham with industrial partners and renewables experts. The aim is to demonstrate a systems approach of integrating renewable technologies within a social housing scheme and educate inhabitants on how to live in a zero-carbon home.



Life sciences

Healthcare and bioscience is a key industry in the East Midlands. This sector covers medical equipment manufacture, pharmaceuticals, biotechnology and R&D in life sciences, and includes the healthcare sector, principally represented by the NHS.

Life sciences strengths within our universities, hospitals and clinical research units are complemented by our strong manufacturing base and engineering skills. Key industry players such as 3M and Boots Alliance are based here.

All of this provides an unique environment for translating research into commercial products; a process that is supported by the Healthcare and Bioscience iNet, and will be enhanced by plans to create a national focal point for the integration of internationally acclaimed research and clinical excellence in translational medicine. This will build on the success of BioCity in Nottingham, one of the largest bioscience incubators in Europe with international recognition.

The RIS in action

Dialog Devices Ltd is a spin-out company from **Loughborough University** that has developed the **first fully automated, non-invasive technology for the detection of poor circulation in the limbs** – known as Padd.

Dialog Devices approached the **Healthcare and Bioscience iNet** to help turn a prototype into a successful product. The iNet advised the company on suitable training courses and a successful approach to selling to the NHS. The iNet also awarded a grant to help the company explain Padd and its benefits to the NHS.

Not only did this raise the company's profile, it was a crucial element in the successful bid for the next round of funding. With further help from the iNet and UK Trade & Investment, Dialog Devices exhibited at Medica 2008 in Germany, the world's biggest medical device show, where potential business partners were able to negotiate deals with the company to market their product outside the UK.



Digital enabling technologies

The successful development of commercial applications from specialist technologies is supported in the region by key industrial strengths, such as Siemens and local clusters of expertise.

Integrating new products with digital technologies is becoming an increasingly high priority as society and businesses move towards a wireless digital age. Making use of intelligent systems and digital technologies presents an opportunity for businesses to make more efficient products. In particular, successes in space research have a huge potential for exploitation in downstream applications such as sensors and controls, and satellite navigation and measurements. The UK market size for this sector alone was £5 billion in 2006 / 07.

The area for most exploitation in the East Midlands lies within our recognised strengths in communications technologies. This is most relevant in the field of satellite technologies where we boast a number of local clusters and two international centres of excellence as well as other communications technology strengths:

- The Global Navigational Satellite Systems Research and Applications Centre of Excellence (GRACE) at The University of Nottingham which help businesses in a number of sectors to develop commercial opportunities from satellite navigation technologies, and G-STEP at the University of Leicester which supports businesses with relation to earth observation technologies, and builds on the excellence of the University's Space Research Centre.
- De Montfort, Nottingham Trent and Derby universities excel in the application of communications technologies in gaming and software development strengths. The annual Game City festival draws together the international gaming community to showcase successes and the next generation of gaming technologies which draw on many aspects from the creative industries.

The RIS in action

RAFT is a novel technology for real time air fingerprinting and has been developed at the **Space Research Centre at the University of Leicester**. This technology arose from the work of the University's Earth Observation group but has a number of potential applications in the region's priority sectors, including breath analysis for medical diagnostics, occupational health monitoring, and drug abuse detection in safety-critical (for example transport) as well as forensic explosion detections.

Through support from the **Regional Technology Framework**, the university has pulled together a consortium of private sector partners to establish a demonstrator facility to enable East Midlands businesses to explore, adapt and adopt the use of RAFT technology.



Innovation performance

Turning innovative activity into profitable gain



Evidence shows a need to do more to help businesses access available expertise and benefit commercially from innovation.

The East Midlands is performing relatively well on some innovation measures, and significant achievements have been made in the three years of the first RIS. But, as is shown in the table below, the region as a whole has struggled to turn innovative activity into commercial gain, as measured by turnover accounted for by new, improved or novel products.

Under this measure the region is still underperforming against the UK average by some margin, with the UK performance as a whole much lower than other European regions.

The important information from these indicators, is whilst investment in R&D in the East Midlands is on a par with the rest of the UK, there is still a lower than average wealth being created from innovation activity – the amount of business turnover that is due to new processes and products is noticeably lower than the national average. Furthermore, there is recognition that much of the investment in R&D in the East Midlands comes from a few large companies in the region – there is still under-investment by small to medium sized enterprises (SMEs). Supporting East Midlands businesses to innovate remains a key objective.

†Innovation indicators

Innovation indicators	Previous position		Latest position	
	East Midlands	UK	East Midlands	UK
Business enterprise R&D investment as a % of GVA (BERD)	1.8% (2002)	1.4% (2002)	1.4% (2005)	1.2% (2005)
Gross domestic expenditure on R&D as a % of GVA (GERD)	2.3% (2002)	2.1% (2002)	1.9% (2005)	1.8% (2005)
% of firms with co-operation arrangements on innovation	8% (1998 – 2000)	8% (1998 – 2000)	13% (2002 – 2004)	13% (2002 – 2004)
% business turnover accounted for by new, improved or novel products	4% (1998 – 2000)	9% (1998 – 2000)	5% (2002 – 2004)	11% (2002 – 2004)

†DTI (April 2005) Regional Competitiveness and State of the Regions 2005; BERR (May 2008) Regional Competitiveness and State of the Regions 2008 (now The Department for Business, Innovation and Skills)

Innovation support

Embedding an exciting community of cutting-edge thinking and collaborative working

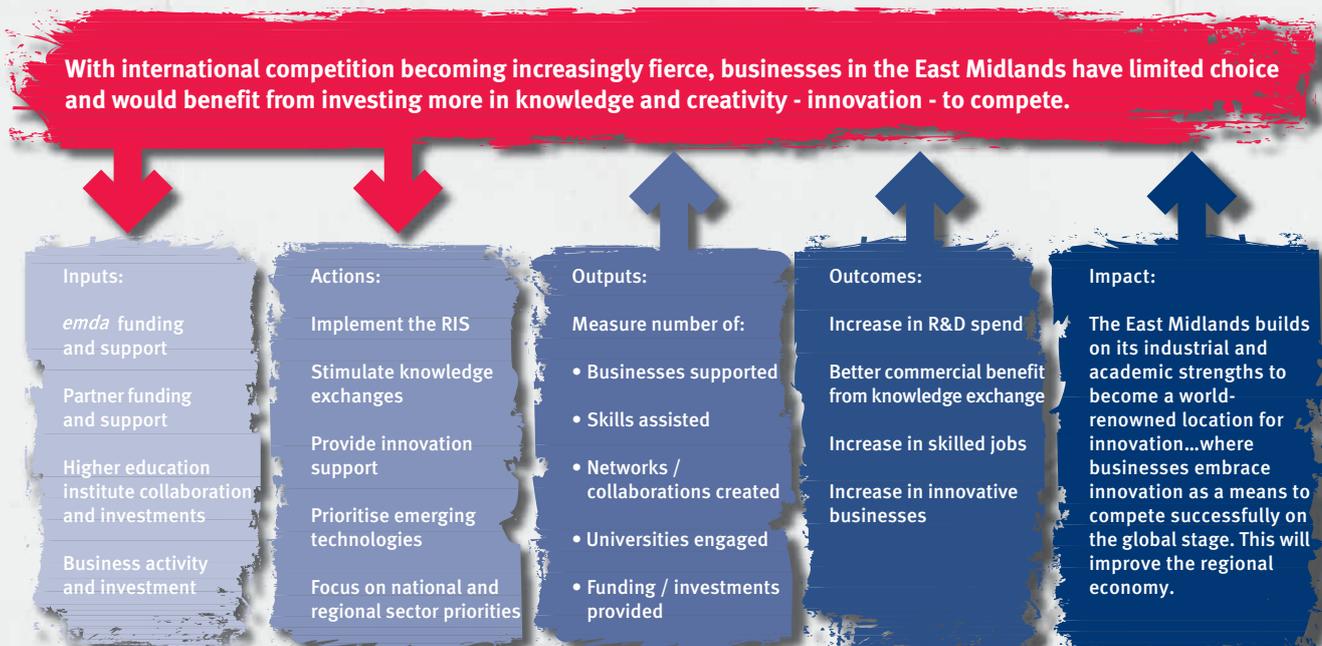


National policies clearly state the need to make UK industry competitive in a global economy and how vital a role innovation plays in that process. It is at a regional level, through practical support of businesses, investors and universities, that we can become world-renowned for embracing change and profiting from innovation.

emda and East Midlands Innovation have a key role in facilitating the development of regional innovation support in the following ways:

- Improving the connectivity between key public bodies, ensuring more coherent and concerted action on innovation
- Improving links between businesses, entrepreneurs and other innovation enablers, from resident universities to angel investors
- Championing the filling of any gaps in the local innovation system, from finance and mentorship to peer-group learning opportunities
- Leading regional partners in defining and committing to major innovation projects, where shared resources can be focused most productively
- Championing the needs and interests of the region's would-be innovators within national / international agencies, and brokering cross-border partnerships where there is clear strategic potential
- Championing the region's innovators as customers, partners and solutions providers to strategic businesses and prospective market makers around the world.

A summary of the rationale for public sector innovation support



Raising innovation performance, along with increasing overall levels of innovation, depends on the effectiveness of interactions between the various contributors – businesses, investors, universities. All public sector partners are active in these areas and together we can work to improve innovation support across all areas.

Innovation support successes during the first Regional Innovation Strategy

The first Regional Innovation Strategy (RIS) focused on support for the region's four priority sectors, originally identified in the 2006 Regional Economic Strategy as: food and drink, healthcare and bioscience, transport equipment and sustainable construction.

A series of actions, set out under four guiding innovation strategy themes (see page 16), established a number of innovation support programmes, including:

- **iNets**

The four iNets in healthcare and bioscience, food and drink, transport and sustainable construction have become UK exemplars of how to facilitate innovation on the ground.

They have provided over 1,375 businesses with innovation support, and linked 180 businesses with the region's universities.

The iNets have also awarded £2.1 million to 30 collaborative research projects involving universities and businesses, leveraging additional investment of £13 million.

- **Regional Technology Framework for the East Midlands (2008 – 2011)**

This highlighted the region's priorities for cross-cutting and enabling technologies. In the first three years of the RIS, more than £5 million has been invested in collaborative projects supporting new and emerging technologies, and in helping businesses understand their markets for new products and processes.

- **iFestival**

The iFestival is the region's annual celebration of innovation. It has been running for three years and has been hugely successful in increasing awareness of and excitement around the topic of innovation – in 2009 over 21,000 people attended the 177 events over a six-week period. The initiative has also gained support and interest across the UK, with the potential to expand the model to other regions.

- **FP7 Service**

This service has encouraged access to R&D projects via European and international collaborations. It has enjoyed strong European Commission support and been upheld as an exemplar. Over three years, 400 companies engaged with the FP7 Service. Around 50 are involved with project submissions, with a further 10 projects being led by East Midlands companies at a combined value of €26 million.



Evolving innovation support for the second Regional Innovation Strategy

In 2009, an independent evaluation investigated the progress and impact of the Regional Innovation Strategy (RIS) and its support programmes during the first three years. This included extensive dialogue with stakeholders in the region and concluded that:

- The themes, priorities and key delivery mechanisms have widespread support from stakeholders and these should continue to allow time for them to become embedded in the region
- The first RIS has not only created a forum for key stakeholders to work together to develop a more co-ordinated strategy for innovation, but has also led to the establishment of effective partnerships and networks on the ground
- The iNet model is widely acknowledged to be a strong intervention to facilitate innovation, and is now being replicated in other English regions.

Key changes must be made

The evaluation also raised the need for key changes as we take the RIS into its second phase from 2010:

- The second RIS should be more clearly positioned as **the region's innovation strategy**, recognising that responsibility for implementation falls to a wide range of stakeholders working to agreed guiding principles
- The region's strategic positioning should be **aligned with central government policy**, capitalising on the main sector and technology strengths of the region, and recognising other innovation investments in the region
- **Low carbon** should be identified as a key driver and major opportunity for the region
- **iNets should play a greater role** in developing the region's priorities for cross-cutting and enabling technologies
- The second RIS should recognise that **technologies, like low carbon, cut across all sector areas**; as such they should be at the very core of the RIS, serving to widen its reach and enable all businesses, whatever sector they are in, to benefit from innovation
- More attention should be given to **helping businesses outside the priority sectors** to access innovation support; and to making better use of innovation facilities and initiatives across the region, often managed by universities and local authority partners.

We recognise that innovation, enterprise and skills are interdependent, and businesses seeking innovation support may require a wider solution in order to resolve their issues. Therefore, more should be done to improve the connections between the many elements of the region's innovation system and programmes, including skills and training, access to finance, the wider business support framework and the role of public procurement.

By doing this we can all work together to **improve the overall level of support and maximise the impact of investment throughout the region.**



Regional Innovation Strategy objectives and themes

Improving the health of the innovation system

This, the second Regional Innovation Strategy (RIS), reflects the lessons from the first phase and recognises the need for a broader outlook and ownership. However, as indicated by stakeholders and an independent evaluation, the main strategic objectives and themes remain the same.

Innovation often happens in a system that comprises businesses, their representative organisations, support providers, technology organisations, universities, investors and all the interactions that occur between them to facilitate the process of taking a new idea from concept to profitability in the market place.

Many SMEs fail to access this innovation system or do not use it as effectively as possible.

The continuing broad aim of the RIS (from the first to the second version) is to improve the health of the innovation system, for example, by reducing access barriers and so increasing the number of products or processes that reach a commercial end point.

Strategic objectives

As the broad aim of the RIS remains the same, so too do its objectives, as listed below. Indeed, the independent evaluation work carried out on the first RIS in 2009 makes it clear that it is too early to be making fundamental changes.

- Increasing the number of businesses investing in innovation
- Raising the overall level of business investment in innovation
- Improving the effectiveness of ideas commercialisation
- Recognising and building on our regional strengths to ensure sustainable competitive advantage
- Increasing the frequency and value of business: university interactions
- Supporting the development of appropriately skilled individuals
- Raising the profile of innovators, celebrating success and learning from experience.

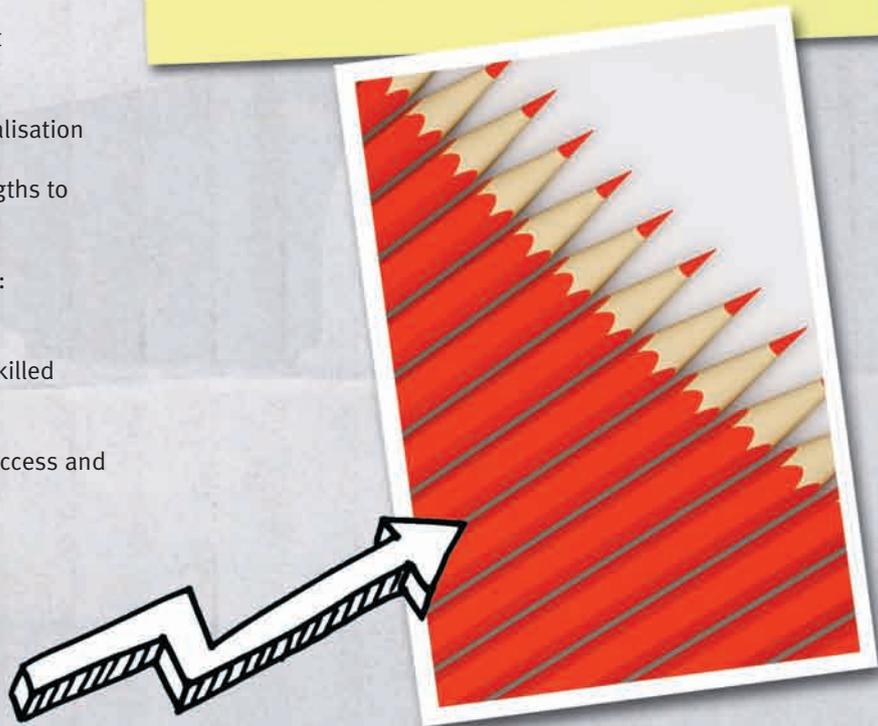
Strategic themes

When we created the first RIS, we also produced four strategic themes which, taken together, provide the framework for our approach as a region to innovation. These also remain the same in the second RIS, as follows:

• Innovation support for business

Many businesses are unable to explore new ideas or markets because of the risks involved in diverting resources and attention away from core activities. Delivering high quality support is a way of alleviating risk. Although grant support is important for cash flow, providing guidance for what can be a long innovation process is equally valuable. Clearer marketing and ease of access are essential factors to stimulate businesses to access support and to increase their appetite for innovation.

iNets deliver specialist innovation support to businesses, helping them to reduce risk by tailoring advice to their specific needs and improving their capacity to manage innovations. iNets also facilitate interaction with experts in universities and other support programmes.





• Support for technology

To sustain economic growth and build on knowledge as an asset, fostering enabling and emerging technologies is a priority. Close links to business sectors and customer bases help to provide up-to-date information on trends and opportunities. The public sector can react to and support new technology opportunities by prioritising medium and long-term investments, recognising knowledge creation in academic as well as the industrial environment.

The Regional Technology Framework sets out to:

- raise the technology profile of the East Midlands
- maximise investment levels in technology
- develop the environment for technology exploitation
- enhance and exploit strengths and opportunities

• Knowledge exchange

Providing support for knowledge exchange helps to facilitate interactions between universities and firms, and from knowledge holders to knowledge exploiters. Such support can be through physical or virtual support centres, or teams of people who span business, development and training activities, including apprenticeship and placement schemes. Providing clear, readily available information on this is essential.

There are numerous examples of partners investing in **knowledge exchange hubs and programmes**: for example, placement activity through **Knowledge Transfer Partnerships**; or creating magnets for knowledge exchange, such as the **Systems Engineering Innovation Centre** or the **Lincoln Engineering Hub** with national stakeholders and advanced manufacturing focus. Partnership approaches from geographical areas, such as **Nottingham Science City** and **Innovation Lincolnshire**, also offer ready-made platforms for the facilitation of innovation and knowledge transfer.

• Environment for innovation

Enhancing the environment in which businesses operate encourages innovators and entrepreneurial spirit. Recognising failures at an early stage is just as important as celebrating successes; innovation can be a long, difficult process, but a healthy innovation system embraces companies and individuals who have experience of this through trial and error. All stakeholders in the innovation system have an essential role to play in offering support and guidance throughout the process. As innovation partners our role is to make sure the flexibility exists for collaborative innovation, and to be supportive in recognising value in people, networks and experience.

The **iFestival** is an annual celebration of all aspects of innovation extending from young entrepreneurs and scientists in schools, through to graduate students and new spin-outs to established businesses and multinational enterprises. The iFestival also promotes the work of successful East Midlands Innovators and encourages a new attitude toward innovation.

Measuring success

It has traditionally been difficult to measure innovation performance; existing methods often lack regional detail, use economic indicators that can be difficult to relate to specific input activities, or depend on data that is typically quite old when reported.

To overcome these limitations and to provide more specific innovation performance targets, we have developed a **Monitoring and Evaluation (M&E) framework**; a tool that any innovation partner can make use of. This is built around the aims, objectives and expected outcomes of the strategy and will be used routinely within the innovation support programmes. A detailed description of the M&E framework can be found at www.eminnovation.org.uk/ris

Data, including baseline information, will be collected from a combination of sources, including standard output reporting, project management information and beneficiary surveys.

Priorities for action

Targeting support and investment at sector and technology priorities



During the three year period of the first Regional Innovation Strategy (RIS), we developed a much better understanding of the region's key strengths, enabling us to improve our ability to prioritise investments. Now, innovation in the East Midlands will be driven by a combination of our four priority sectors and the five technology priorities outlined in the Regional Technology Framework (RTF).

Together the four sector and five technology priorities – these latter based on the region's research strengths and ability to exploit technology in the business base – give a clear indication of the overall regional strengths. They will continue to be the principle drivers of innovation support and investment from regional programmes. The national priorities outlined are also important, but they are covered within the sector and technology priorities.

The technology priorities in particular are, along with low carbon, a bigger focus now and for the future, largely because of their ability to cut across sectors and give the RIS a much broader reach.

Four regional priority sectors:

- Food and drink
- Transport
- Healthcare and bioscience
- Sustainable construction.

Five technology priorities:

- Materials
- Design, engineering and manufacturing
- Energy and waste
- Information and communication technology
- Biotechnology and therapeutics.

New innovation drivers

Since the publication of the first RIS and RTF a number of new drivers have emerged, in particular the need to move towards a low carbon economy.

With our strengths in energy conversion, transport and construction, the East Midlands is well placed to address this challenge, with the iNets in particular playing a greater strategic role. There is already **significant innovation investment in low carbon activities**, for example, through the work of the Sustainable Construction iNet and in technology projects funded under several of the Technology Framework priority areas. However, in future it is essential that all regional innovation activity and investment ensures that low carbon opportunities, along with other national priorities (see page 8), are fully considered and prioritised appropriately.

Other drivers of importance to the innovation system include the availability of a well-skilled workforce; something that is becoming increasingly difficult with the demographic challenges of an ageing population, which is also putting pressures on healthcare provision. It is also clear that there are investment challenges to innovators, especially with regards to accessing finance and global markets, which remain key priorities to exploit wealth creation.

These cross-cutting themes are a prominent feature of this second RIS, the future success of which will rely on integrating existing and new innovation activities with a number of other areas, such as skills support, access to finance, digital connectivity, low carbon targets and technology support.



The ten priorities for innovation

1 iNets for the four priority sectors

The iNets will continue to be the key mechanism for promoting collaboration and innovation, with future activities aligned with national drivers including low carbon and advanced manufacturing. The iNets are part-funded by *emda*, but they continue to attract interest from other regional and national partners.

Under the Business Link brand and in-line with Solutions for Business, iNets are designed to improve business profitability by providing advice, guidance and brokerage of support programmes. They are regional partnerships of business networks, universities and public sector bodies that work together to stimulate business innovation.

The iNets are well placed to **facilitate and improve engagement between businesses and universities**. They will become more involved in providing a strategic steer on the industrial needs for the sector, identifying investment opportunities.

2 Improved access to innovation support

By making use of existing expertise and support available in our science parks, incubation facilities and innovation centres (for example The Lincoln Think Tank and Mansfield iCentre), **wider innovation support outside of the iNets' work in priority sectors** can be more effectively linked into the range of regional initiatives.

The key to extending innovation support to this wider audience is co-ordinated partnership working, with an important role for *emda*, local authorities and other stake holders. The main gateway for all business support will remain Business Link; but by making more effective connections within the network, greater understanding and better information can be made available which will improve the service to businesses.

3 Technology support for the East Midlands

The Regional Technology Framework (RTF) for the East Midlands (2008 – 2011) identified the following five priority technology areas:

- Materials
- Design, engineering and manufacturing
- Energy and waste
- Information and communication technology
- Biotechnology and therapeutics.

The role of technologies will take a higher priority. *emda* will continue to lead in maintaining and refreshing the RTF, with future activities aligned with national drivers. The five technology priorities outlined in the RTF present exciting exploitation opportunities and as such it is an excellent tool for prioritising regional innovation investments and providing reference information.

The iNets will become more closely involved in overseeing technology developments and will play an important role in strategic planning, identification and support for new technologies.

The East Midlands has set a gold standard in providing high quality support to help businesses and academics to succeed in European funding programmes. The FP7 service provides guidance on upcoming funding areas, finding project partners and project management for pan-European projects, as well as giving advice on the funding application and bid-writing process. This exemplar service has the scope to be extended to other international and national grant schemes, which is being explored.



4 The opportunities and challenges of a low carbon economy

Climate change brings unprecedented challenges to our environment, society and economy. Without rapid, significant and sustained reductions in greenhouse gas emissions then average global temperatures could rise by as much as 6°C by the end of this century, resulting in more frequent extreme weather events around the globe and huge economic impacts – The Stern Review into the Economics of Climate Change concluded that the overall costs and risks of inaction would be equivalent to losing between 5 – 20% of global GDP each year, now and forever.

The UK Climate Change Act (2008) and Low Carbon Transition Plan (2009) set out the roadmap for achieving the transition towards a low carbon economy, defined as an economy within which every aspect and activity is undertaken in a way that minimises the use of carbon resources and carbon emissions.

Innovation lies at the heart of a transition towards a low carbon economy, and for the East Midlands, our blend of energy heritage, and engineering / technology skills base – as manifested through world leading companies (such as Alstom, Siemens, E.ON Power Technologies, Advantica and Balfour Beattie) - brought together with more recent developments such as the establishment of the Energy Technologies Institute and proposals for a comprehensive Low Carbon Innovation Support Service, all means that the region's businesses are uniquely placed to maximise the economic opportunities (the regional market share of the emerging UK Low Carbon economy is £3.45 billion, or 6.43% of the UK total), and minimise the (carbon and economic) costs.

5 Finance and investor readiness

One of the main objectives of the RIS is to stimulate demand for innovation finance. The market is not always able to support investments in early stage technologies, which results in a valley of death between research funding and venture capital. This is exacerbated by a lack of awareness of finance options amongst some businesses, which limits their ability to attract external investors. There are many programmes and sources of innovation finance that can meet this gap, including a regional investment readiness programme to improve financial understanding. The key will be for *emda* and other funders to link innovation grants together with existing technology research and development

grants, proof of market and proof of concept grants. Skills provision and mentor programmes can also maximise the effectiveness of technology grants and will be driven through the knowledge exchange programmes and better links to the existing programmes.

6 Developing the current and future workforce

Skills development is crucial to the economy as we prepare for the next growth period and for future competitiveness, with particular emphasis on economically valuable skills including science, technology, engineering and mathematics (STEM). This, alongside recognition for re-skilling and up-skilling of the current workforce with particular focus on young people coming into the job market, is an important part of the RIS.

Many businesses still need support to move up the value chain, through investment in leadership and management, horizon scanning (reassessing business models, being adaptive and innovative), project management, sales and marketing and financial management.

Linkages with wider business support through the Integrated Brokerage Service will be necessary to provide a holistic offer for innovators. As such, the delivery of the Beyond Brokerage programme will continue to work closely with the iNets to ensure that integrated innovation and skills support are on offer.



7 Knowledge exchange opportunities

Support for knowledge exchange focuses on reinforcing connections between knowledge creators and knowledge exploiters. This is an important role for public sector partners; we can maximise the business collaborations and exploitation opportunities for R&D companies, including those with international links.

To increase the number and impact of collaborations, it is important to ensure that information on the wide range of knowledge exchange programmes is easily available. Initiatives range from informal ideas generation sessions to structured staff secondment opportunities between businesses and universities.

Many programmes supporting knowledge exchange are run through the universities and skills brokers, facilitated where possible through the iNets. It is a complex landscape that requires careful co-ordination by *emda* and partners to promote existing tools and programmes, brokering the right initiative to the right business.

8 Innovative procurement and procuring innovation

The public sector in the UK spends over half a trillion pounds every year. There is a vast opportunity for that spending to influence the market response to certain challenges, such as creating a low carbon economy.

Cost-effective procurement needs to consider longer-term strategies for challenging the market to deliver technology solutions. This may take longer and cost more in the first instance, but overall will help to deliver sustainable products and processes impacting positively on the local and regional economy.

emda has produced the Regional Procurement Opportunities Plan. This offers potential for public sector organisations to make strategic markets important for the region and pull technologies to market readiness. The iNets should play a key facilitation role within the priority sectors, for example promoting access to the NHS procurement process or in procuring low carbon solutions for publicly owned building stock. This also presents a core opportunity for a partnership approach across the local authorities in the East Midlands.

9 Accessing growing international markets

Companies that successfully do business in international markets tend to be more productive and innovative than those who do not. Among these are the so-called born globals – companies that within three years of launch gain at least 25% of their sales from overseas markets and / or whose competitive advantage is derived from their activity in more than one international market.

Technology and innovation are fundamental to the rise and success of born globals and these companies provide a core target group for innovation support.

More broadly, research shows that improvements in productivity amongst innovative businesses can only be achieved by linking innovation to international trade. Therefore a key priority for *emda* and other partners is to support businesses to become innovative and reach international audiences. We must continue to work collaboratively with partners such as UK Trade & Investment to ensure that the commercial opportunities arising out of improved innovation practices will be fully exploited, both at home and overseas.

In addition, given that the UK is not a low-cost destination for new investment from overseas, the region's R&D and innovation strengths play a key role in attracting new investors to the region.

10 Celebrating and raising awareness

Promoting a celebratory culture and positive attitude towards innovation will continue to be important. The annual iFestival has grown in success and reputation every year and has been a source of inspiration to other regions who are in the process of adopting similar models.

The iFestival model draws on partner events and strengths across the region, bringing them together under a single banner to increase coverage and marketing leverage. The initiative has had a huge impact in the region, leading to increasing financial and practical contributions from partners that have broadened the reach and scale of the iFestival. It has also served to significantly raise the profile of the East Midlands as a location for innovative businesses.



Implementing the RIS

Building and driving your own implementation plans

emda's Regional Innovation Strategy (RIS) implementation plan will set out investments and resources available to support innovation activities. But we also invite and encourage the region's innovation partners to develop their own implementation plans. By working together, in a closely co-ordinated way, we can maximise the leveraging power of individual investments to support all of the region's innovation objectives.

Maximising effectiveness through better collaboration

Government thinking in New Industry, New Jobs reflects the efforts to co-ordinate across Government departments and between regions. Businesses do not operate in silos or within restricted boundaries – **innovation should not be limited by these types of boundaries** either.

The key to maximising investments into the innovation system is to ensure that programmes are simplified, distinctive and well-linked, and that their commercial outcomes are viable. Organisations such as Innovation Lincolnshire and the regional Ingenuity Programme have a well-established network of contacts that, by smoothly linking to other initiatives in the region such as iNets and incubation centres, have significant potential to strengthen our approach to innovation.

Innovation partners

A wide range of stakeholders contributed to the development of the RIS, including:

- Local authorities, city, county and district councils
- Universities, colleges and schools
- Regional and Sub-Regional Partners (including NHS and Primary Care Trusts)
- National and international partners
- Businesses and their networks.

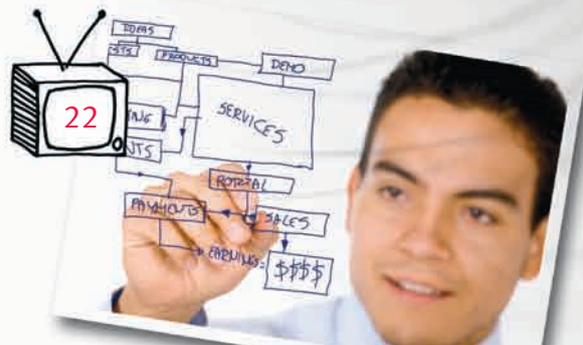
These are the region's innovation partners, all **working towards better wealth creation** for the benefit of communities, whether that is the general population, students, researchers or the wider business community.

In a challenging financial climate, we must maximise the effectiveness of how all existing innovation programmes, including those co-ordinated by *emda* and East Midlands Innovation, work together across all themes. By **improving networks and linkages** between programmes and disciplines, greater leverage and impact can be achieved for the benefit of all.

Partnership guiding principles

To maximise the benefits of partnership working and enhance regional innovation performance and support, a set of guiding principles will be developed. Focusing on investments in innovation, these principles will aim to **strengthen regional partnerships**, develop a sense of shared purpose and promote working relationships, including for example:

- An identification of shared common ground to support partners' participation
- A simple framework of responsibilities with accountability and terms of reference
- Clear, shared objectives and outcomes, with a realistic delivery plan and timetable
- Agreement to share monitoring tools, impact measurements and evaluations
- Investment plans driven by
 - Compatibility with RIS themes, regional sector priorities where possible and the priority technology areas
 - Consistent delivery of and access to innovation advice and guidance for all sectors
 - Agreement to encourage local and regional funding streams to maximise leverage from national and international sources
 - Alignment to Solutions for Business portfolio, avoiding duplication of services and investments by improving the connectivity with related regional and national programmes.



The role of East Midlands Innovation

East Midlands Innovation will continue to oversee the implementation of the RIS, holding *emda* funded partners, such as iNets, to account for delivery against agreed plans, and encouraging other partners to work in partnership with us.

Support activity will be reported to the region through an annual innovation report. The M&E framework will be a core component of the report, which will assess progress against the objectives and implementation plans of the strategy. This will provide the mechanism to update or redirect activities on an annual basis, giving greater flexibility and responsiveness to support programmes.

A strategy for the region

This Regional Innovation Strategy has been developed by *emda* and East Midlands Innovation Council.

But it is a strategy for the region.

It is down to all of us as innovation partners – from *emda*, East Midlands Innovation, local authorities and councils, to schools, universities, and public and private sector partners – to take this RIS and make it work for our businesses, our clients, our communities...our region.

Innovation has the power to change the world.

It can affect every aspect of our lives – whether social, cultural or commercial.

In the future, innovation will be the key to business success, allowing companies to differentiate themselves in an increasingly crowded marketplace.

It will be the key to the continued flourishing of our region.





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