Evaluation of the Economic Impact of the iNets

A report prepared for *emda*

GHK Consulting

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A report submitted by GHK

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Executive Summary

Purpose of the report

GHK Consulting (GHK) was contracted to carry out an evaluation of the economic impacts of the iNets (innovation networks) commissioned to assist in the delivery of the East Midlands Regional Innovation Strategy (RIS). Following the closure of the RDA, the study is intended to inform the basis for a continuation of the work of the iNets, funded by subscription and/or other funds.

The evaluation had central objectives:

- To evaluate the effectiveness of the delivery of the four iNets;
- To measure the economic impacts of the iNets and their grant programmes; and,
- To develop a baseline of the regional innovation performance of the four sectors within which the iNets operate.

The iNets in the East Midlands

Innovation was one of ten priorities set out in the Regional Economic Strategy (RES), which were identified as key to ensure that the region can compete in the global economy through an environment which encourages dynamic, innovative and creative business. Through the RIS, innovation networks (iNets) were introduced to deliver key priorities and coordinate actions for innovation investment, knowledge exchange, innovation support to business, creating the environment for innovation and fostering enabling and emerging technologies.

The iNets were focused on four priority sectors identified as part of the RES; transport equipment, construction, food and drink, and healthcare[1]. These sectors were highlighted as 'offering the greatest potential contribution to the region's economy' due to the region's research and business strengths and potential for innovation. The iNets seek to increase the innovation capacity, capability and Research and Development (R&D) activity in the sector's SMEs and regional Higher Education Institutions to ultimately improve the regional economic performance.

The Economic Impact of iNet Support

Table E.1 presents gross benefits identified through beneficiary surveys, applied to the population of beneficiaries for each iNet. Gross benefits are the impacts reported by beneficiaries based on a comparison of their position before and after receipt of the iNet support and the extent to which the results can be attributed to *emda.*

Table E.1 Gross Benefits of the iNets

	Food and Drink	Healthcare & Bioscience	Sustainable Construction	Transport	Total
Total employment impact (FTE)	231	237	111	182	771
Total GVA increase (£k)	1,540	4,153	1,963	3,634	11,587

From this analysis the net additional benefits are identified through taking account of beneficiary views regarding the extent to which the benefits outlined above would have happened regardless of the support provided by the iNet (deadweight), additionally the economic impact assessment considers the effects of leakage, displacement and multipliers on the gross benefits. 0Table 4.11 shows the net additional benefits of the iNets.

Table E.2 Net Additional Benefits of the iNets

	Food &	Healthcare &	Sustainable	Transport	Total

[1] *emda* "Regional Economic Strategy for the East Midlands 2006 – 2020" Executive Summary http://www.*emda*.org.uk/res/docs/RESSUMMARY12ppweb.pdf

	Drink	Bioscience	Construction		
Total employment impact (FTE)	85	146	27	97	355
Total GVA increase (£k)	769	2,614	622	1,723	5,728

In order to provide some indication as to the persistence of the impacts, businesses were asked how long they expected their reported impacts to last for.

The iNets began awarding IAG grants in late 2008. Consequently, many of the businesses surveyed had only recently received their grant, meaning that there has been limited time for impacts to be realised. As a result, the net economic impacts shown below are likely to be an underestimation of the results of the iNets, which may not be fully realised for some time. Furthermore, some iNets had been launched earlier and established pipeline activities which created early differences in their delivery potential.

Table E.3 Future Impacts

	Food & Drink	Healthcare & Bioscience	Sustainable Construction	Transport	Total
Undiscounted 5 Year Impact (£m)	2.3	13.8	2.6	4.4	23.1
Discounted 5 Year Impact (£m)*	1.5	13.1	2.6	4.0	21.2

Benchmarking iNet Support

Table E.4 outlines the cost per business assisted and job created for all businesses supported through the iNet and for the IAG grant.

Table E.4 Cost per Business Assisted by iNets and Comparison with other Programmes

Intervention Type	Delivery Cost (£m)	Cost per Business Assisted (£)	Cost per Job Created (£)
All Businesses Supported	14.8	5,633	21,312
Science, R&D and Innovation Support	*10.7*	*24,600*	*38,000*
IAG Grant Scheme	2.8	7,848	9,373
GRD (East Midlands)	*27*	*39,300*	*26,000*
GRD (All England)	*239*	*56,000*	*32,000*
Business Development and Competitiveness	*10.5*	*9,700*	*14,000*

Note: The Business Assisted definition for this study is taken to be the total number of businesses supported by the iNet. This analysis does not distinguish between SP and ERDF business assists.

This analysis suggests that, considered as a whole, the package of support provided by the iNets provides a lower cost per business assisted than comparable Science, R&D and Innovation support packages offered by other RDAs and the cost per job created is lower other initiatives of this type.

East Midlands Innovation Baseline

The purpose of the innovation baseline was to measure the innovation performance of East Midlands businesses that received support through one of the four iNets and compare this with those who have not received support. The survey of iNet beneficiary and non-beneficiary innovation performance highlighted a number of issues of significance. The main findings were:

- The response of beneficiaries to the services received is very positive, both in terms of the reported quality of the service and the judgements made by businesses as to the actual or potential economic impact.
- iNet beneficiaries spend more on R&D than non-beneficiaries. Of the four iNet sectors, businesses in the sustainable construction sector spent the least on R&D (25 per cent of respondents spent nothing). Some 21 per cent of respondents from the healthcare and bioscience sectors reported that they spent between 76 per cent and 100 per cent of their turnover on R&D, highlighting the importance of R&D investment in the sector.
- iNet beneficiaries are more likely to access a wide range of external sources of information, suggesting that they recognise the value of external knowledge and highlighting the fact that they are relatively more open to external sources of information as part of the innovation process than non-beneficiaries. Sources of information recognised of high value were customers, suppliers, trade associations and competitors. Interestingly, customers were rated as the most important external contributors to innovation for iNet beneficiaries.
- iNet beneficiaries are far more likely to spend higher proportions of turnover on process development than non-beneficiaries. For example, 12% of iNet beneficiaries indicated that they spent more than a quarter of expenditure on process development compared to just 2 % of non-beneficiaries.
- Spending on R&D is also translated into sales for iNet beneficiaries: iNet beneficiaries generate more income from innovation than non-beneficiaries (21% of beneficiaries generate over 51% of income from new or improved products or services, compared to 18% of non-beneficiaries).
- iNet beneficiaries are also more likely to make use of intellectual property protection than non-beneficiaries. Overall, 32 per cent of iNet beneficiaries had made use of a patent, significantly higher than the figure for non-beneficiaries (20 per cent).
- Over 30% of beneficiaries have launched new to industry products and processes due to an iNet intervention and a further 30% of beneficiaries are planning a launch in the next few years.

1 Introduction

1.1 Purpose of the project

GHK Consulting (GHK) was contracted to carry out an evaluation of the economic impacts of the iNets (innovation networks) commissioned to assist in the delivery of the East Midlands Regional Innovation Strategy (RIS). Following the closure of the RDA, the study is intended to inform the basis for a continuation of the work of the iNets, funded by subscription and/or other funds.

Both the RIS and the iNet model recognise that the generation, adoption and diffusion of new technologies is a complex, iterative process, endogenous to economic development, requiring networking physically and virtually, globally and locally, between innovators, businesses, financial and legal services. This is visible in policies that place a strong emphasis on geographical and relation-building. The emphasis on effective institutional management of the resources that generate innovation focuses attention on where these interactions take place – providing access to information and technology used by firms to increase their productivity.

The challenge faced by the iNets is how to strengthen and build the local processes that generate innovation in firms in specific sectors (and sub-sectors). Ultimately, the iNets are expected to generate improved innovation outcomes and local economic impacts.

1.2 The objectives of this evaluation

The Terms of Reference identified three evaluation objectives:

- To evaluate the effectiveness of the delivery of the four iNets;
- To measure the economic impacts of the iNets and their grant programmes; and,
- To develop a baseline of the regional innovation performance of the four sectors within which the iNets operate.

It should be stressed, that this is not a fully comprehensive evaluation of the iNets, in that the study is not expected to revisit the rationale and strategic context for the intervention, nor is it required to evaluate management and delivery arrangements. The focus of the study is instead on assessing the impacts of the iNets, both at a 'micro' level (i.e. amongst direct beneficiaries), and at a 'macro' level, by exploring the overall contribution of the initiative to regional economic performance.

We note that there is still a requirement to evaluate the effectiveness of the delivery of the iNets, but have elected to restrict this research activity to requesting that beneficiaries indicate their satisfaction with the services that they have received.

1.3 Our method of approach

An overview of the method of approach is shown in Figure 1.1. The study comprised three key research stages, each made up of a number of tasks.

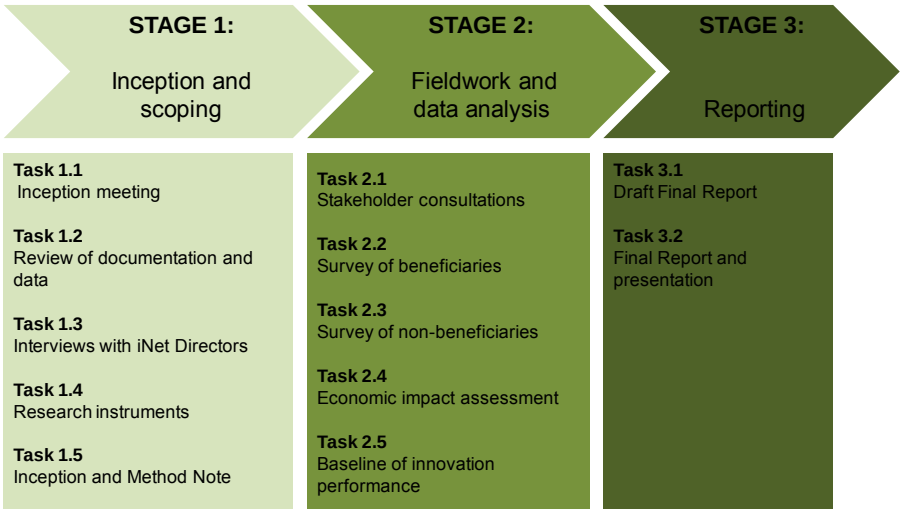
The main research was based on a survey of iNet beneficiary businesses and a further survey of businesses located within the four sectors, but that had not received any support from the iNet. The relevant survey instruments are provided in Annex 1, and details of survey responses are provided in the main text, below.

The development of the baseline is based on an Innovation Index, developed by NESTA, intended to address long-standing problems with the measurement of innovation performance[2]. The basis of the index is a theoretical model of how businesses innovate, based on an '*innovation value chain*'.

[2] NESTA (November 2009) The Innovation Index: Measuring the UK's investment in innovation and its effects

The baseline analysis presented in this report is consistent with the M&E framework performance indicators which were developed to collect the information needed in order to monitor the delivery of RIS2 funded activities, and to evaluate their effectiveness and impact. Analysis presented in this report, however, provides a wider understanding of the innovation value chain.

Figure 1.1 Overview of the proposed method of approach



This value chain consists of three key components:

- Businesses' ability to access innovation (by developing ideas internally or by obtaining them from elsewhere – for instance from higher education institutions);
- Businesses ability to build innovation (through turning ideas into new or improved products, services, processes etc.); and,
- Businesses ability to commercialise innovation (i.e. utilising innovative goods, services or processes to generate profit).

In order to measure performance in these three areas, the index made use of a suite of 16 indicators. The data for these indicators was collected through primary research with businesses[3], and thus provided a much richer and more contemporary source of information than can be obtained through existing published sources (e.g. the Community Innovation Survey).

For this study, the method of approach used selected questions from the innovation index to allow some comparison with regional businesses.

Table 1.1 Key indicators used within NESTA's Innovation Index, and how they could be applied in the East Midlands for this study

Metric	Description and purpose	Potential survey question
Accessing Knowledge		
The proportion of externally sourced ideas (%)	The proportion of a business's innovations that typically originate from ideas initially developed outside of the firm – a measure of the openness of a company to external sources of	What proportion of your company's innovations have been based primarily on ideas developed elsewhere?

[3] Roper, S. et al (November 2009) Measuring sectoral innovation capability in nine areas of the UK economy. Report for NESTA Innovation Index project

Metric	Description and purpose	Potential survey question
	knowledge	
R&D intensity (%)	R&D expenditure as a percentage of sales – a measure of a business's commitment to investment in new technologies	How much did your company invest in R&D last year?
Design intensity (%)	Design expenditure as a percentage of sales – as above, a measure of investment in an important source of innovation	How much did your company invest in design last year?
Multi-functionality in accessing knowledge (%)	An index of the extent to which multiple skills groups (managerial, technical, design, marketing etc) are involved in accessing knowledge	Who in the company is involved in obtaining new ideas and information, and what are their skills groups?
External knowledge sources for accessing knowledge (%)	Measurement of whether 8 defined external sources of knowledge (suppliers, government, HEIs etc) are 'very important' as sources of new ideas	Which of the following sources of knowledge is very important as a source of ideas for innovation?
Building Innovation		
Process innovation intensity (expenditure per sales) (%)	Expenditure on process development as a percentage of sales	How much did your company invest in process development last year?
Percentage of sales of innovative products (%)	Percentage of firms' sales derived from new or improved products or services over the last three years	What percentage of your sales were derived from new or improved products or services?
Diversity of innovation activity (%)	An index based on whether businesses undertook all 6 forms of innovation (product, management, marketing etc)	Has your firm undertook any of the following forms of innovation: product, management, marketing etc?
Multi-functionality in building innovation (%)	An index of the extent to which multiple skills groups (managerial, technical, design, marketing etc) are involved in building innovation (new products etc)	Who in the company is involved in developing and building innovation, and what are their skills groups?
Embeddedness of team-working in building innovation (%)	Extent to which firms display all five forms of team-working (training of teams, involvement of customers or suppliers etc)	To what extent do firms agree with five statements in relation to team-working?
External knowledge sources for building innovation (%)	Measurement of whether 8 defined external sources of knowledge (suppliers, government, HEIs etc) are 'very important' in helping them develop new innovations etc	Which of the following sources of knowledge is very important as a source of help for the development of new products and processes?
Commercialising Innovation		
Range of customer relation modes (%)	Extent to which firms display sector-specific forms of customer interaction (market research, customer feedback etc)	Which of the following forms of customer interaction does your firm undertake (market research, customer feedback etc)?

Metric	Description and purpose	Potential survey question
Branding, marketing intensity (expenditure per sales)	Expenditure on branding, marketing as a percentage of sales	How much did your company invest in branding and marketing last year?
Multi-functionality in commercialising innovation (%)	An index of the extent to which multiple skills groups (managerial, technical, design, marketing etc) are involved in commercialising innovation	Who in the company is involved in commercialising innovation, and what are their skills groups?
External knowledge sources for commercialisation (%)	Measurement of whether 7 defined external organisations (suppliers, competitors, advertising agencies etc) are 'very important' in helping them market and sell innovations	Which of the following helps your business to market and sell innovations (suppliers, competitors, advertising agencies etc)?
Use of IP protection (%)	An index of the number of forms of IP protection used by firms (patent, trademarks, copyright etc)	How many of the following forms of IP protection do you use (patent, trademarks, copyright etc)?

Source: Based on NESTA (2009) and Roper et al (2009)

In addition we have also identified a number of other programmes not dissimilar to the iNet intervention, to provide some comparison with the impacts produced by the iNets.

1.4 Structure of the report

The report continues in the following sections:

- Section 2 provides an introduction to the priority sectors and the iNets;
- Section 3 provides the feedback from beneficiary on the quality and potential impact of the support received;
- Section 4 presents an analysis of the economic impacts associated with the innovation support received by the iNets;
- Section 5 presents the results of the baseline review of innovation performance in the four sectors; and,
- Section 6 presents a summary of key conclusions.

2 Overview of the East Midlands iNets

2.1 The importance of innovation

Innovation is a key driver of economic growth, identified by national and regional policy[4]. Businesses are the key drivers of innovative activity through their provision of finance, Research and Development (R&D) investment and commercialisation of innovations which brings them to market[5]. However, the government and public sector play a role in catalysing innovation through the development of policy and regulation.

At the regional level the RDAs have provided the strategic framework for the economic growth in their regions – including the important role that innovation plays. As such, the RDAs have been "key spenders in supporting innovative business"[6] and work with a variety of actors to assist businesses to work with the knowledge base.

As part of the evidence base for the Regional Innovation Strategy (RIS:2007-10)[7] it was identified that East Midlands business R&D expenditure is concentrated in a small number of large companies; there is low investment in SMEs; there is lower than average expenditure in HEI R&D; a lower than average share of turnover from new products and services and research suggesting that businesses find it difficult to access university level academia.

2.2 The iNets in the East Midlands

Innovation was one of ten priorities set out in the Regional Economic Strategy (RES), which were identified as key to ensure that the region can compete in the global economy through an environment which encourages dynamic, innovative and creative business. Through the RIS, innovation networks (iNets) were introduced to deliver key priorities and coordinate actions for innovation investment, knowledge exchange, innovation support to business, creating the environment for innovation and fostering enabling and emerging technologies.

The iNets were focused on four priority sectors identified as part of the RES; transport equipment, construction, food and drink, and healthcare[8]. These sectors were highlighted as 'offering the greatest potential contribution to the region's economy' due to the region's research and business strengths and potential for innovation.

Each of the iNets is made up of a group of businesses, universities, public sector representatives and wider innovation stakeholders who have a collective interest in the sector, and delivered through a core team of iNet employees. The iNets were established with the intention to *"significantly raise the number and quality of interactions between innovation stakeholders and so increase levels of innovation"*[9]. The RIS emphasised the importance of focusing investment for innovation on the region's core strengths (both industrial and research) to prioritise innovative activity in those sectors with biggest potential for innovative growth.

2.2.1 The purpose of the iNets

The iNets seek to increase the innovation capacity, capability and Research and Development (R&D) activity in the sector's SMEs and regional Higher Education Institutions to ultimately improve the regional economic performance. More specifically this includes:

[4] BIS "Annual Innovation Report 2010" http://www.bis.gov.uk/assets/biscore/innovation/docs/a/11-p188-annual-innovation-report-2010.pdf

[5] BIS (2011) "Annual Innovation Report 2010" p13

[6] BIS "Regional Innovation" http://www.bis.gov.uk/policies/innovation/regional-innovation

[7] East Midlands Innovation "Regional Innovation Strategy 2007-2010" http://www.eminnovation.org.uk/cms/Documents/RIS%20reprint%20Jan09_116.pdf

[8] *emda* "Regional Economic Strategy for the East Midlands 2006 – 2020" Executive Summary http://www.*emda*.org.uk/res/docs/RESSUMMARY12ppweb.pdf

[9] East Midlands Innovation "Regional Innovation Strategy 2007-2010" http://www.eminnovation.org.uk/cms/Documents/RIS%20reprint%20Jan09_116.pdf

- Improving interaction between businesses, HEIs and wider stakeholders in the region;
- Providing targeted and proactive innovation support to improve the region's economic performance;
- Re-emphasising the importance of an innovation culture
- 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 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; and,
- Increasing the receptivity of SMEs to innovation.

Since their establishment, the East Midlands iNets have become exemplars in the UK for the facilitation of innovation on the ground[10] engaging with numerous research projects and leveraging additional investment to the region. As such, the RIS2 (2010-2013[11]) gives the iNets a larger role in developing regional priorities. Furthermore, the iNet model is deemed a positive intervention to facilitate innovation and has been replicated in other regions.

Through RIS2, the iNets are still deemed to be the key mechanisms for the promotion of innovation and collaboration with a reemphasised focus on low carbon aligned with the national drivers. Looking forward the iNets are set to improve the engagement and interaction between HEIs and the business base, and, through their position as strategic steer for the various sectors' industrial needs, help to identify investment opportunity. In line with the Regional Technology Framework (2008 – 2011)[12] and the increased focus on technologies, the iNets will also help to oversee technology development through strategic planning and identification of support for new technologies.

2.2.2 Intervention Rationale

Table 2.1 presents a summary Logic Model for the iNets, below.

Table 2.1 iNet Logic Model

Rationale				
Firms must increasingly compete using knowledge to create added value. In the East Midlands the relationships between businesses, centres of knowledge and innovation lag those elsewhere in the UK. The region must respond in order to become more innovative and to improve competitiveness. The iNets provide support to businesses to access knowledge and facilitate relationships between centres of knowledge and business. The four iNets (Food and Drink, Healthcare and Bioscience, Sustainable Construction and Transport) are initiatives which have been developed in order to support business innovation in the East Midlands specifically relating to Small and Medium Sized Enterprises (SME's) within the selected sectors.				
Inputs	**Activities**	**Outputs**	**Outcomes**	**Impact**
Single Programme (SP) funding from the Regional	Networking events Skills events	Businesses assisted to improve performance	Business collaborations Businesses	Jobs created Regional Gross Value Added

[10] Ibid.

[11] East Midlands Innovation "Regional Innovation Strategy 2010 - 2013" http://www.eminnovation.org.uk/cms/Documents/RIS_2010_to_2013_834.pdf

[12] EMI "Regional Technology Framework 2008 – 2011" http://www.eminnovation.org.uk/cms/Documents/RTF%20Full%20Document_29.pdf

Development Agency European Regional Development Fund (ERDF) investment Partner time/funding	Enabling technology events Higher Education Institution (HEI) collaborations CRD Grants IAG + Grants IDB Supply chain brokerage Research Knowledge base engagements	Businesses engaged in new collaboration with HEI Leverage (£) through HEI collaboration Businesses created Individuals assisted to improve skills	improved performance New innovation products New innovation processes	(GVA)

2.3 An overview of the four iNet sectors

The four iNets provide innovation advice, guidance and networking opportunities to companies in the East Midlands. This is delivered through free of charge, face to face consultancy to small and medium sized enterprises who want to embark on innovation projects. The iNets also assist businesses in demonstrating proof of concept and finding the most effective route to market to commercialise new ideas.

Support for specific innovation collaboration with one or more higher education institutions is provided through the Collaborative Research and Development Grant (CRD), formerly known as the Higher Education Collaboration Fund. Innovation support is delivered by the iNet through an information, diagnostic and brokerage (IDB) service aligned to Business Link programme. The IDB advisor service provides access to Innovation Advice and Guidance (IAG: formerly the Innovation Support Grant) for specific innovation development which is aimed at new (or existing) product or process development. In many cases, the IAG intervention results in subsidised financial support. For the purposes of this study, IAG grants have been used to study the effectiveness of an advisor supported grant service.

2.3.1 Food and Drink Sector

The food and drink sector is one of the largest manufacturing sub-sectors in the East Midlands. The sector is approximately twice as important to the East Midlands economy as it is nationally (UK) and is over one-tenth more productive[13].

In 2010[14], the food and drink sector accounted for 4% of the East Midlands output and just less than 3% of total regional employment[15]. Whilst there are more than 70 large food and drink companies located in the East Midlands (200 + employees), over 1,000 companies are registered in the region[16]. On average, each company is 20 years old, employs over 500 people and has an average company turnover of £63.2 million.

[13] *emda* (2010) "The East Midlands in 2010 – the Updated RES Evidence Base" phttp://www.*emda*.org.uk/research/evidence-base.asp

[14] *emda* (2010) "The East Midlands in 2010 – the Updated RES Evidence Base" http://www.*emda*.org.uk/research/evidence-base.asp

[15] Compared to the Food and Drink sector accounting for 1.9% of UK output and 1.6% of employment.

[16] FAME database, *businesses are categorised by the location of the head office*

The food and drink sector is estimated by *emda* forecasts to grow over the decade to 2018, against the national pattern of modest decline.[17] A future challenge will be to ensure that the sector can minimise its carbon footprint.

Regional Strengths and Assets

The East Midlands Technology Framework[18] identifies a number of strengths the region possesses which will help the sector to drive innovation:

- A number of the region's HEIs are working to improve the sector's carbon impact including Brackenhurst Campus at Nottingham Trent University and the Holbeach Campus at the University of Lincoln.
- PepsiCo, based in the East Midlands, possess strengths in process engineering which could be beneficial to the sector relating to food manufacturing processes.
- Northern Foods' Technical Services Centre is located at BioCity Nottingham, Northern Foods have introduced innovative approaches to waste minimisation, management and recycling
- There are a number of key research groups in food science and technology at the School of Bioscience, University of Nottingham and Schools of Animal, Rural and Environmental Sciences and Biomedical and Natural Sciences, Nottingham Trent University. Furthermore, the Holbeach Campus, University of Lincoln is a specialist food technology and food manufacturing centre for the region.

2.3.2 Healthcare and Bioscience Sector

The healthcare and bioscience sector is defined as the provision of healthcare services (principally represented by the NHS) and manufacture of medical instruments, equipment and pharmaceuticals[19] It also includes industrial and environmental biotech companies. Currently the sector is broadly in line with the UK in terms of FTE employment and output, with the health sector accounting for 7% of output and 10% of employment in the East Midlands in 2007. There is a small lag behind the rest of the UK when productivity is considered, however the gap has decreased since 2004 and it is anticipated that the sector will see employment and output growth which is significantly higher than the national sector growth in the next few years.

It is estimated that there are 70 large employers (each with over 200 employees) in the East Midlands health sector[20], with a total of 4,560 companies registered in the region[21]. The average age of healthcare and bioscience companies is 10 years, on average companies in the sector employs fewer than 300 people with an average turnover of £25.1 million[22]. Given an increasingly ageing society, demand for health services and products is expected to increase.

Regional Strengths and Assets

There are a number of research strengths within the East Midlands relating to life sciences both through HEIs, hospitals and a strong manufacturing base, which has led to a number of key industry players including 3M and Boots Alliance locating the region.

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[17] *emda* (2010) "The East Midlands in 2010 – the Updated RES Evidence Base" http://www.*emda*.org.uk/research/evidence-base.asp

[18] *Emda* (2008) "A Technology Framework for the East Midlands 2008 – 2011"

[19] *emda* (2010) "The East Midlands in 2010 – the Updated RES Evidence Base" p201 http://www.*emda*.org.uk/research/evidence-base.asp

[20] *emda* (2010) ibid. P201

[21] A recent BIS study produced a more tightly defined outline of the sector, suggesting that it contained less than 1,000 companies. (see: http://www.bis.gov.uk/assets/biscore/business-sectors/docs/s/10-p90-strength-and-opportunity-bioscience-and-health-technology-sectors.pdf

[22] FAME database, *businesses are categorised by the location of the head office*

- A biomaterials research base exists in the region which includes the University of Nottingham's School of Pharmacy, University of Leicester's School of Biological Sciences and Leicester Medical School and the Biomedical Research Centre at Nottingham Trent University, further driven by technology-intensive SME development.
- Microbiology and hygienic environments innovations are visible in the University of Nottingham, Leicester University and Nottingham Trent University.
- Tissue and cell engineering are being developed at the School of Pharmacy at the University of Nottingham and the Centre for Biomolecular Sciences. This will have positive impacts on longer-term applications of cell culture technologies.
- BioCity in Nottingham has international recognition as one of Europe's largest bioscience incubators - a number of the region's universities are active in EMINATE a research and innovation centre at BioCity which aims to improve take up in industry of nanotechnologies.
- A number of universities and companies are active in the development and testing of drugs including the University of Nottingham, Leicester University, De Montfort University and Nottingham Trent University, Astra Zeneca and 3M.

2.3.3 Sustainable Construction Sector

The East Midlands construction sector was hardest hit of all sectors by the economic downturn, especially as a result of a reduction in house building and funding for commercial activity – in fact the impact in the East Midlands construction sector was visible almost two quarters prior to the impact across the whole UK[23]. 9.3% of the region's workforce is employed in the construction sector, slightly more than the UK (8.6%). The the region lags slightly behind the UK in terms of productivity.

Over the decade to 2018, the construction sector is forecast to see a decrease in employment aligned with a fall in construction employment across the UK. However, the sector's output is likely to increase, sustained by a number of infrastructure projects.

The construction sector is the largest sector in the East Midlands accounting for 14% of all business stock[24]. There were 30 large construction employers (200 + employees) in the East Midlands in 2010. A further 24,000 businesses were also working in the sector, employing on average 120 people with turnover of £6.5 million. The number of businesses is likely to be large given the propensity for self-employment in vocational trades. On average businesses were 13 years old.

Regional Strengths and Assets

The East Midlands is deemed to be "on par" with the other English regions in the construction industry. However, the UK as a whole is less innovative than many parts of Northern Europe, particularly Scandinavia and Germany, where there is more emphasis on sustainable construction[25]. This is largely due to the introduction of sustainable construction to government policy earlier than in the UK. There was general consensus that the sector realises that there is a need to be more innovative and invest in more sustainable practices. Such activity is visible in a number of university led research strengths and innovation driven by larger companies.

A number of key strengths can be identified in the East Midlands including:

[23] *emda* (2010) "The East Midlands in 2010 – the Updated RES Evidence Base" p162 http://www.*emda*.org.uk/research/evidence-base.asp

[24] *emda* (2010) "The East Midlands in 2010 – the Updated RES Evidence Base" p199 http://www.*emda*.org.uk/research/evidence-base.asp

[25] GHK stakeholder interviews.

- Nottingham University has strengths in innovative activity relating to construction, particular housing including the Sustainable Geospatial building, a demonstration part at the university which provides opportunity for SMEs to interact with the research base[26].
- Knowledge and research relating to smart and building technologies including internationally recognised expertise in construction materials such as the Department of Civil and Building Engineering at Loughborough University and the School of the Built Environment at the University of Nottingham.
- Companies reliant on advanced manufacturing technology including Bowmer and Kirkland, Hanson and Tarmac.
- The Innovative and Manufacturing and Construction Research Centre at Loughborough University has expertise in design and rapid manufacture, such technologies are also being driven and utilised by companies such as Laing O'Rourke.
- Cenex (the Centre for Excellence in Low Carbon Technologies) at Loughborough also provide opportunities for the sector, progressed further by companies such as Xtratherm and Ibstock Brick[27].
- The East Midlands has a strength in hard construction, particularly concrete materials with Roger Bullivant a particularly important business[28].

2.3.4 Transport Sector

The transport sector consists of marine, rail, aerospace and automotive manufacturing around equipment, motor vehicles, trailers and other products. The transport sector accounts for 6% or regional output and 5% of employment. Dominant within the sector in the East Midlands is the Transport equipment manufacturing sub-sector, which accounts for 4% of output and 2% of regional employment[29]. There are a large number of multi-national companies in the sector including Rolls-Royce and Bombardier in addition to a supply chain of small companies across the East Midlands

There are 7,269 transport businesses are registered in the East Midlands, employing an average of 209 people with a turnover of £11.5 million, of these there are approximately 30 large employers (with 200 + employees) in the sector. The average age of transport companies in the East Midlands is 13 years. The significance of the sector is visible through the high levels of productivity, estimated to be 42% higher in the East Midlands transport sector than the UK.

Regional Strengths and Assets

The UK has typically been deemed world class in relation to research and development in the transport sector. This reputation is also true of the East Midlands with a number of strengths considered world-class including the development of transport and complementary technologies. The regional success of the sector is driven in part by a strong university base including the Universities of Nottingham and Loughborough who are increasingly collaborating with universities outside of the region[30], coupled with a number of large transport companies locating in the region.

A number of key strengths have been identified in the East Midlands including:

- A number of low carbon companies are found in the region which provide opportunity for the sector including Rolls Royce Intelligent Energy and BAE Systems Integration

[26] GHK stakeholder interviews

[27] *Emda* (2008) "A Technology Framework for the East Midlands 2008 – 2011"

[28] GHK Stakeholder interview

[29] *emda* (2010) "The East Midlands in 2010 – the Updated RES Evidence Base" p162 http://www.*emda*.org.uk/research/evidence-base.asp

[30] GHK stakeholder interview

- Loughborough University's Department of Aeronautical and Automotive Engineering, and Cenex (the Centre for Excellence in Low Carbon Technologies) are key to developing research capacity whilst in the motorsport sector, Zytek Engineering and and Mahle Powertrain are developing innovative products[31].
- Fuel combustion is a particular strength for the East Midlands, both at the University level (Loughborough University through the Department of Aeronautical and Automotive Engineering, Rolls-Royce University Technology Centre in Combustion Aerodynamics and the University of Nottingham through the Energy Technologies Research Institute and the Thermofluids research group within the Department of Mechanical and Manufacturing Engineering), and at the engagement of companies including Bombardier, Perkins, Cosworth and Rolls Royce.
- Energy storage is being developed through the University of Nottingham's Fuel and Energy Centre and Loughborough's Centre for Renewable Energy Systems Technology. Renewable energies are an emerging strength which could provide further opportunity looking forward.
- The growth of satellite navigation systems and other imaging is visible in the East Midlands including at the Institute of Engineering Surveying and Space Geodesy at Nottingham and utilised by organisations such as Delta Rail, Race Technology and Nottingham Scientific Limited.
- Computational technologies are being utilised by Rolls Royce and Honda Racing F1 and developed through research at a number of the region's universities.

[31] *Emda* (2008) "A Technology Framework for the East Midlands 2008 – 2011"

3 Beneficiary Perceptions Regarding iNet Support

3.1 Feedback from iNet beneficiaries on the support received

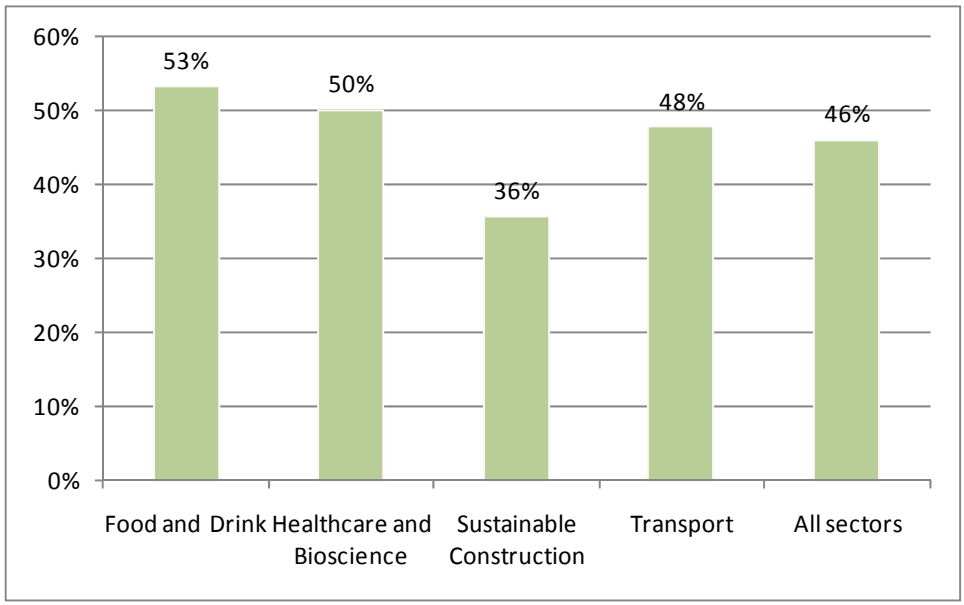
The Beneficiary Survey (see Annex 2) invited all companies that had received support through the iNets to complete an e-survey. 176 responses were received across the four iNet sectors. Of these responses, 36 were from the Food and Drink sector, 44 from the Healthcare and Bioscience sector, 52 from the Sustainable Construction sector, with 42 from the Transport Sector.

The following section provides an illustration of beneficiary perceptions regarding their motivations prior to contact with the iNets, their opinion of the service they received and the impacts that the service has had on their company.

3.2 Prior involvement in Networking Activity

Almost half of iNet beneficiaries had previous involvement with organisations or networks which support innovation for East Midlands businesses (Figure 3.1).

Figure 3.1 Share of respondents previously involved in business networks or organisations



Base: 159 businesses (32 F&D, 40 H&B, 45 SC and 42 T/pt)

The organisations contacted varied by sector. For example, *emda* had provided support to 11 businesses previously – over half of which were in the Healthcare and Bioscience sector. A similar level (11 businesses) had received support from Business Link – primarily those in the sustainable construction or transport sector. The main sources of assistance cited are:

- In the Food and Drink sector, support had primarily been received through the Food and Drink Forum, MAS or Business Link.
- For those businesses in the healthcare and bioscience sector from *emda*, Medilink or Connect Midlands.
- Businesses in the sustainable construction sector had gained support through Business Link and Universities including through knowledge transfer partnerships.
- The transport sector had received support from Cenex, the Midlands Aerospace Alliance (MAA) and through universities through Knowledge Transfer Partnerships and the Technology Strategy Board.

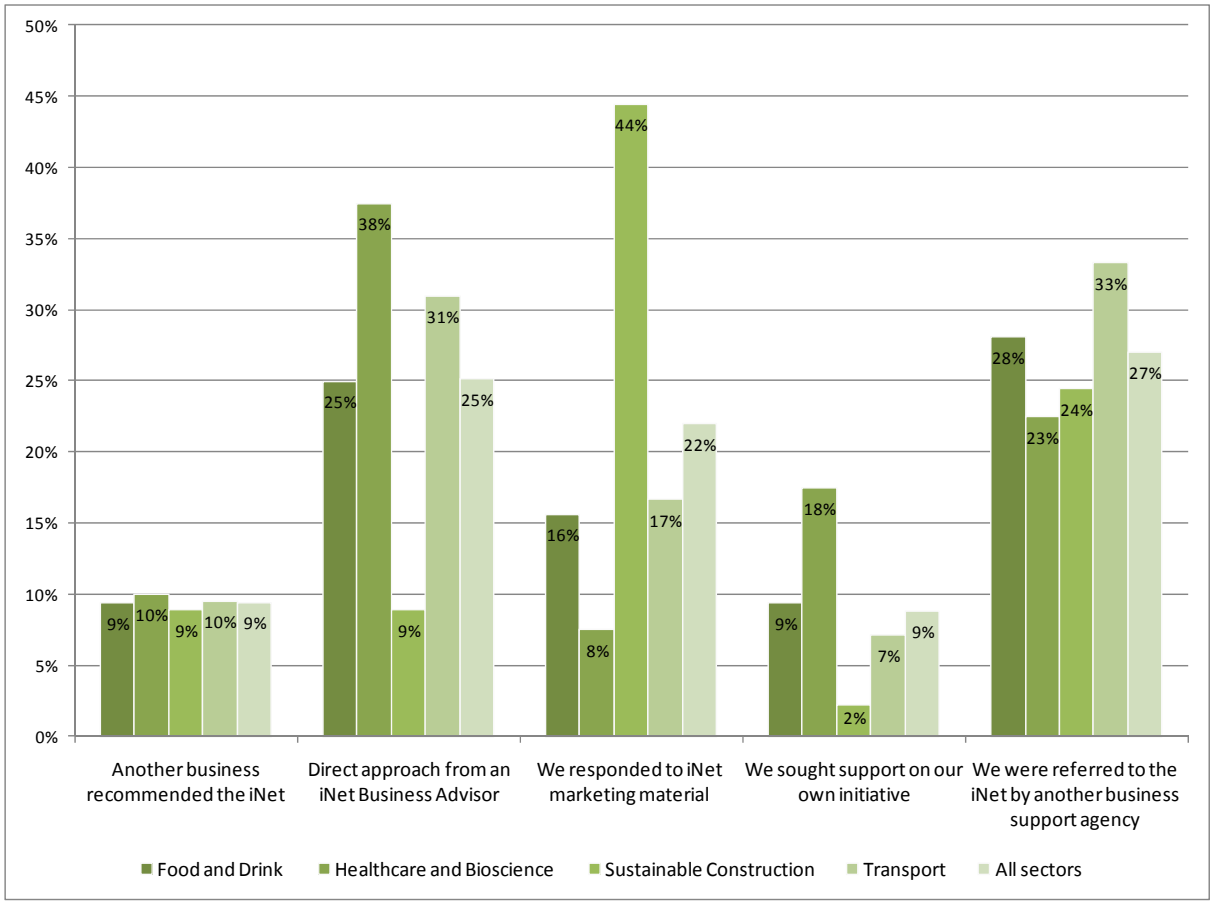
The lower level of engagement in the construction sector could be a reflection of the absence of an earlier sector initiative unlike those undertaken in the other three sectors.

3.3 Motivations for involvement with the iNets

As illustrated in Figure 3.2, the majority of businesses had engaged with the iNet following referral from another business support organisation. Overall, one-quarter of iNet beneficiaries had been directly approached by an iNet advisor. This share was significantly higher in the Healthcare and Bioscience sector, however, where 38% of beneficiaries had been engaged in this way. On average, one in five businesses had approached the iNet after receiving marketing material, although in the Sustainable Construction sector this share was markedly higher at two-fifths of all respondents.

Interestingly, there was limited business to business iNet referral or businesses engaging with the iNet through their own initiative. Businesses in the healthcare and bioscience sector were twice as likely to approach the iNet of their own accord, this may be due a greater propensity for companies in this sector to have closer links with universities and R&D support.

Figure 3.2 Initial awareness of the iNet



Base: 159 businesses (32 F&D, 40 H&B, 45 SC and 42 T/pt)

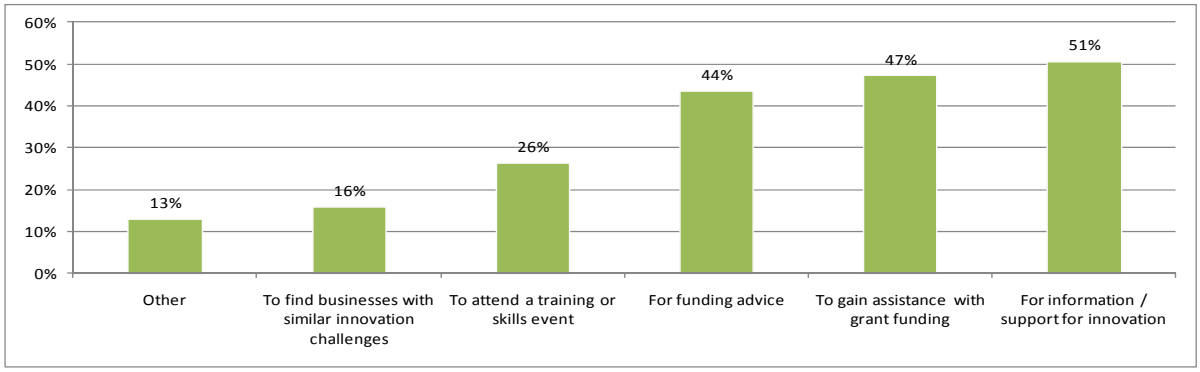
Businesses were asked to rate various statements to illustrate their main motivation for engaging with the iNet, these statements included:

- For information/ support for innovation;
- To find businesses with similar innovation challenges;
- For funding advice;
- To gain assistance with grant funding;

- To attend a training or skills event; or,
- Other.

As illustrated in Figure 3.3 , for those who listed innovation as very important to their company, over half of businesses stated that information and support for innovation was a 'very important' motivation – with just less than a half of businesses seeking assistance with grant funding. Only 16% of businesses sought to utilise the iNet to find businesses that faced similar innovation challenges. One quarter of businesses wanted to engage with a training or skills event.

Figure 3.3 Reason for iNet engagement for companies stating Innovation was very important to their company (all sectors)



Base: 152 businesses

- Businesses in the Food and Drink sector were more likely to engage with the iNet to find businesses with similar innovation challenges and to gain assistance with grant funding than other sectors.
- Businesses in the Healthcare and Bioscience sector were more likely to have engaged with the iNet for innovation support or information or to gain funding advice or assistance with grant funding than other sectors.
- Businesses in the sustainable construction sector were less likely to engage with the iNet to gain assistance with funding or receive funding advice than other sectors. However they were more likely to have engaged with the iNet to attend training or skills events.
- Businesses in the transport sector were the least likely to have engaged with the iNet to meet businesses with similar innovation challenges or attend a training or skills event. They were, however, likely to have sought assistance with grant funding.

A number of businesses had sought to network through the iNet or sought assistance with marketing.

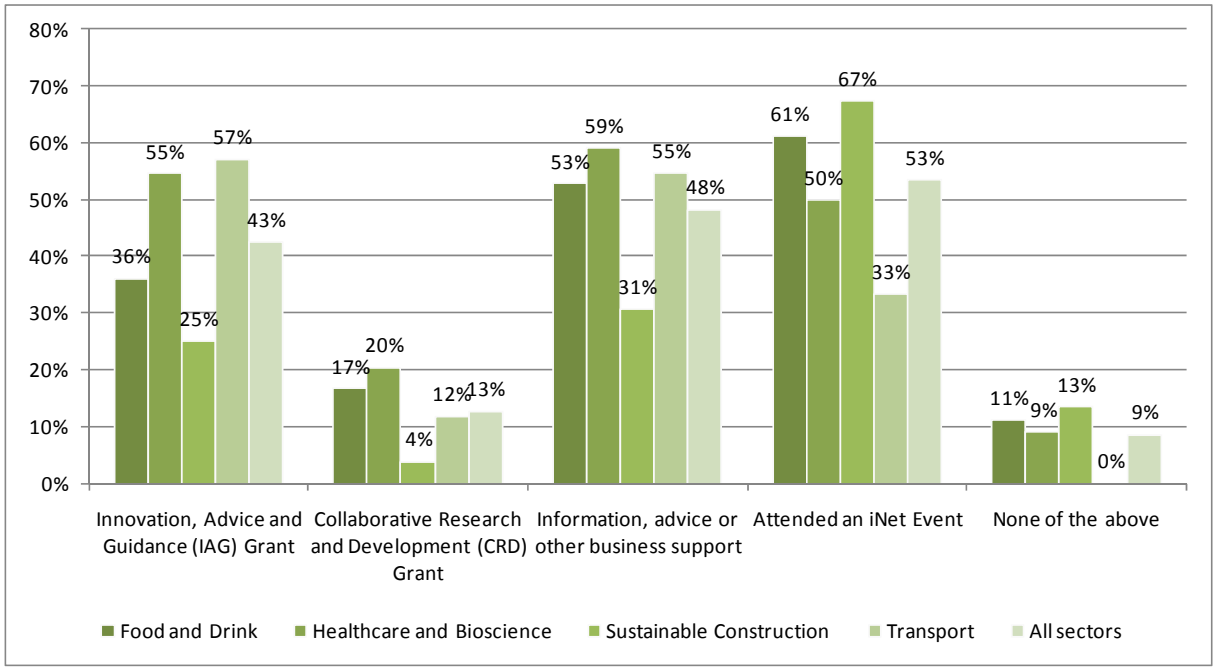
3.4 Services Received

Over half of respondents had attended an iNet event with just less than a half receiving information, advice or other business support. Over 40% of businesses had received an IAG grant compared to just over 10% who had received a CRD grant (due to the fact that the CRD grant is available only through a competitive call process this was not unexpected). On average, 10% of businesses who were iNet beneficiaries stated they had not received any support.

- Food and drink sector businesses were more likely to have attended a skills or training event or received information or advice than across all four sectors as a whole. Over one third of respondents had received an IAG grant whilst less than one-fifth were recipients of the CRD grant.
- Respondents in the healthcare and bioscience sector were more likely to have received a grant (either IAG or CRD) than other iNets.

- Two thirds of sustainable construction beneficiaries had received information or advice through the iNet. Only one quarter had received an IAG grant with just 4% in receipt of the CRD grant.
- Transport respondents were the most likely to have received an IAG grant of the four iNets.

Figure 3.4 Share of respondents who had received each iNet service



Base: 174 businesses. More than one service could have been received by each iNet beneficiary.

As illustrated by Figure 3.5, there was a high level of satisfaction with the services received through the iNet on the whole – particularly the IAG and CRD grants where 80% were "very satisfied" with the support. This matches the 80% satisfaction rates demonstrated in a recent evaluation of the Manufacturing Advisory Service.[32]

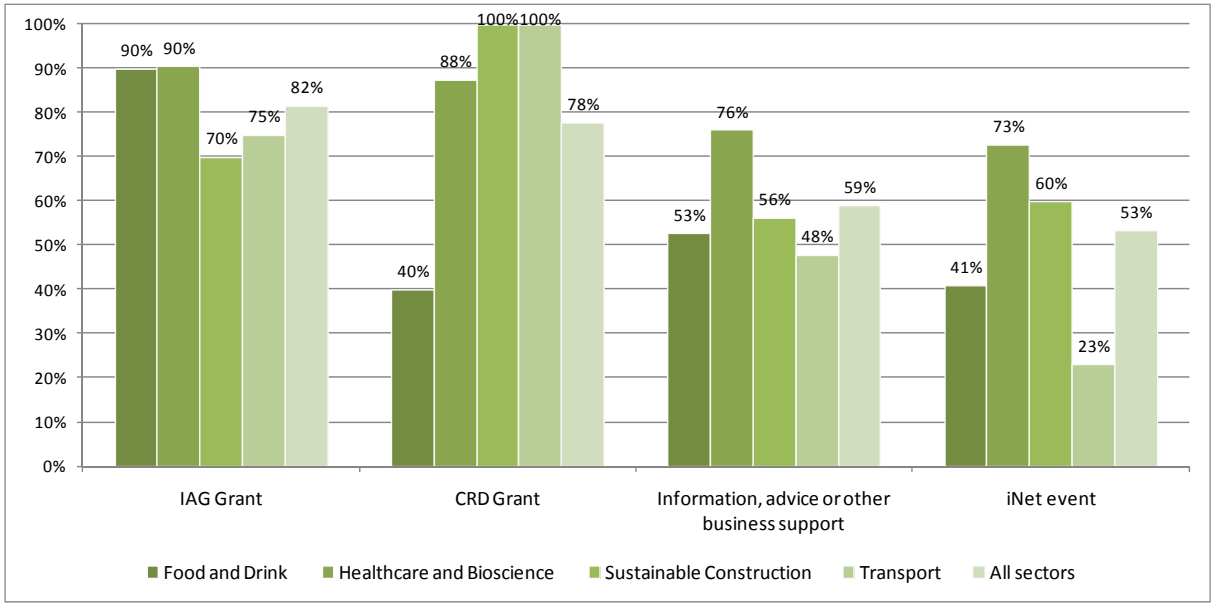
Whilst it would seem that companies in the food and drink sector in receipt of a CRD grant were less satisfied, this is largely due to a low number of businesses responding to the survey from this sector who had received a CRD grant. 8% of all IAG respondents stated they were "very unsatisfied" or "unsatisfied" (accounting for just 4 businesses; 2 in the Healthcare and Bioscience and 2 in the Sustainable Construction sectors).

For the information, advice or business support received from the iNet, satisfaction was highest from businesses in the healthcare and bioscience sector where over 75% were "very satisfied" compared to just under 60% across the four sectors. Levels of satisfaction were similarly high for those in the healthcare and bioscience sector who had attended an iNet event – over 73% "very satisfied" compared to 52% across all sectors, dipping to 23% in the transport sector.

13% of businesses were "unsatisfied" with an event they had attended – these businesses were primarily in the food and drink sector (6 of 12 businesses). Comparatively, healthcare and bioscience and sustainable construction sector businesses were more satisfied with events they had attended (73% and 60% respectively were "very satisfied).

[32] DTZ (2010) "Review of the Manufacturing Advisory Service and Research to Support the Business Case for Continuing and Developing the Manufacturing Advisory Service: Final Report"

Figure 3.5 Share of businesses who were "very satisfied" with support received



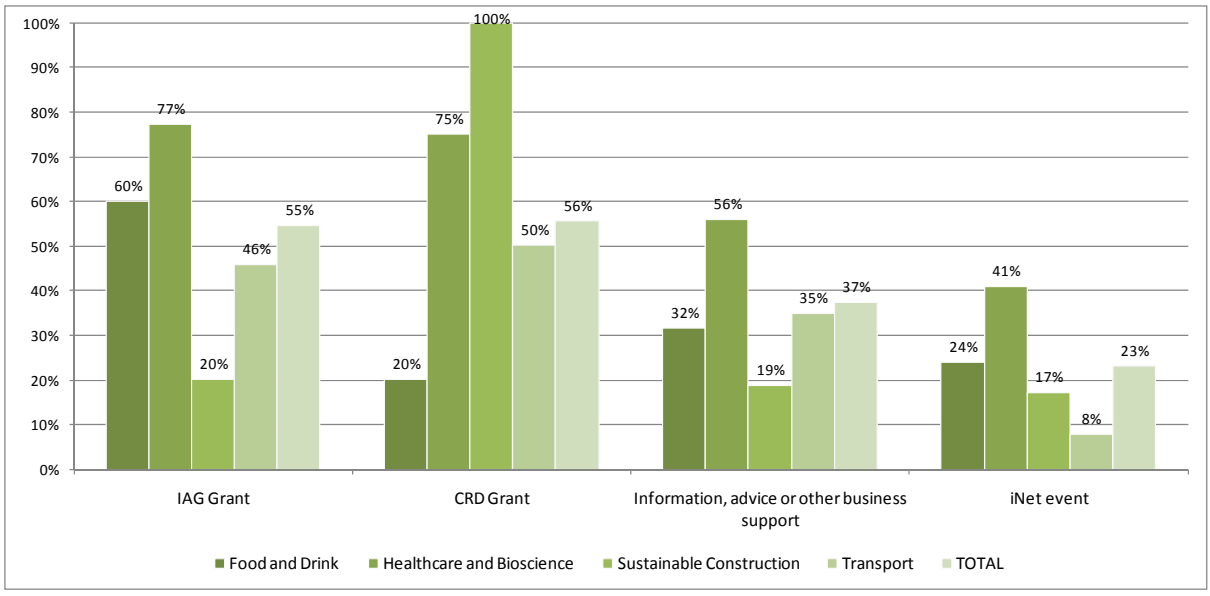
Base: IAG 65 businesses, CRD 18 businesses, Information, advice etc 83 businesses, iNet event 92 businesses

3.5 Impact

3.5.1 Business judgements on the impact of iNet support by type of support

Figure 3.6 illustrates the share of businesses who stated that support received had a "highly significant" impact on their company. Unsurprisingly, the most significant impact was made on businesses where a grant had been awarded. iNet events had the least impact, although only 8% felt a Transport iNet event had a "highly significant" impact, compared to 41% attending a Healthcare and Bioscience event.

Figure 3.6 Share of businesses who indicated that support received had a "highly significant" impact

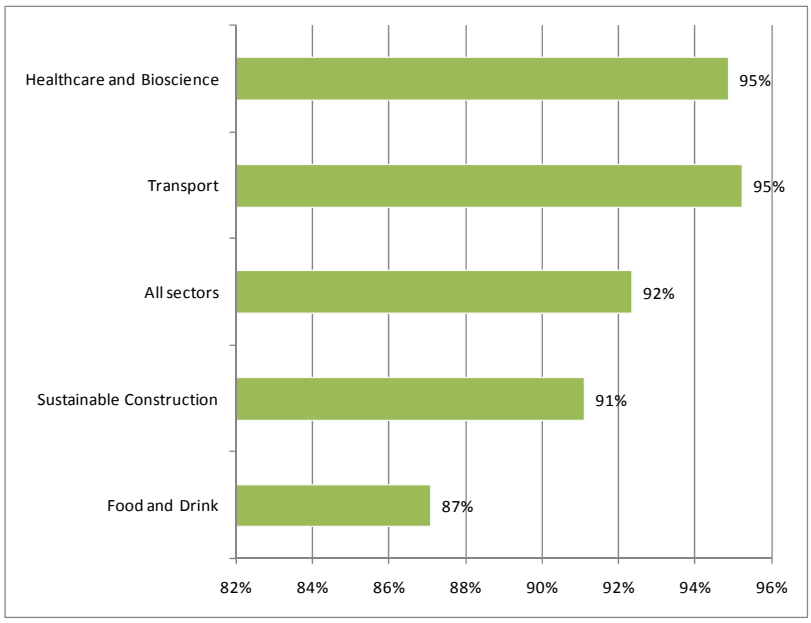


Base: IAG 66 businesses, CRD 18 businesses, Information, advice etc 83 businesses, iNet event 91 businesses

3.5.2 Willingness to recommend the iNet service to other businesses

The vast majority of businesses surveyed would recommend the iNet to another regional company as illustrated in Figure 3.7. Those in the healthcare and bioscience or transport sectors were most likely to recommend the iNet (95%), whilst companies in the food and drink sector were slightly less likely (87%).

Figure 3.7 Share of businesses who would recommend the iNet to other companies in the region



Base: 157 businesses (31 F&D, 39 H&B, 45 SC, 42 T/pt)

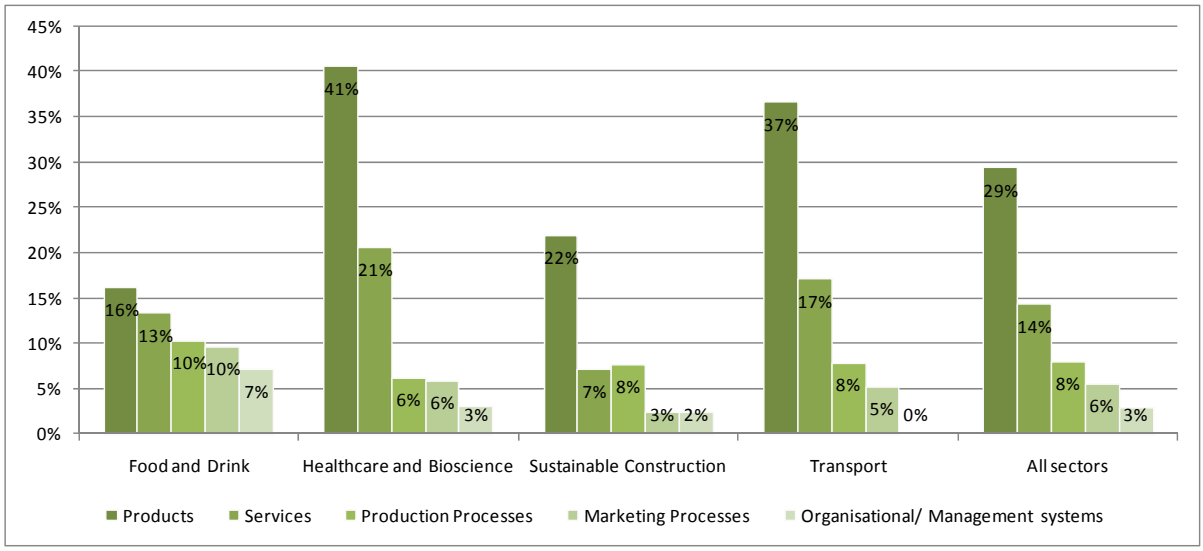
3.5.3 Impact of iNet support on the actual or planned introduction of new products and processes

Almost one-third of businesses had already introduced new to the industry products as a result of the iNet support they had received. This varied by sector – with 41% of the Healthcare and Bioscience sector introducing new products to the industry – compared to just 16% of businesses in the Food and Drink Sector. The Transport sector had a relatively high share of businesses who had introduced new products (37%).

New services had been introduced by 14% of businesses – the healthcare and bioscience sector again had the highest frequency of businesses who had introduced new to industry services (21%) compared to the sustainable construction industry (6%).

Production processes new to the industry had been introduced by fewer than one in ten businesses whilst one in twenty had introduced new marketing processes and a small share had introduced new organisational or management systems.

Figure 3.8 Share of businesses who had introduced products or services which were "new to the industry" as a result of iNet involvement



Base: 136 businesses (28 F&D, 32 H&B, 39 SC, 37 T/pt)

On average between 20% and 25% of businesses surveyed had introduced new to business products, services or processes. It is interesting to note that the food and drink sector, whilst introducing less new to the industry products or processes had been more active in introducing products and services which were new to their business than the other sectors. In contrast whilst healthcare and bioscience businesses had developed many new products for the industry, these respondents were less likely to have introduced products to their business following iNet support.

Figure 3.9 Share of businesses who had introduced products or services which were "new to the business" as a result of iNet involvement

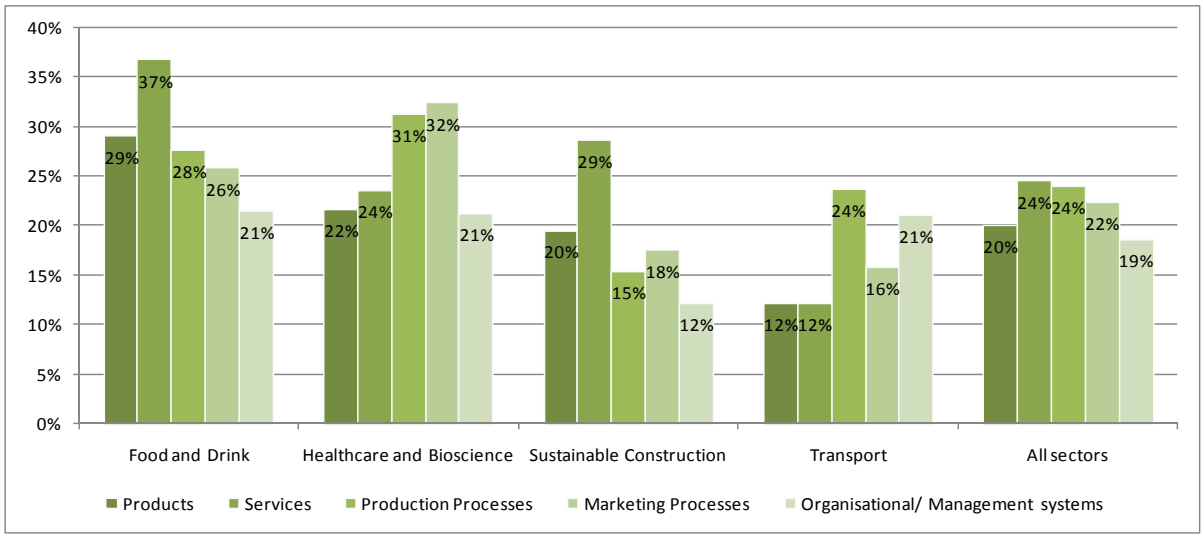


Figure 3.10 Share of businesses who were planning to introduce products or services which were "new to the industry" as a result of iNet involvement

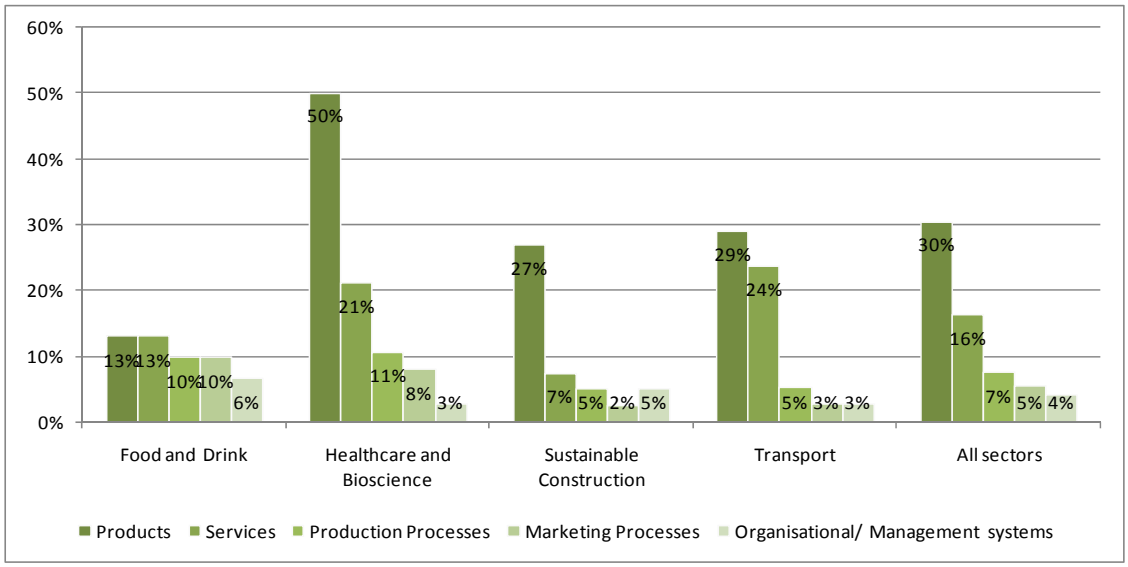
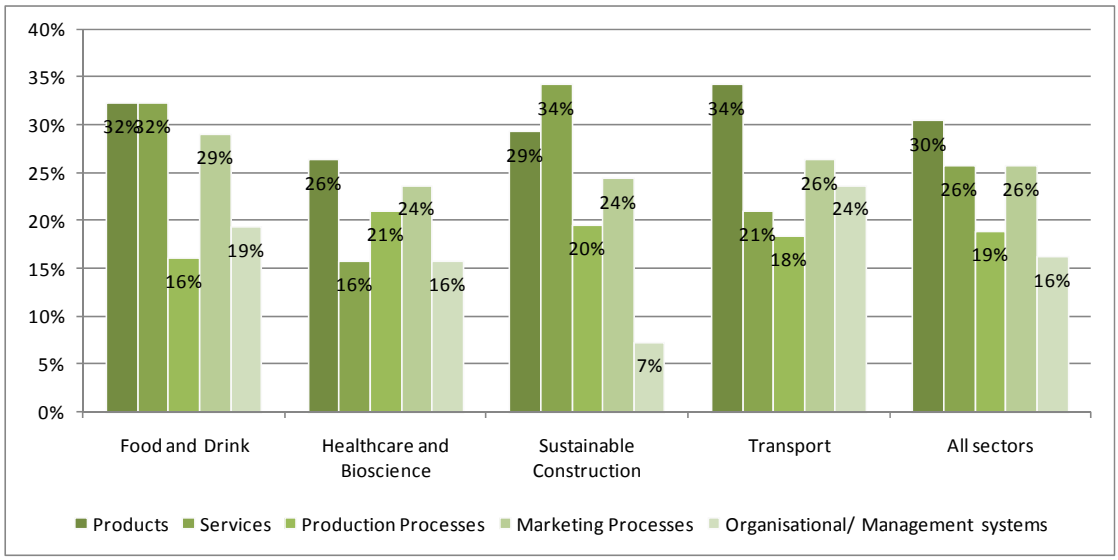


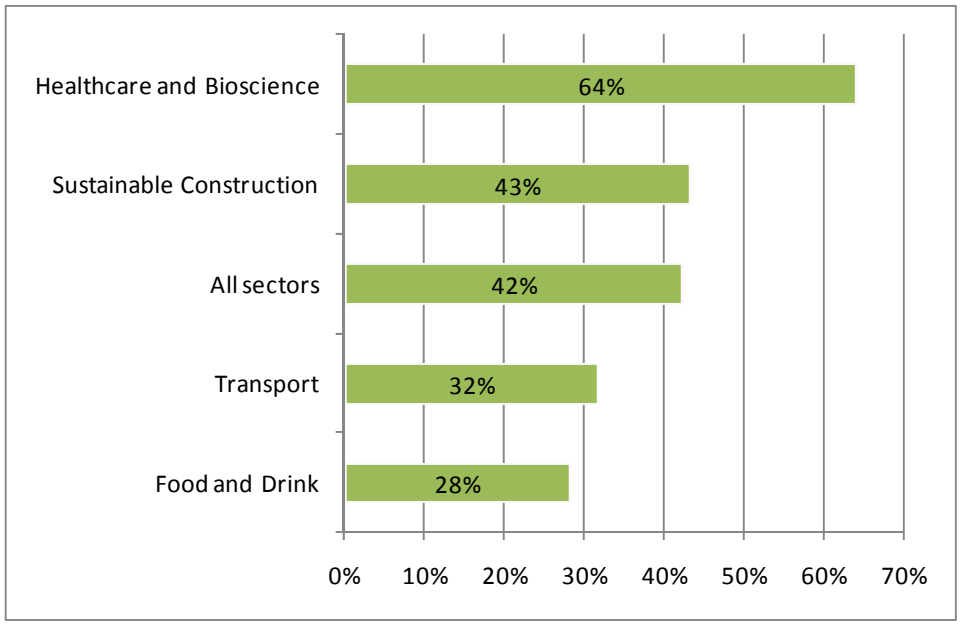
Figure 3.11 Share of businesses who were planning to introduce products or services which were "new to the business" as a result of iNet involvement



3.5.4 Effect of iNet support on the use of external research advice and information

Following involvement with the iNet, on average, 42% of businesses increased their utilisation of external research or information as illustrated in Figure 3.12. The healthcare and bioscience sector was more likely to have increased external sources following iNet support (62%) compared to the food and drink or transport sectors (32% and 28% respectively).

Figure 3.12 Share of businesses who had increased use of external research and information following iNet support

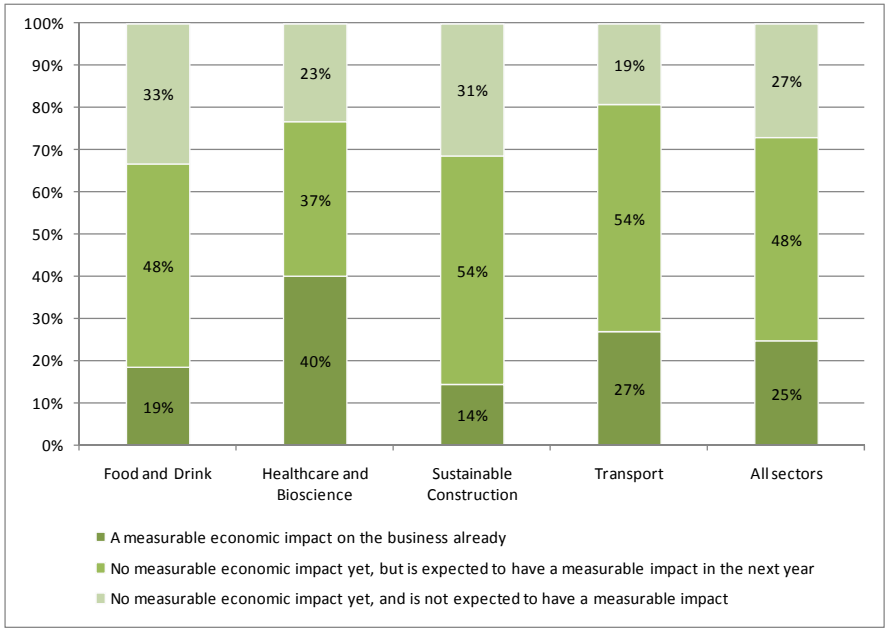


Base: 156 businesses (32 F&D, 39 H&B, 44 SC, 41 T/pt)

3.5.5 Business judgment of the scope for measurable economic impacts from iNet support

Almost half of businesses stated that whilst there had not yet been a measureable economic impact as a result of the iNet support a measurable impact was expected over the next year. One quarter of businesses had already realised an economic impact. Economic impact was more likely in the healthcare and bioscience sector than in the sustainable construction sector. Over three in ten food and drink and sustainable construction beneficiaries stated that there was no economic impact resultant from iNet support, nor would there be an economic impact looking forward – this compared to one-quarter of businesses across the four sectors. The Transport sector was most likely to see an economic impact which had already been realised or would be realised over the next year.

Figure 3.13 Extent of economic impact by sector



Base: 118 businesses (27 F&D, 30 H&B, 36 SC, 26 T/pt).

4 Economic Impact Assessment

4.1 Approach to the Economic Impact Assessment

This section presents an analysis of the economic impacts of the four iNets.

The methodology used for the economic impact assessment of the four iNets follows that set out in the Toolkit for the Evaluation of *emda* Strategic Programmes 2009[33]. This Toolkit follows the principles set out in the Impact Evaluation Framework (IEF[34]), established for RDAs. In line with the Toolkit, this economic impact assessment is structured into sections for each iNet on: gross benefits, gross additional benefits, net additional benefits, and finally future economic impacts.

The economic assessment begins by first outlining the main outputs achieved and the expenditure incurred in achieving these outputs. For the purpose of the economic assessment the main services offered to companies through the iNet advisors are considered (IAG grant, CRD grant, and provision of events), however it should be noted that iNets do report Business Assist outputs under different criteria to Single Programme and ERDF funders.

The economic impact assessment which follows is based on the following steps:

Gross economic impacts (jobs, turnover and GVA created/ safeguarded) calculated by asking firms to report their 'before and after' employment/ turnover, and to estimate what this would have been in the absence of the service received through the iNet;

Net additional economic impacts (jobs, turnover and GVA created/ safeguarded) calculated by asking firms to quantify:

1. *Deadweight* (the extent to which impacts can be attributed to the iNets);
2. *Displacement* (the extent to which firms compete with other regional firms);
3. *Leakage* (the extent to which firms employ people from outside the region);
4. *Multipliers* (the extent to which firms spend money through their supply chains).

Future economic impacts measured by asking firms to estimate the employment, turnover and GVA impacts that will continue to be generated into the future and how long they will 'persist'. On the basis of this the Net Present Value (NPV) of the GVA created as a result of the iNet support is calculated;

Return on investment measured by calculating the NPV of the GVA created per £1 of *emda*'s expenditure on the iNets.

This analysis provides a summary overview (based on the grossed-up results from the beneficiary survey), followed by analysis of each of the four individual iNets.

4.1.1 Sample Profiles

Table 4.1 provides an overview of the profile of respondents to the beneficiary survey. Additional details are provided in Annex 1.

Table 4.1 Profile of Beneficiary Respondents

	Food & Drink	Sustainable Construction	Healthcare & Bioscience	Transport
Number of respondents	35	52	44	42
Average Employment	45	64	11	20

[33] Ecotec (March 2009) Toolkit for the Evaluation of *emda* Strategy Programmes 2007/08 to 2010/11

[34] See BIS (2009) RDA Evaluation: Practical Guidance on Implementing the Impact Evaluation Framework

Average Turnover (£k)	710	920	510	730
% of sales made in sector	60	50	64	60

4.2 Costs and Outputs for all iNets

Table 4.2 presents the funding sources for the iNets for the past four years.

Table 4.2 iNet Funding Sources (£k)

	2007/08	2008/09	2009/10	2010/11	Total
Single Programme	421	2,898	4,122	4,743	12,183
ERDF	0	0	1,048	1,552	2,600
Other public sector	0	0	96	129	225
Total	421	2,898	5,265	6,424	15,008

The most significant funder of the iNets has been *emda* through Single Programme. Additional ERDF funding was attracted to the Transport and Construction iNets between 2009 and 2011. Since 2010, each of the four iNets have attracted ERDF funding, which is contracted to continue to 2013 but is subject to review as a result of *emda's* closure. Consultation with the iNet Directors suggests that the successful operation of the iNets between 2008 and 2010 strengthened the case for an expansion of ERDF investment in the iNets.

Using estimates provided by *emda,* Table 4.3 presents a breakdown of iNet funding by intervention.

Table 4.3 Breakdown of iNet Funding by Intervention (£k)

	2007/08	2008/09	2009/10	2010/11	Total
IAG	0	256	1,006	934	2,196
CRD	0	668	1,300	1,471	3,439
Events	60	314	510	465	1,349
Other	361	1,661	2,449	3,553	8,024
Total	**421**	**2,899**	**5,266**	**6,423**	**15,008**

Table 4.3 illustrates the relative delivery costs of the three main iNet interventions which have been a feature of the service since it was established. These three services are:

- the IAG grant: provided directly to companies for innovation activity;
- the CRD grant: provided to facilitate collaborative research activity between the regions' knowledge base and companies; and,
- an events programme: aimed at sharing knowledge regarding particular issues facing the each iNet industry.

In addition other costs are captured. These include salary costs. Table 4.4 provides an overview of the cumulative outputs for all iNets.

Table 4.4 Cumulative Outputs for all iNets

	2007/08	2008/09	2009/10	2010/11	Total
Business Assists	130	521	960	1043	2,654
IAG Grant	0	42	175	141	358

CRD Grant	3	11	25	44	83
Total	133	574	1160	1228	-

As one would expect the majority of companies engaged through the iNets are counted under the Business Assisted output, these companies include those who have attended events and those who have received information and advice from iNet advisors. These companies may have also been referred to other appropriate business support providers.

4.2.2 Analysis of costs and outputs by iNet

The previous analysis is summarised by iNet in the following tables.

Table 4.5 Total iNet Funding Sources by iNet (£k)

	Food and Drink	Healthcare & Bioscience	Sustainable Construction	Transport	Total
Single Programme	2,812	3,629	2,670	3,073	12,183
ERDF	78	298	858	1,367	2,600
Other Public Sector	0	0	0	225	225
Total	2,890	3,927	3,527	4,664	15,008

Table 4.6 Breakdown of Total iNet Funding by Intervention and iNet (£k)

	Food and Drink	Healthcare & Bioscience	Sustainable Construction	Transport	Total
IAG	299	735	343	820	2,196
CRD	645	1,034	583	1,177	3,439
Events	371	401	262	315	1,349
Other	1,575	1,758	2,339	2,352	8,024
Total	2,890	3,927	3,527	4,664	15,008

Table 4.7 Cumulative Outputs for all iNets

	Food and Drink	Healthcare & Bioscience	Sustainable Construction	Transport	Total
Business Assists	621	638	777	618	2,654
IAG Grant	67	135	50	106	358
CRD Grant	27	21	21	14	83
Total	715	794	848	738	3,095

4.3 Benefits and Economic Impacts for all iNets

Table 4.8 presents gross benefits identified through beneficiary surveys, applied to the population of beneficiaries for each iNet. Gross benefits are the impacts reported by

beneficiaries based on a comparison of their position before and after receipt of the iNet support and the extent to which the results can be attributed to *emda.*

Consideration of economic impact must take into account the fact that the iNets were not set up at the same time:

- The Healthcare & Bioscience iNet was the first to be set up. The iNet contract was signed by Medilink in September 2007 and the iNet team was largely in place by April 2008 (though was unable to deliver IAG grants until August 2008);
- The contract for the Food & drink iNet was signed in February 2008, and the iNet team was largely in place by April 2008 (though again was unable to deliver the IAG grants until August 2008);
- Following the signature of the contract, the Sustainable construction iNet was run on an interim basis for the University of Northampton by the Building Resource Establishment (BRE). The iNet director was appointed in January 2009, and the full complement of advisors was in place by April 2009;
- Delays in establishment mean that the Transport iNet was not fully operational until May 2009, and then had an Interim Director until a permanent Director was appointed in October 2009.

Table 4.8 Gross Benefits of the iNets

	Food and Drink	Healthcare & Bioscience	Sustainable Construction	Transport	Total
Total employment impact (FTE)	231	237	111	182	761
Total GVA increase (£k)	1,540	4,153	1,963	3,634	11,587

From this analysis the gross additional benefits are identified through taking account of beneficiary views regarding the extent to which the benefits outlined above would have happened regardless of the support provided by the iNet (deadweight).

Table 4.9 Gross Additional Benefits

	Food and Drink	Healthcare & Bioscience	Sustainable Construction	Transport	Total
Deadweight factor[35]	23%	26%	15%	20%	-
Total employment impact (FTE)	162	167	88	151	528
Total GVA increase (£k)	1,154	3,072	787	2,990	7,141

Leakage, displacement and multipliers have been calculated on the basis of the results of the beneficiary survey, as follows:

- *Leakage* (benefits lost to the East Midlands, for instance if jobs created have been filled by people residing outside of the region): calculated by asking respondents to estimate the proportion of their employees who live outside of the region, and by asking them if they plan to relocate outside of the region in the next three years;
- *Displacement* (benefits achieved at the cost of other regional businesses, for instance if turnover has been added at the cost of regional competitors, with no net gain): calculated

[35] Note: for comparison purposes we note that for the National GRD Evaluation (PACEC, 2010) deadweight was calculated at 15% for East Midlands beneficiaries.

by asking beneficiaries to estimate the proportion of their customers and competitors who are based in the East Midlands;

- *Economic multipliers* (additional benefits achieved through supply chain expenditure associated with jobs and turnover created): calculated by asking beneficiaries to estimate the proportion of their suppliers who are based in the East Midlands.

The additionality factors used are summarised in the table below along with benchmark estimates of the size of the additionality factors taken from the Department of Business Innovation and Skills (DBIS) study of the results of the evaluations of RDA impacts, although these factors are highly market and location specific, and do not represent direct comparisons[36].

Table 4.10 Comparison of values for leakage, displacement and economic multiplier effects

	Displacement	Leakage	Multiplier
Food and Drink	40%	16%	1.50
Healthcare and Bioscience	12%	27%	1.25
Sustainable Construction	13%	32%	1.83
Transport iNet	7%	37%	1.21
Average from DBIS study (R&D and innovation projects)	12%	10%	1.56
GRD (East Midlands)[37]	40%	-	1.50
GRD (All England)[38]	30%	-	1.50

Table 4.11 shows the net additional benefits of the iNets, once the various components of the additionality assessment shown in 0 have been taken into account.

Table 4.11 Net Additional Benefits of the iNets

	Food & Drink	Healthcare & Bioscience	Sustainable Construction	Transport	Total
Total employment impact (FTE)	85	146	27	97	355
Total GVA increase (£k)	769	2,614	622	1,723	5,728

In order to provide some indication as to the persistence of the impacts, businesses were asked how long they expected their reported impacts to last for.

The iNets began awarding IAG grants in late 2008. Consequently, many of the businesses surveyed had only recently received their grant, meaning that there has been limited time for impacts to be realised. As a result, the net economic impacts shown below are likely to be an underestimation of the results of the iNets, which may not be fully realised for some time.

Table 4.12 Future Impacts

	Food & Drink	Healthcare & Bioscience	Sustainable Construction	Transport	Total
Undiscounted 5 Year Impact (£m)	2.3	13.8	2.6	4.4	23.1
Discounted 5 Year	1.5	13.1	2.6	4.0	21.2

[36] BIS (October 2009) *Op cit.*

[37] PACEC (2010) "Evaluation of the GRD/Smart East Midlands"

[38] PACEC (2010) "Evaluation of the GRD/Smart England"

Impact (£m)*

*At 3.5%

4.4 Consideration of the Cost-Effectiveness of the iNets

The total cost of delivering the iNets is £15m of actual public expenditure, up to March 31 2011. As outlined in Table 4.2, the total single programme investment has been £12.2m, which has attracted additional ERDF match of £2.6m. The impact assessment results outlined above illustrate a potential 5 year economic impact from this investment of £23m, with some 355 additional jobs created in the region.

4.4.1 Cost per Business Supported

Table 4.13 outlines the cost per business assisted and job created for all businesses supported through the iNet and for the IAG grant. It is not possible to undertake this analysis for all iNet interventions due to the fact that the majority of companies who reported impacts have been subject to more than one intervention.

Project costs for all businesses supported by the iNets have been calculated by applying the total cost of providing support, including salary costs for support providers and overheads, and dividing this by the total number of businesses supported and jobs created. This analysis does not distinguish between SP and ERDF business assists.

Discrete analysis is provided for the cost per business supported through the IAG grant by adding a pro-rata cost for salary costs and overheads to the total IAG cost. The total cost of the IAG is then divided by the number of businesses accessing the grant to provide cost per business assisted and cost per job created figures for each iNet.

For the purpose of comparison, costs are also included from the national meta-evaluation[39] which considered the costs and benefits of a range of RDA interventions relating to science and innovation; and to business competitiveness. In these cases the stated delivery cost is an average of all evaluations considered under these intervention types. The comparison also refers to the results of the evaluation of the GRD R&D grant scheme for SMEs.[40]

Table 4.13 Cost per Business Assisted by iNets and Comparison with other Programmes

Intervention Type	Delivery Cost (£m)	Cost per Business Assisted (£)	Cost per Job Created (£)
All Businesses Supported	15	5,633	21,312
Science, R&D and Innovation Support	*10.7*	*24,600*	*38,000*
IAG Grant Scheme	3.3	9,151	10,797
GRD (East Midlands)	*27*	*39,300*	*26,000*
GRD (All England)	*239*	*56,000*	*32,000*
Business Development and Competitiveness	*10.5*	*9,700*	*14,000*

This analysis suggests that, considered as a whole, the package of support provided by the iNets provides a lower cost per business assisted than comparable Science, R&D and Innovation support packages offered by other RDAs and the cost per job created is lower other initiatives of this type. It is also noteworthy that these metrics highlight the higher cost per outcome from providing innovation support relative to more general business development and competitiveness support. This is reflective of the fact that more time and

[39] PWC (2009) BIS *Impact of RDA Spending: National Report, Vol. 1.* P.34

[40] The national Grant for Research and Development (GRD) fund was introduced in 2003 to provide grant assistance for SMEs to undertake research and development aimed at developing technologically innovative new products and processes. The scheme is open to companies in any sector.

greater expertise is required to provide appropriate support; and that impacts take longer to realise.

Furthermore this analysis highlights the fact that the cost per business assist is much lower for the iNets than for comparable business support, in particular it is notable that it is lower than that of other evaluated activity, £5.6k for the iNets compared to an average of £9.7k for business development and competitiveness support provision offered by other providers in the English regions.

Considered in isolation the IAG grant would appear to be a highly cost effective means of delivering support to companies, the cost per business assist is comparable to generic business support (£10,500 for the IAG, compared to £9,700). The cost per job created is also lower than that for generic business support, and indeed, is considerably lower than that for comparable innovation support offered by other RDAs.

There are also a number of other issues which should be considered alongside this data relating to cost effectiveness. These are discussed below.

4.4.2 Delivery of business support during the recession

It should also be noted that the iNet support was delivered to companies during a period of very significant economic uncertainty and of economic recession; the economic outcomes might be expected to have been higher in 'normal' market conditions. This is especially the case in the construction sector. A review of the impacts of the recession on iNet sectors suggests the following issues should be considered alongside the cost effectiveness of the public investment made in the iNets:

- **Food and Drink**: The food and drink sector represents 15% of manufacturing turnover and employment in the UK. Through the recession the sector reduced output the least compared to all manufacturing[41] and has returned to the pre-recession output level the quickest[42]. Despite the recession, forecasts suggest that the food and drink sector in the East Midlands will experience growth in both employment and output between 2008 and 2018, despite a small decline forecast for the UK[43].
- **Healthcare and Bioscience**: In the UK healthcare sector, employment rose by 107,000 between June 2008 and June 2009[44] in contrast to many other sectors in the UK. It is forecast to be one of the fastest growing sectors nationally. The East Midlands Healthcare and Bioscience sector is currently performing in line with the national average in terms of its output and productivity. Growth in the East Midlands Healthcare and Bioscience sector is expected to outpace growth in the sector in other parts of the UK.
- **Construction**: Between June 2008 and June 2009 there was a loss of 34,000 jobs across the UK in the sector. Construction was the hardest hit sector by the economic recession in the UK and similarly in the East Midlands with a fall in house building and lack in take up of commercial property[45]. Output in the East Midlands peaked at £8.3 billion in 2006 (double the level of 1996). From Q3 2006, there was a downward trend in output in the construction sector in the East Midlands contrasting to slight growth across the UK. Between 2007 and 2008, this decline continued with construction activity falling

[41] Between May 2008 and May 2009, the production index for F&D fell by 1.9 compared to 13.1 for manufacturing as a whole and 21.2 for transport equipment. IfM Centre for Industry and Government and the University of Cambridge (2010) "Value of Food and Drink Manufacturing to the UK" http://www.ifm.eng.cam.ac.uk/free/100705_food_drink.pdf

[42] IfM Centre for Industry and Government and the University of Cambridge (2010) "Value of Food and Drink Manufacturing to the UK" http://www.ifm.eng.cam.ac.uk/free/100705_food_drink.pdf

[43] http://www.*emda*.org.uk/research/documents/eb2010/CHAPTER_3_Economy_FINAL.pdf

[44] The Work Foundation "Recession and recovery to 2020- A knowledge economy report" http://www.theworkfoundation.com/assets/docs/publications/230_KE_recovery%20final.pdf

[45] *emda* "The East Midlands in 2010 – the updated RES evidence base" http://www.*emda*.org.uk/research/documents/eb2010/CHAPTER_3_Economy_FINAL.pdf

by £457 million, or 6%. The economic downturn had a further negative impact on investment leading to a reduced output in the East Midlands and UK construction sector.

- **Transport**: The UK transport equipment sector has been significantly weakened by the recession, particularly the automotive sector which was hit by the fall in demand for new vehicles. Even though the productivity of the sector in the East Midlands is 42% higher than nationally, the decline in output and employment over the course of the recession is anticipated to continue between 2008 and 2018 in line with the UK.

4.4.3 Cost effectiveness by iNet

The previous analysis is summarised by individual iNets in the tables below.

Table 4.14 Cost per Business Assisted by iNets and Comparison with other Programmes (all businesses supported)

iNet	Delivery Cost (£m)	Cost per Business Assisted (£)	Cost per Job Created (£)
Food & Drink	2.9	4,653	12,509
Healthcare & Bioscience	3.9	6,155	16,570
Sustainable Construction	3.5	4,540	31,778
Transport	4.7	7,547	25,628
All Businesses Supported	15.0	5,633	21,312
Science, R&D and Innovation Support	*10.7*	*24,600*	*38,000*

Table 4.15 Cost per Business Assisted by iNets and Comparison with other Programmes (only businesses receiving IAG grant)

iNet	Delivery Cost (£m)	Cost per Business Assisted (£)	Cost per Job Created (£)
Food & Drink	0.5	7,000	5,518
Healthcare & Bioscience	1.1	8,197	6,789
Sustainable Construction	0.5	9,865	18,268
Transport	1.2	11,542	12,613
IAG grant – all sectors	3.3	9,151	10,797
GRD (East Midlands)	*27*	*39,300*	*26,000*
GRD (All England)	*239*	*56,000*	*32,000*
Business Development and Competitiveness	*10.5*	*9,700*	*14,000*

Note: since it is expected that the IAG impacts would have been lower without other iNet activities, the impacts represent a slight over-estimate

4.4.4 Future economic impacts

The cost-effectiveness assessment should also take account of the future expected impacts, both from projects already taken by businesses and supported, as well as projects that have yet to be implemented (partly due to poor market conditions).

Almost half of businesses are expecting a quantifiable economic impact in the next year, but which cannot yet be quantified; and half of businesses are planning to introduce new innovation products and services.

4.5 The Food and Drink iNet

4.5.1 Costs and Outputs

Table 4.16 presents the funding sources for the Food and Drink iNet for the past four years. As illustrated in the table the Food and Drink iNet did not receive ERDF support prior to the 2010.

Table 4.16 Food and Drink iNet Funding Sources (£k)

	2007/08	2008/09	2009/10	2010/11	Total
Single Programme	173	655	988	996	2,812
ERDF	0	0	0	78	78
Total	173	655	988	1,074	2,890

Using estimates provided by the Food and Drink iNet, the table below presents a breakdown of iNet funding by intervention.

Table 4.17 Breakdown of Food and Drink iNet Funding Sources by Intervention (£k)

	2007/08	2008/09	2009/10	2010/11	Total
IAG	0	11	238	51	299
CRD	0	143	264	238	645
Events	22	114	114	121	371
Other	151	388	372	664	1,575
Total	173	655	988	1,074	2,890

Table 4.18 provides an overview of the Food and Drink iNet outputs.

Table 4.18 Food and Drink iNet Outputs

	2007/08	2008/09	2009/10	2010/11	All Years
Business Assists	0	191	269	161	621
IAG	0	2	55	10	67
CRD	0	0	6	21	27
Total	0	193	330	192	715

4.6 Calculation of Economic Impact

4.6.1 Gross Benefits

Gross benefits are the impacts reported by beneficiaries based on a comparison of their position before and after receipt of the iNet support (i.e. before any attribution or consideration of additionality has taken place). Benefits have been considered in terms of employment and GVA due to employment. A separate multiplier of turnover to GVA of has been used for each iNet, based on 2008 regional accounts information obtained from the Annual Business Inquiry[46].

Table 4.19 shows the gross benefits achieved (as at March 2011) by the businesses that had received iNet assistance. Data is presented as reported by respondents to the business

[46] Annual Business Inquiry (2009) http://www.statistics.gov.uk/abi/regional_data.asp

survey and grossed-up to the total number of IAG beneficiaries to provide an estimate for all recipients.

Table 4.19 Gross Benefits of the Food and Drink iNet

	All F&D iNet		IAG Grant	
	Reported (35)	All Beneficiaries (715)	Reported (13)	All IAG (67)
Total employment impact (FTE)	44	231	44	231
Total GVA increase (£k)	299	1,540	299	1,540

Notes: Based on a multiplier of turnover to GVA of 0.40 (Source: Annual Business Inquiry)

Gross Additional Benefits

Calculating gross additional benefits involves taking account of the extent to which the benefits outlined above would have happened regardless of the support provided by the iNet (deadweight), and the extent to which the results can be attributed to *emda*.

For the purposes of this study, deadweight has been calculated by asking beneficiaries whether they would have achieved the gross benefits set out in Table 4.19, in any event, or indeed whether they would have been achieved on a smaller scale and/ or with a delay. Table 4.20 summarises the gross additional benefits of the Food & Drink iNet. Deadweight values for the Food & Drink iNets were previously assessed at 37 per cent. The DBIS study of the results of the recent round of evaluations of RDA impacts that were carried out as part of the national RDA impact reporting exercise[47] reported that the mean average level of deadweight at a regional level for science, R&D and innovation projects and programmes was 49 per cent, meaning that the Food and Drink iNets has a below average level of deadweight of 23 per cent.

The IAG grant is awarded on a 50:50 basis, meaning that for each grant, recipient businesses must match the resources committed by *emda*. Much of this match funding is however, provided through cash and in-kind contributions from beneficiary companies, it is therefore not assumed that a reduction of 50% in the attributed impact to *emda* is appropriate. No respondent to the survey indicated that they would have made a similar investment without the support they received.

Table 4.20 Gross Additional Benefits of the Food and Drink iNet

	All F&D iNet		IAG Grant	
	Surveyed (35)	All Beneficiaries (715)	Surveyed (13)	All IAG (67)
Total employment impact (FTE)	31	162	31	162
Total GVA increase (£k)	224	1,154	224	1,154

4.6.2 Net additional benefits

The final stage in the economic impact assessment is the consideration of the effects of leakage, displacement and multipliers on the benefits calculated previously. Leakage, displacement and multipliers have been calculated on the basis of the results of the beneficiary survey, as follows:

- *Leakage* (benefits lost to the East Midlands, for instance if jobs created have been filled by people residing outside of the region): calculated by asking respondents to estimate

[47] BIS (October 2009) BIS Occasional Paper No. 1: Research to Improve the Assessment of Additionality

the proportion of their employees who live outside of the region, and by asking them if they plan to relocate outside of the region in the next three years;

- *Displacement* (benefits achieved at the cost of other regional businesses, for instance if turnover has been added at the cost of regional competitors, with no net gain): calculated by asking beneficiaries to estimate the proportion of their customers and competitors who are based in the East Midlands;
- *Economic multipliers* (additional benefits achieved through supply chain expenditure associated with jobs and turnover created): calculated by asking beneficiaries to estimate the proportion of their suppliers who are based in the East Midlands.

The additionality factors used are summarised in Table 4.21 along with benchmark estimates of the size of the additionality factors taken from recent applicable studies and the DBIS study of the results of the evaluations of RDA impacts[48]. The values shown are the average values for regional science, R&D and innovation programmes and projects across the English regions.

Table 4.21 Values for leakage, displacement and economic multiplier effects

	Displacement	Leakage	Multiplier
Food and Drink iNet	40%	16%	1.50
RIS Evaluation (Food & Drink iNet additionality factors)	34%	12%	1.41
Average from DBIS study (R&D and innovation projects)	12%	10%	1.56

Table 4.22 shows the net additional benefits of the Food & Drink iNet, once the various components of the additionality assessment shown in Table 4.21 have been taken into account. Note, however, that these are early results, and will thus underestimate the true scale of the impacts of the iNet. However, they do suggest considerable progress in the promotion of innovation and the related improvements in economic impact.

Table 4.22 Net additional benefits of the Food and Drink iNet

	All F&D iNet		IAG Grant	
Net Additional Benefits	Reported (35)	All Beneficiaries (715)	Reported (13)	All IAG (67)
Total employment impact (FTE)	16	85	16	85
Total GVA increase (£k)	149	769	149	769

4.6.3 Future Impacts

In order to provide some indication regarding the persistence of the economic impact on companies, businesses were asked how long they expected their reported impacts to last for; application of these results to the economic impact analysis for the iNet is presented in the table below.

Table 4.23 Net additional benefits of the Food and Drink iNet

	All F&D iNet		IAG Grant	
	Reported (35)	All Beneficiaries (715)	Reported (13)	All IAG (100)

[48] BIS (October 2009) *Op cit.*

Undiscounted 5 Year Impact (£m)	£0.3	2.3	£0.3	2.3
Discounted 5 Year Impact (£m)	£0.2	1.5	£0.2	1.5

4.7 The Healthcare and Bioscience iNet

4.7.1 Costs and Outputs

Table 4.24 presents the funding sources for the Healthcare and Bioscience iNet for the past four years. As illustrated in the table the iNet did not receive ERDF support prior to the 2010.

Table 4.24 Healthcare and Bioscience iNet Funding Sources (£k)

	2007/08	2008/09	2009/10	2010/11	Total
Single Programme	248	1,095	1,102	1,184	3,629
ERDF	0	0	0	298	298
Total	248	1095	1102	1482	3,927

Using estimates provided by the Healthcare and Bioscience iNet, Table 4.25 presents a breakdown of iNet funding by intervention

Table 4.25 Breakdown of Healthcare and Bioscience Funding Sources by Intervention (£k)

	2007/08	2008/09	2009/10	2010/11	Total
IAG	0	188	238	310	735
CRD	0	400	350	284	1,034
Events	38	104	108	151	401
Other	210	404	407	737	1,758
TOTAL	248	1,095	1,102	1,482	3,927

Table 4.26 provides an overview of the reported outputs.

Table 4.26 Healthcare and Bioscience iNet Outputs

	2007/08	2008/09	2009/10	2010/11	All Years
Business Assists	0	200	210	228	638
IAG	0	40	45	50	135
CRD	0	8	5	8	21
Total	0	248	260	286	794

4.7.2 Gross Benefits

Gross benefits are the impacts reported by beneficiaries based on a comparison of their position before and after receipt of the iNet support (i.e. before any attribution or consideration of additionality has taken place). Benefits have been considered in terms of employment and GVA due to employment. A separate multiplier of turnover to GVA of has been used for each iNet, based on 2008 regional accounts information obtained from the Annual Business Inquiry[49].

Table 4.27 shows the gross benefits achieved (as at March 2011) by the businesses that had received iNet assistance. Data is presented as reported by respondents to the business

[49] Annual Business Inquiry (2009) http://www.statistics.gov.uk/abi/regional_data.asp

survey and grossed-up to the total number of IAG beneficiaries to provide an estimate for all recipients.

Table 4.27 Gross Benefits of the Healthcare and Bioscience iNet

	All H&B iNet		IAG Grant	
	Surveyed (44)	All Beneficiaries (794)	Surveyed (24)	All Beneficiaries (135)
Total employment impact (FTE)	32	237	29	163
Total GVA increase (£k)	661	4,153	638	3,589

Notes: Based on a multiplier of turnover to GVA of 0.47 (Source: Annual Business Inquiry)

4.7.3 Gross Additional Benefits

Calculating gross additional benefits involves taking account of the extent to which the benefits outlined above would have happened regardless of the support provided by the iNet (deadweight), and the extent to which the results can be attributed to *emda*.

For the purposes of this study, deadweight has been calculated by asking beneficiaries whether they would have achieved the gross benefits set out in Table 4.28 in any event, or indeed whether they would have been achieved on a smaller scale and/ or with a delay. Table 4.28 summarises the gross additional benefits of the Healthcare and Bioscience iNet. The DBIS study of the results of the recent round of evaluations of RDA impacts that were carried out as part of the national RDA impact reporting exercise[50] reported that the mean average level of deadweight at a regional level for science, R&D and innovation projects and programmes was 49 per cent, meaning that the Healthcare and Bioscience iNet has a below average level of deadweight of 26 per cent.

The IAG grant is awarded on a 50:50 basis, meaning that for each grant recipient businesses must match the resources committed by *emda* it is therefore not assumed that a reduction of 50% in the attributed impact to *emda* is appropriate. No respondent to the survey indicated that they would have made a similar investment without the support they received.

Table 4.28 Gross Additional Benefits of the Healthcare and Bioscience iNet

	All H&B iNet		IAG Grant	
	Surveyed (44)	All Beneficiaries (794)	Surveyed (24)	All Beneficiaries (135)
Total employment impact (FTE)	23	167	21	118
Total GVA increase (£k)	490	3,072	472	2,655

4.7.4 Net additional benefits

The final stage in the economic impact assessment is the consideration of the effects of leakage, displacement and multipliers on the benefits calculated previously. Leakage, displacement and multipliers have been calculated on the basis of the results of the beneficiary survey, as follows:

[50] BIS (October 2009) BIS Occasional Paper No. 1: Research to Improve the Assessment of Additionality

- *Leakage* (benefits lost to the East Midlands, for instance if jobs created have been filled by people residing outside of the region): calculated by asking respondents to estimate the proportion of their employees who live outside of the region, and by asking them if they plan to relocate outside of the region in the next three years;
- *Displacement* (benefits achieved at the cost of other regional businesses, for instance if turnover has been added at the cost of regional competitors, with no net gain): calculated by asking beneficiaries to estimate the proportion of their customers and competitors who are based in the East Midlands;
- *Economic multipliers* (additional benefits achieved through supply chain expenditure associated with jobs and turnover created): calculated by asking beneficiaries to estimate the proportion of their suppliers who are based in the East Midlands.

The additionality factors used are summarised in Table 4.29 along with benchmark estimates of the size of the additionality factors taken from recent applicable studies and the DBIS study of the results of the evaluations of RDA impacts[51]. The values shown are the average values for regional science, R&D and innovation programmes and projects across the English regions.

Table 4.29 Values for leakage, displacement and economic multiplier effects

	Displacement	Leakage	Multiplier
Healthcare and Bioscience	12%	27%	1.25
RIS Evaluation (Healthcare and Bioscience)	5%	15%	1.42
Average from DBIS study (R&D and innovation projects)	12%	10%	1.56

Table 4.30 shows the net additional benefits of the Healthcare and Bioscience iNet, once the various components of the additionality assessment shown in Table 4.29 have been taken into account. Note, however, that these are early results, and will thus underestimate the true scale of the impacts of the iNet. However, they do suggest considerable progress in the promotion of innovation and the related improvements in economic impact.

Table 4.30 Net additional benefits of the Health and Bioscience iNet

	All H&B iNet		IAG Grant	
	Surveyed (44)	All Beneficiaries (794)	Surveyed (24)	All Beneficiaries (135)
Total employment impact (FTE)	22	146	13	72
Total GVA increase (£k)	421	2,614	408	2,295

4.7.5 Future Impacts

In order to provide some indication regarding the persistence of the economic impact on companies, businesses were asked how long they expected their reported impacts to last for; application of these results to the economic impact analysis for the iNet is presented in the table below.

[51] BIS (October 2009) *Op cit.*

Table 4.31 Future Impacts of the Healthcare and Bioscience iNet

	All H&B iNet		IAG Grant	
	Surveyed (44)	All Beneficiaries (794)	Surveyed (24)	All Beneficiaries (135)
Undiscounted 5 Year Impact (£m)	£2.1	£13.8	£2.0	£11.3
Discounted 5 Year Impact (£m)	£2.0	£13.1	£1.9	£10.7

4.8 The Sustainable Construction iNet

4.8.1 Costs and Outputs

Table 4.32 presents the funding sources for the Construction iNet for the past four years.

Table 4.32 Sustainable Construction iNet Funding Sources (£k)

	2007/08	2008/09	2009/10	2010/11	Total
Single Programme	0	911	881	878	2,670
ERDF	0	0	179	679	858
Total	0	911	1,060	1,556	3,527

Using estimates provided by the *emda*, Table 4.33 presents a breakdown of iNet funding by intervention.

Table 4.33 Breakdown of Sustainable Construction iNet Funding Sources by Intervention (£k)

	2007/08	2008/09	2009/10	2010/11	Total
IAG	0	57	135	151	343
CRD	0	125	208	250	583
Events	0	78	110	74	262
Other	0	651	607	1,081	2,339
Total	0	911	1,060	1,556	3,527

Table 4.34 provides an overview of the Sustainable Construction iNet outputs.

Table 4.34 Sustainable Construction iNet Outputs

	2007/08	2008/09	2009/10	2010/11	All Years
Business Assists	130	130	258	259	777
IAG	0	0	20	30	50
CRD	3	3	7	8	21
Total	133	133	285	297	848

4.8.2 Gross Benefits

Gross benefits are the impacts reported by beneficiaries based on a comparison of their position before and after receipt of the iNet support (i.e. before any attribution or consideration of additionality has taken place). Benefits have been considered in terms of employment and GVA due to employment. A separate multiplier of turnover to GVA of has been used for each iNet, based on 2008 regional accounts information obtained from the Annual Business Inquiry[52].

Table 4.35 shows the gross benefits achieved (as at March 2011) by the businesses that had received iNet assistance. Data is presented as reported by respondents to the business

[52] Annual Business Inquiry (2009) http://www.statistics.gov.uk/abi/regional_data.asp

survey and grossed-up to the total number of IAG beneficiaries to provide an estimate for all recipients.

Table 4.35 Gross Benefits of the Sustainable Construction iNet

	All SC iNet		IAG Grant	
	Surveyed (52)	All Beneficiaries (848)	Surveyed (38)	All Beneficiaries (50)
Total employment impact (FTE)	31	111	30	40
Total GVA increase (£k)	514	1,963	495	651

Notes: Based on a multiplier of turnover to GVA of 0.42 (Source: Annual Business Inquiry)

4.8.3 Gross Additional Benefits

Calculating gross additional benefits involves taking account of the extent to which the benefits outlined above would have happened regardless of the support provided by the iNet (deadweight), and the extent to which the results can be attributed to *emda*.

For the purposes of this study, deadweight has been calculated by asking beneficiaries whether they would have achieved the gross benefits set out in Table 4.35 in any event, or indeed whether they would have been achieved on a smaller scale and/ or with a delay. Table 4.36 summarises the gross additional benefits of the Sustainable Construction iNet. The DBIS study of the results of the recent round of evaluations of RDA impacts that were carried out as part of the national RDA impact reporting exercise[53] reported that the mean average level of deadweight at a regional level for science, R&D and innovation projects and programmes was 49 per cent, meaning that the Sustainable Construction iNet has a below average level of deadweight of 15 per cent.

The IAG grant is awarded on a 50:50 basis, meaning that for each grant, recipient businesses must match the resources committed by *emda*. Much of this match funding is however, provided through cash and in-kind contributions from beneficiary companies, it is therefore not assumed that a reduction of 50% in the attributed impact to *emda* is appropriate. No respondent to the survey indicated that they would have made a similar investment without the support they received.

Table 4.36 Gross Additional Benefits of the Sustainable Construction iNet

	All SC iNet		IAG Grant	
	Surveyed (52)	All Beneficiaries (384)	Surveyed (43)	All Beneficiaries (50)
Total employment impact (FTE)	33	88	31	68
Total GVA increase (£k)	430	787	360	787

4.8.4 Net additional benefits

The final stage in the economic impact assessment is the consideration of the effects of leakage, displacement and multipliers on the benefits calculated previously. Leakage, displacement and multipliers have been calculated on the basis of the results of the beneficiary survey, as follows:

[53] BIS (October 2009) BIS Occasional Paper No. 1: Research to Improve the Assessment of Additionality

- *Leakage* (benefits lost to the East Midlands, for instance if jobs created have been filled by people residing outside of the region): calculated by asking respondents to estimate the proportion of their employees who live outside of the region, and by asking them if they plan to relocate outside of the region in the next three years;
- *Displacement* (benefits achieved at the cost of other regional businesses, for instance if turnover has been added at the cost of regional competitors, with no net gain): calculated by asking beneficiaries to estimate the proportion of their customers and competitors who are based in the East Midlands;
- *Economic multipliers* (additional benefits achieved through supply chain expenditure associated with jobs and turnover created): calculated by asking beneficiaries to estimate the proportion of their suppliers who are based in the East Midlands.

The additionality factors used are summarised in Table 4.37 along with benchmark estimates of the size of the additionality factors taken from recent applicable studies and the DBIS study of the results of the evaluations of RDA impacts[54]. The values shown are the average values for regional science, R&D and innovation programmes and projects across the English regions.

Table 4.37 Values for leakage, displacement and economic multiplier effects

	Displacement	Leakage	Multiplier
Sustainable Construction iNet	13%	32%	1.83
Average from DBIS study (R&D and innovation projects)	12%	10%	1.56

Table 4.38 shows the net additional benefits of the iNet, once the various components of the additionality assessment shown in Table 4.37 have been taken into account. Note, however, that these are early results, and will thus underestimate the true scale of the impacts of the iNet. However, they do suggest considerable progress in the promotion of innovation and the related improvements in economic impact.

Table 4.38 Net additional benefits of the Sustainable Construction iNet

	All SC iNet		IAG Grant	
	Surveyed (44)	All Beneficiaries (384)	Surveyed (24)	All Beneficiaries (94)
Total employment impact (FTE)	12	27	7	27
Total GVA increase (£k)	130	622	110	430

4.8.5 Future Impacts

In order to provide some indication regarding the persistence of the economic impact on companies, businesses were asked how long they expected their reported impacts to last for; application of these results to the economic impact analysis for the iNet is presented in the table below.

Table 4.39 Net additional benefits of the Sustainable Construction iNet

	All SC iNet		IAG Grant	
	Surveyed (44)	All Beneficiaries (384)	Surveyed (24)	All Beneficiaries (94)

[54] BIS (October 2009) *Op cit.*

Undiscounted 5 Year Impact (£m)	0.3	2.6	0.2	0.8
Discounted 5 Year Impact (£m)	0.3	2.6	0.2	0.8

4.9 The Transport iNet

4.9.1 Costs and Outputs

Table 4.40 presents the funding sources for the Transport iNet for the past four years. As illustrated in the table the Transport iNet received ERDF support in 2009.

Table 4.40 Transport iNet Funding Sources (£k)

	2007/08	2008/09	2009/10	2010/11	Total
Single Programme	0	237	1,151	1,685	3,073
ERDF	0	0	869	498	1,367
Other Public Sector	0	0	96	129	225
Total	0	237	2,116	2,312	4,664

Using estimates provided by the iNet, Table 4.41 presents a breakdown of iNet funding by intervention.

Table 4.41 Breakdown of Transport iNet Funding Sources by Intervention (£k)

	2007/08	2008/09	2009/10	2010/11	Total
IAG	0	0	396	424	820
CRD	0	0	478	699	1,177
Events	0	18	178	119	315
Other	0	219	1,063	1,070	2,352
TOTAL	0	237	2,116	2,312	4,664

Table 4.42 provides an overview of the Transport iNet outputs.

Table 4.42 Transport iNet Outputs

	2007/08	2008/09	2009/10	2010/11	All Years
Business Assists			223	395	618
IAG	0	0	55	51	106
CRD	0	0	7	7	14
Total	0	0	285	453	738

4.9.2 Gross Benefits

Gross benefits are the impacts reported by beneficiaries based on a comparison of their position before and after receipt of the iNet support (i.e. before any attribution or consideration of additionality has taken place). Benefits have been considered in terms of employment and GVA due to employment. A separate multiplier of turnover to GVA of has been used for each iNet, based on 2008 regional accounts information obtained from the Annual Business Inquiry[55].

[55] Annual Business Inquiry (2009) http://www.statistics.gov.uk/abi/regional_data.asp

Table 4.43 shows the gross benefits achieved (as at March 2011) by the businesses that had received iNet assistance. Data is presented as reported by respondents to the business survey and grossed-up to the total number of IAG beneficiaries to provide an estimate for all recipients.

Table 4.43 Gross Benefits of the Transport iNet

	All TR iNet		IAG Grant	
	Surveyed (42)	All Beneficiaries (610)	Surveyed (28)	All Beneficiaries (106)
Total employment impact (FTE)	48	182	48	182
Total GVA increase (£k)	960	3,634	960	3,634

Notes: Based on a multiplier of turnover to GVA of 0.41 (Source: Annual Business Inquiry)

4.9.2.2 *Gross Additional Benefits*

Calculating gross additional benefits involves taking account of the extent to which the benefits outlined above would have happened regardless of the support provided by the iNet (deadweight), and the extent to which the results can be attributed to *emda*.

For the purposes of this study, deadweight has been calculated by asking beneficiaries whether they would have achieved the gross benefits set out in Table 4.43 in any event, or indeed whether they would have been achieved on a smaller scale and/ or with a delay. Table 4.44 summarises the gross additional benefits of the Transport iNet. The DBIS study of the results of the recent round of evaluations of RDA impacts that were carried out as part of the national RDA impact reporting exercise[56] reported that the mean average level of deadweight at a regional level for science, R&D and innovation projects and programmes was 49 per cent, meaning that the Transport iNet has a below average level of deadweight of 20 per cent.

The IAG grant is awarded on a 50:50 basis, meaning that for each grant, recipient businesses must match the resources committed by *emda*. Much of this match funding is however, provided through cash contributions from beneficiary companies, it is therefore not assumed that a reduction of 50% in the attributed impact to *emda* is appropriate. No respondent to the survey indicated that they would have made a similar investment without the support they received.

Table 4.44 Gross Additional Benefits of the Transport iNet

	All TR iNet		IAG Grant	
	Surveyed (42)	All Beneficiaries (385)	Surveyed (28)	All Beneficiaries (106)
Total employment impact (FTE)	40	151	40	151
Total GVA increase (£k)	790	2,990	790	2,990

4.9.3 Net additional benefits

The final stage in the economic impact assessment is the consideration of the effects of leakage, displacement and multipliers on the benefits calculated previously. Leakage, displacement and multipliers have been calculated on the basis of the results of the beneficiary survey, as follows:

[56] BIS (October 2009) BIS Occasional Paper No. 1: Research to Improve the Assessment of Additionality

- *Leakage* (benefits lost to the East Midlands, for instance if jobs created have been filled by people residing outside of the region): calculated by asking respondents to estimate the proportion of their employees who live outside of the region, and by asking them if they plan to relocate outside of the region in the next three years;
- *Displacement* (benefits achieved at the cost of other regional businesses, for instance if turnover has been added at the cost of regional competitors, with no net gain): calculated by asking beneficiaries to estimate the proportion of their customers and competitors who are based in the East Midlands;
- *Economic multipliers* (additional benefits achieved through supply chain expenditure associated with jobs and turnover created): calculated by asking beneficiaries to estimate the proportion of their suppliers who are based in the East Midlands.

The additionality factors used are summarised in Table 4.45 along with benchmark estimates of the size of the additionality factors taken from recent applicable studies and the DBIS study of the results of the evaluations of RDA impacts[57]. The values shown are the average values for regional science, R&D and innovation programmes and projects across the English regions.

Table 4.45 Values for leakage, displacement and economic multiplier effects

	Displacement	Leakage	Multiplier
Transport iNet	7%	37%	1.21
Previous GHK Transport iNet Evaluation	4%	12%	1.44
Average from DBIS study (R&D and innovation projects)	12%	10%	1.56

Table 4.46 shows the net additional benefits of the iNet, once the various components of the additionality assessment shown in Table 4.45 have been taken into account. Note, however, that these are early results, and will thus underestimate the true scale of the impacts of the iNet. However, they do suggest considerable progress in the promotion of innovation and the related improvements in economic impact.

Table 4.46 Net additional benefits of the Transport iNet

	All TR iNet		IAG Grant	
	Surveyed (42)	All Beneficiaries (385)	Surveyed (24)	All Beneficiaries (106)
Net employment impact (FTE)	22	97	22	97
Net GVA increase (£k)	390	1,723	390	1,722

4.9.4 Future Impacts

In order to provide some indication regarding the persistence of the economic impact on companies, businesses were asked how long they expected their reported impacts to last for; application of these results to the economic impact analysis for the iNet is presented in the table below.

Table 4.47 Net additional benefits of the Transport iNet

	All TR iNet		IAG Grant	
	Surveyed	All Beneficiaries	Surveyed	All Beneficiaries

[57] BIS (October 2009) *Op cit.*

	(42)	(375)	(24)	(106)
Undiscounted 5 Year Impact (£m)	£1.0	4.4	£1.0	4.4
Discounted 5 Year Impact (£m)	£0.9	4.0	£0.9	4.0

5 Baseline of Regional Sectoral Innovation Performance

4.10 Introduction to the research

This section of the report provides an overview of the innovation performance of regional businesses in the four iNet sectors. We start with a summary of the profile of East Midlands businesses in order to provide the context for the analysis presented in this section of the report. We then outline the purpose of the baseline exercise, including a review of Nesta's Innovation Index, which has been used as the basis for the baseline.

The limited response rate of non-beneficiaries does not allow a formal analysis by sector (expect for Transport, see below). Table 5.1 illustrates that these results are heavily influenced by the extent to which Transport non-beneficiaries responded to the non-beneficiary survey. The analysis has therefore sought to compare, using selected indicators, the results for each iNet against the results of all respondents. The section then presents a set of indicators of innovation performance based on the results of the business survey of iNet beneficiaries and non-beneficiaries.

Table 5.1 provides a comparison of survey respondents by sector, distinguishing beneficiaries of iNet support from non-beneficiaries. Additional details are provided in Annex 1.The small number non-beneficiaries prevent a sector by sector analysis. The analysis is therefore based on the total of beneficiaries taken together. However, the sector representation of non-beneficiaries compared to beneficiaries is substantially different (partly reflecting the databases used to survey the businesses). This in turn means that comparisons of results between beneficiaries and non-beneficiaries need to be made with some caution.

Table 5.1 Comparison of Beneficiary and Non-beneficiary Survey Respondents

Sector	Beneficiary Respondents	%	Non-beneficiary Respondents	%
Food and Drink	36	21%	10	16%
Healthcare and Bioscience	45	26%	5	8%
Sustainable Construction	52	30%	5	8%
Transport	42	24%	36	57%
Unknown	0	0%	7	11%
Total	175	100%	63	100%

Source; GHK Business Survey

5.2 Profile of businesses in the East Midlands

Taken together the businesses in the four iNet sectors account for approximately 12% of all East Midlands companies. Table 5.2 provides further details regarding the iNet sectors in the context of the East Midlands business base.

Table 5.2 iNet Sectors in regional context

	No. of firms	Average age of firms	% of sector assisted through innovation grant	% of sector assisted through innovation related IDB
Food & Drink	1,013	20	9	71
Healthcare & Bioscience	4,600	10	4	25
Sustainable Construction	24,300	13	<0	4
Transport	7,300	13	1	5

iNet Sectors	37,100	14	1	8
All East Midlands	309,600	-	0.2	1

Source: Analysis of FAME and iNet Output data

This analysis suggests that, taken as a whole, the iNets have secured a modest level of market penetration, with the exception of the Food and Drink sector where the iNet has advised over two-thirds of the businesses in the sector. It is also interesting to note that the average age of companies in the Healthcare and Bioscience sector is significantly lower than that of the other iNet sectors, where maturity of a sector tends to correlate with levels of innovation and productivity. The share of companies in each sector that have been grant assisted through the iNets is small.

5.3 Establishing a baseline of innovation performance

The purpose of a baseline is typically to measure the performance of businesses before their involvement with a programme or policy intervention, in order to assess how they changed as a result of the intervention. In this case we are interested in the innovation performance of East Midlands businesses who received support through one of the four iNets.

The original regional Innovation Strategy (RIS1) did not include a baseline of innovation performance within the four target sectors, and the iNets were not required to undertake such an exercise prior to their establishment. The RES evidence base included an analysis of innovation and R&D statistics for the East Midlands which drew on published information, but was not able to provide a sectoral disaggregation. Consequently there is no baseline of the innovation performance of businesses within the iNet sectors prior to the launch of the initiative.

The purpose of this section of the report is thus to provide an assessment of the 'baseline' position of businesses that received support through the iNets compared with those that did not. However, for beneficiaries this baseline does not provide a 'before and after' analysis of innovation performance.

The basis for this baseline assessment has been the Innovation Index developed by Nesta. Nesta published their Innovation Index in order to address long-standing problems with the measurement of innovation performance[58]. The basis of the index is a theoretical model of how businesses innovate, based on an '*innovation value chain*'. This value chain consists of three key components:

- Businesses' ability to access innovation (by developing ideas internally or by obtaining them from elsewhere – for instance from higher education institutions);
- Businesses ability to build innovation (through turning ideas into new or improved products, services, processes etc.); and,
- Businesses ability to commercialise innovation (i.e. utilising innovative goods, services or processes to generate profit).

The full index consists of a suite of 16 indicators, collected through primary research with businesses. A 2009 report presented the results of the analysis of the Innovation Index for businesses in 9 selected manufacturing and services sectors[59].

It was beyond the scope of this study to collect all 16 indicators, since this would have required a very long survey instrument when combined with the questions relating to iNet economic impact. As a result, an abridged version of the Innovation Index has been used, focussing on a selection of the key indicators. Many of the indicators used in the Index are also composite measures, and there is no indication within the material produced by Nesta

[58] NESTA (November 2009) The Innovation Index: Measuring the UK's investment in innovation and its effects

[59] Roper, S. et al (November 2009) Measuring sectoral innovation capability in nine areas of the UK economy. Report for NESTA Innovation Index project

as to how these composite measures should be calculated. Consequently we have been unable to compare the results of this exercise with the results generated by Nesta. As the Innovation Index becomes more widely used, however, it is likely that better and more transparent comparator data will become available.

The remainder of this section of the report presents data for two key groups of businesses:

- *Non-beneficiaries*: Businesses within the four iNet sectors who have not yet received any support from an iNet were surveyed in order to provide data on innovation performance within non-participants. The results in effect provide a pre-support baseline and give an indication of the counterfactual, since these are firms that have not had iNet support. Since they have chosen not to be involved in an iNet, however, they may not be entirely representative (they may be 'over-innovators' who did not need iNet support, or perhaps 'under-innovators' who did not see the need for innovation). It was initially intended to disaggregate data between the four sectors, but an inadequate number of responses was received, and so a single category –'non-beneficiaries' – has been used throughout;
- *iNet beneficiaries*: Businesses that have received any form of support from an iNet were surveyed in order to provide data on their innovation performance. The results show innovation performance within businesses after iNet support has been received. Data have been disaggregated between the four iNet sectors.

There follows a presentation of the results of the baseline analysis. Results have been presented in three sub-sections, following the three-stage Innovation Index model reviewed above.

5.4 Accessing knowledge

The first component of the Nesta Innovation Index concerns the way in which businesses access new knowledge which, in turn, forms the basis for innovation. The following indicators measure the extent to which businesses access knowledge:

- The proportion of a business's annual turnover that was spent on research and development (R&D); and,
- The importance of various external groups as sources of knowledge for a business.

The baseline position of East Midlands based businesses within these indicators is set out below.

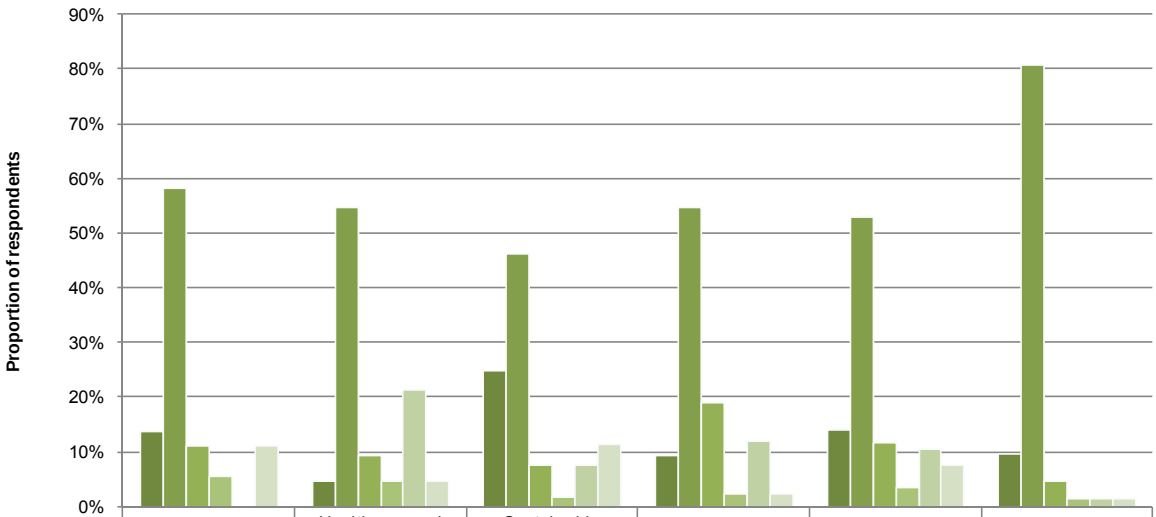
5.4.1 Expenditure on R&D

R&D expenditure as a percentage of sales is used as a measure of a business's commitment to investment in new technologies. It should be noted that for start-up firms very high proportions of sales might be invested in R&D, particularly since turnover might be negligible at such an early stage in a company's development.

Error! Reference source not found. shows that, amongst iNet beneficiaries, 14 per cent of respondents did not spend any money on R&D, compared to 10 per cent of survey respondents who did not receive support from an iNet. Of the four iNet sectors, businesses in the sustainable construction sector spent the least on R&D (25 per cent of respondents spent nothing). Some 21 per cent of respondents from the healthcare and bioscience sectors reported that they spent between 76 per cent and 100 per cent of their turnover on R&D, highlighting the importance of R&D investment in the sector.

Data drawn from the national Innovation Index are not strictly comparable with these data. It was reported that, on average, businesses spent 0.7 per cent of their turnover on R&D.

Figure 5.1 The proportion of businesses' annual turnover that was spent on R&D



	Food and Drink	Healthcare and Bioscience	Sustainable Construction	Transport	Beneficiaries	Non beneficiaries
0%	14%	5%	25%	10%	14%	10%
1%-25%	58%	55%	46%	55%	53%	81%
26%- 50%	11%	10%	8%	19%	12%	5%
51%- 75%	6%	5%	2%	2%	3%	2%
76%-100%	0%	21%	8%	12%	10%	2%
Don't know	11%	5%	12%	2%	8%	2%

Base = 36 businesses (Food & Drink); 42 businesses (Healthcare & bioscience);52 businesses (Sustainable construction); 42 businesses (Transport); 172 businesses (Beneficiaries); 62 businesses (Non-beneficiaries)

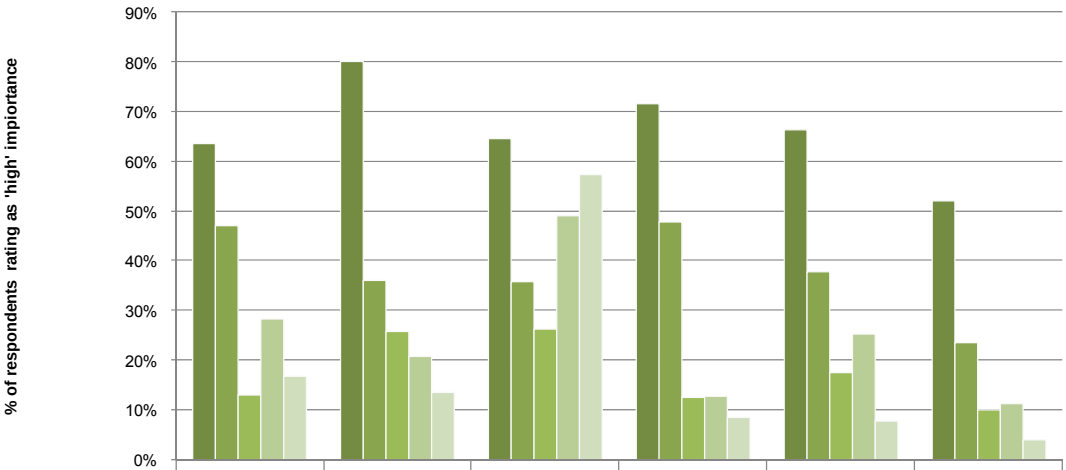
5.4.2 Accessing external sources of knowledge

External sources of information are of crucial importance to the innovation process within firms. As part of the survey, companies were asked to rate the importance of a selection of external information sources. Figure 5.2 shows the proportion of businesses within the six categories who rated each source of information as of 'high' importance. Customers were regarded as the most importance source of information, rated as of 'high' importance by 66 per cent of iNet beneficiaries, and 52 per cent of non-beneficiaries. Customers were particularly important to businesses in the healthcare & bioscience sector.

Overall, iNet beneficiaries were more likely to rate each external source of information as of 'high' importance, suggesting that they were relatively more open to external sources of information as part of the innovation process.

Examples of "other" sources of information cited by respondents included the internet and academic research contacts

Figure 5.2 The proportion of businesses rating selected external sources of information as of 'high' importance



	Food and Drink	Healthcare and Bioscience	Sustainable Construction	Transport	Beneficiaries	Non-Beneficiaries
Customers	64%	80%	65%	71%	66%	52%
Suppliers	47%	36%	36%	48%	38%	23%
Competitors	13%	26%	26%	12%	17%	10%
Trade Associations	28%	21%	49%	13%	25%	11%
Other	17%	13%	57%	8%	8%	4%

Base = 33 businesses (Food & Drink); 40 businesses (Healthcare & bioscience);48 businesses (Sustainable construction); 42 businesses (Transport); 163 businesses (Beneficiaries); 56 businesses (Non-beneficiaries)

5.5 Building innovation

The term building innovation is used to describe the process through which knowledge is utilised by businesses in order to facilitate innovation. Baseline indicators of building innovation thus measure the extent to which firms have developed new innovations, and the inputs that have been used in order to innovate. Four indicators are described below:

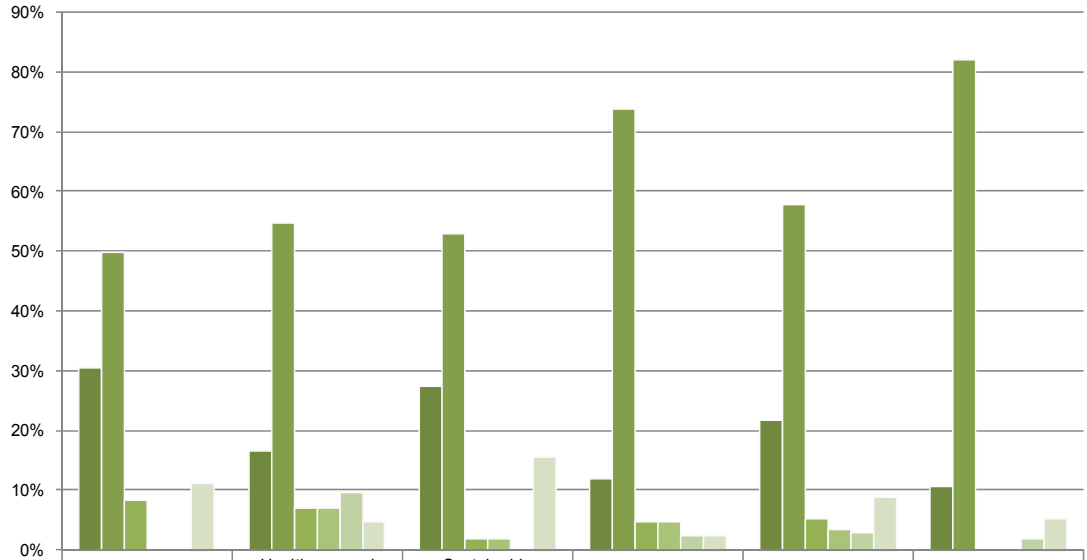
- The proportion of their annual turnover that businesses commit to process innovation;
- The proportion of businesses' annual turnover that is derived from new or improved products or services;
- The extent to which firms undertook different forms of innovation (product, process, marketing etc); and,
- The importance of external organisations in contributing to businesses innovation processes.

5.5.1 Expenditure on process development

Figure 5.3 shows the proportion of businesses' annual turnover that was spent each year on process development, a measure of the intensity of company investment in the process of innovation. Overall, 22 per cent of iNet beneficiaries spent nothing on process development, twice the proportion of non-beneficiaries (11 per cent). No investment in process development was particularly true of the food & drink and sustainable construction sectors. Businesses in the healthcare & bioscience spent the highest proportion of their turnover on process development, with 10 per cent of firms indicating that they had spent between 76 per cent and 100 per cent of their turnover on such activities.

It should also be noted that iNet beneficiaries appear far more likely to spend higher proportions of turnover on process development than non-beneficiaries. For example, 12% of iNet beneficiaries indicated that they spent more than a quarter of expenditure on process development compared to just 2 % of non-beneficiaries.

Figure 5.3 The proportion of businesses' annual turnover that was spent on process development



	Food and Drink	Healthcare and Bioscience	Sustainable Construction	Transport	Beneficiaries	Non-beneficiaries
0%	31%	17%	27%	12%	22%	11%
1%-25%	50%	55%	53%	74%	58%	82%
26%- 50%	8%	7%	2%	5%	5%	0%
51%- 75%	0%	7%	2%	5%	4%	0%
76%-100%	0%	10%	0%	2%	3%	2%
Don't know	11%	5%	16%	2%	9%	5%

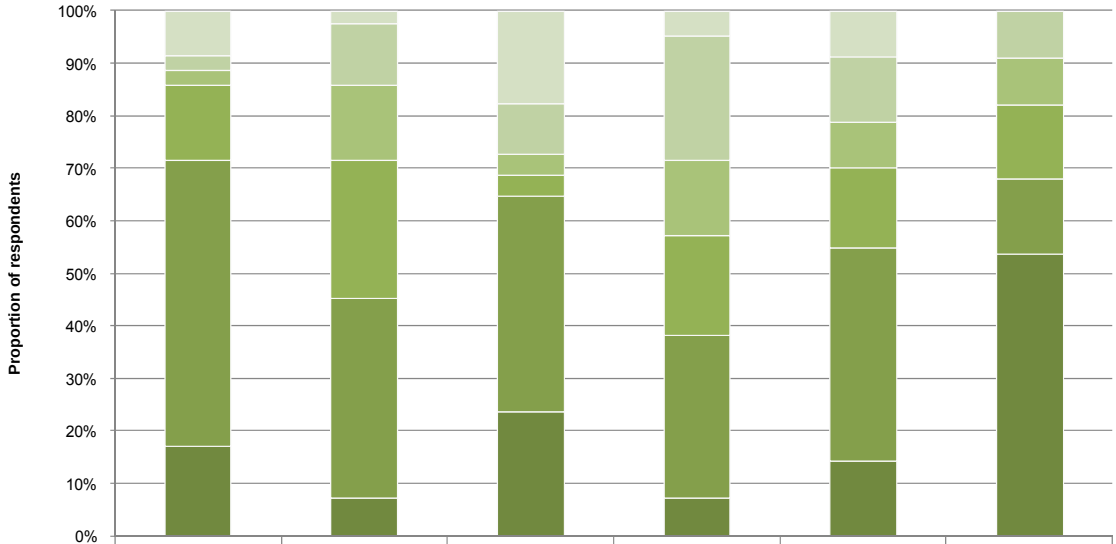
Base = 36 businesses (Food & Drink); 42 businesses (Healthcare & bioscience);51 businesses (Sustainable construction); 42 businesses (Transport); 171 businesses (Beneficiaries); 56 businesses (Non-beneficiaries)

5.5.2 Sales derived from innovation

Figure 5.4 shows the proportion of businesses' turnover that was derived from innovation – i.e. new or improved products or services. There was a notable difference between iNet beneficiaries and non-beneficiaries, with 14 per cent of the former reporting that they generate no income from innovation, compared to 54 per cent of the latter.

In addition it is worthy to note that more iNet beneficiaries generate income from innovation than non-beneficiaries (21% of beneficiaries generate over 51% of income from new or improved products or services, compared to 18% of non-beneficiaries).

Figure 5.4 The proportion of businesses' annual turnover that was derived from new or improved products or services



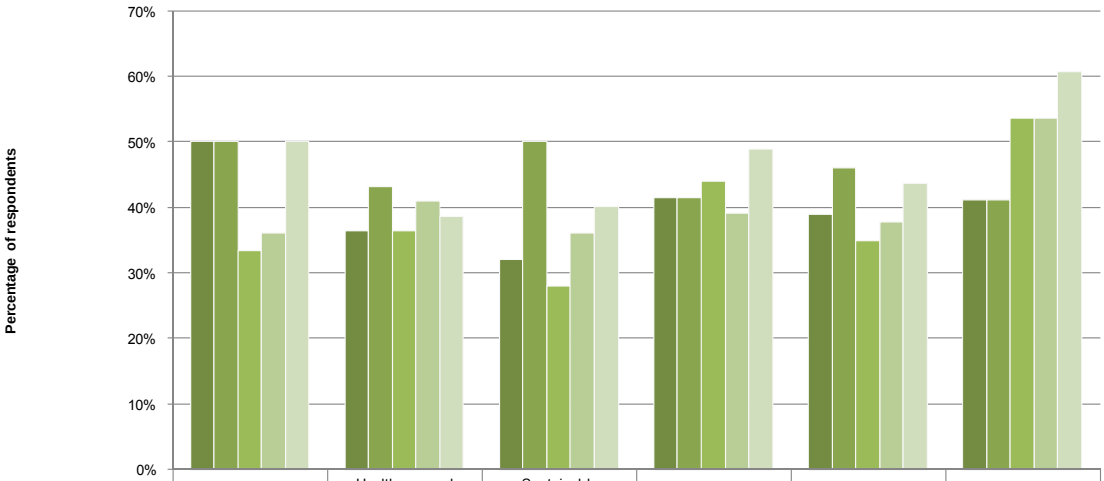
	Food and Drink	Healthcare and Bioscience	Sustainable Construction	Transport	Beneficiaries	Non-beneficiaries
Don't know	9%	2%	18%	5%	9%	0%
76%-100%	3%	12%	10%	24%	12%	9%
51%- 75%	3%	14%	4%	14%	9%	9%
26%- 50%	14%	26%	4%	19%	15%	14%
1%-25%	54%	38%	41%	31%	41%	14%
0%	17%	7%	24%	7%	14%	54%

Base = 35 businesses (Food & Drink); 42 businesses (Healthcare & bioscience);51 businesses (Sustainable construction); 42 businesses (Transport); 170 businesses (Beneficiaries); 56 businesses (Non-beneficiaries)

5.5.3 The introduction of innovations

Businesses were asked whether, in the past 5 years, they had introduced any new or improved products, services, production processes, marketing processes, or organisation systems. Innovations were considered if they were new to the business. The results are shown in Figure 5.5. There was generally little to distinguish between iNet beneficiaries and non-beneficiaries in relation to products and services, but non-beneficiaries were more innovative in relation to processes. However, with the exception of marketing processes, non-beneficiaries, tended to have a higher share that had introduced innovations in the last 5 years than beneficiaries. Beneficiaries from the food & drink sector were the most likely to have introduced a product innovation in the past five years (50 per cent of respondents).

Figure 5.5 The proportion of businesses that have introduced innovations in the last five years (new to the business)



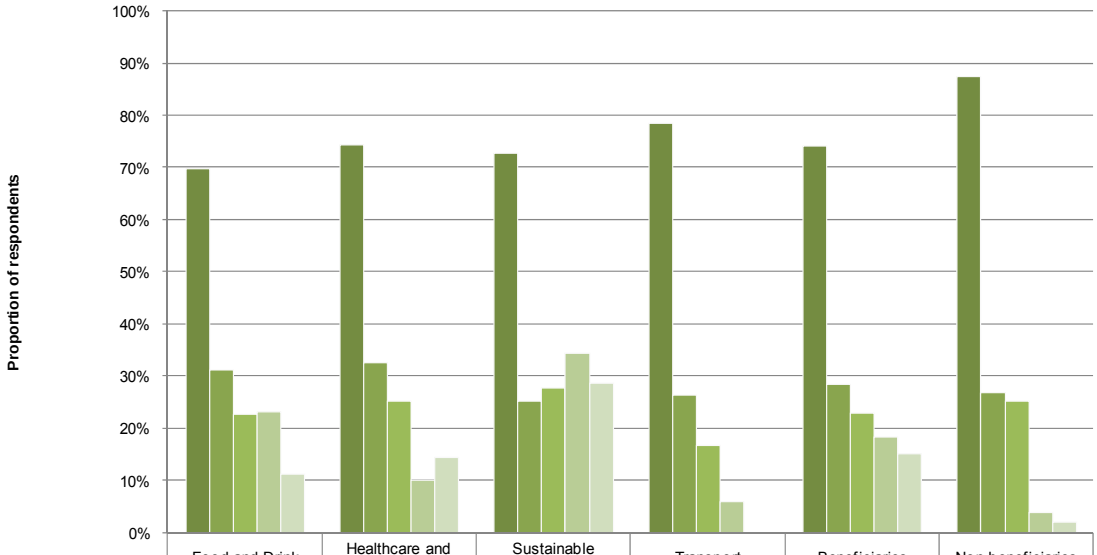
	Food and Drink	Healthcare and Bioscience	Sustainable Construction	Transport	Beneficiaries	Non-beneficiaries
Products	50%	36%	32%	41%	39%	41%
Services	50%	43%	50%	41%	46%	41%
Production Processes	33%	36%	28%	44%	35%	54%
Marketing Processes	36%	41%	36%	39%	38%	54%
Organisation systems	50%	39%	40%	49%	44%	61%

Base = 36 businesses (Food & Drink); 44 businesses (Healthcare & bioscience); 50 businesses (Sustainable construction); 41 businesses (Transport); 172 businesses (Beneficiaries); 56 businesses (Non-beneficiaries)

5.5.4 The contribution of external stakeholders to innovation

Figure 5.6 shows the proportion of survey respondents who reported that a selection of external stakeholders were of 'high' importance in developing innovation within their companies. Customers were the most important external contributors (rated as of 'high' importance by 74 per cent of iNet beneficiaries). iNet beneficiaries were slightly more likely than non-beneficiaries to regard trade associations as an important contributor to innovation (18 per cent of respondents). This was particularly true of businesses in the sustainable construction sector where 34 per cent of respondents saw trade associations as of 'high' importance to their innovation development).

Figure 5.6 The proportion of businesses rating selected external sources of information as of 'high' importance when developing innovation



	Food and Drink	Healthcare and Bioscience	Sustainable Construction	Transport	Beneficiaries	Non-beneficiaries
Customers	70%	74%	73%	79%	74%	88%
Suppliers	31%	32%	25%	26%	28%	27%
Competitors	23%	25%	28%	17%	23%	25%
Trade Associations	23%	10%	34%	6%	18%	4%
Other	11%	14%	29%	0%	15%	2%

Base = 36 businesses (Food & Drink); 44 businesses (Healthcare & bioscience); 50 businesses (Sustainable construction); 41 businesses (Transport); 172 businesses (Beneficiaries); 56 businesses (Non-beneficiaries)

5.6 Commercialising innovation

The third and final component of the innovation model developed by Nesta measures the extent to which businesses are able to commercialise the innovation that they have undertaken. The following indicators are considered:

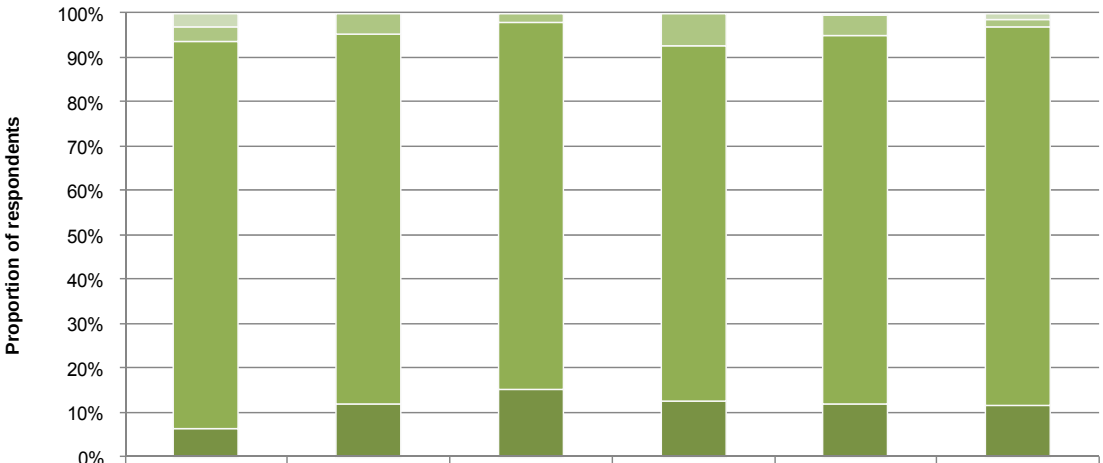
- The proportion of a company's annual turnover spent on branding and marketing;
- The usage of external sources of expertise in order to commercialise innovation; and,
- The forms of intellectual property protection used by businesses in the past 5 years.

The baseline position of East Midlands based businesses within these three indicators is set out below.

5.6.1 Expenditure on branding and marketing

Consideration of expenditure on branding on marketing measures demonstrates businesses' commitment towards commercialising knowledge. Figure 5.7 shows, for the six business groups, the proportion of survey respondents reporting that they spent between 0 per cent and 75 per cent of their annual turnover on branding and marketing. There is very little difference between beneficiaries and non-beneficiaries. On average, 12 per cent of iNet beneficiaries spent nothing on branding and marketing, whilst the majority – 83 per cent of the total – spent between 1 per cent and 25 per cent of their annual turnover. A further 4 per cent of businesses spent between 26 per cent and 50 per cent of their annual turnover on branding and marketing. Businesses from the sustainable construction iNet spent marginally less on branding and marketing (15 per cent of reported that they did not spent any resources in this way).

Figure 5.7 The proportion of survey respondents reporting that they spent selected proportions of their annual turnover on branding and marketing



	Food and Drink	Healthcare and Bioscience	Sustainable Construction	Transport	Beneficiaries	Non beneficiaries
51%- 75%	3%	0%	0%	0%	1%	2%
26%- 50%	3%	5%	2%	8%	4%	2%
1%-25%	88%	83%	83%	80%	83%	85%
0%	6%	12%	15%	13%	12%	11%

Base = 32 businesses (Food & Drink); 42 businesses (Healthcare & bioscience);46 businesses (Sustainable construction); 40 businesses (Transport); 160 businesses (Beneficiaries); 61 businesses (Non-beneficiaries)

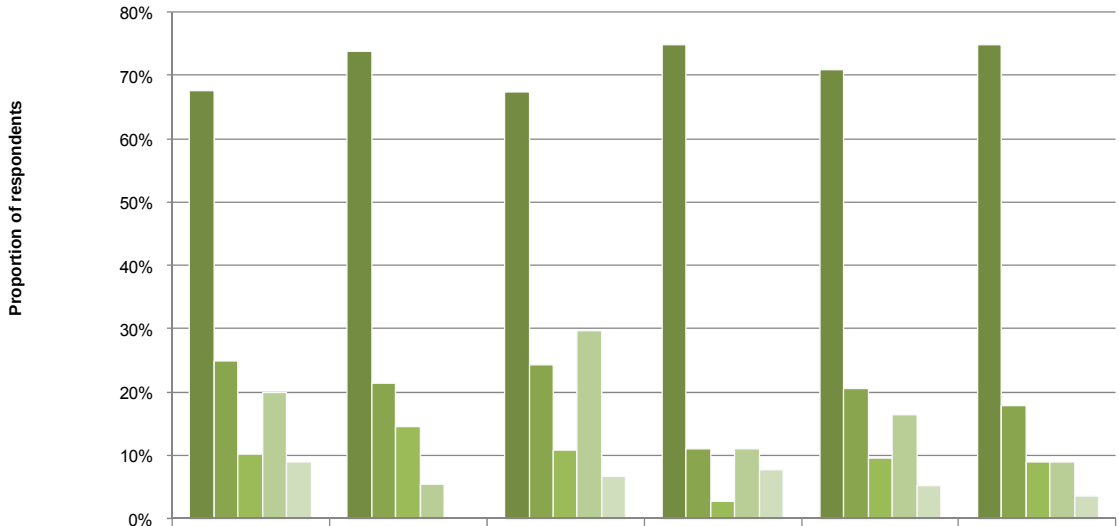
5.6.2 The usage of external sources of expertise

Businesses were asked to rate the importance of a set of external groups as regards the commercialisation of their innovations (Figure 5.8). Not surprisingly, customers were identified as the most important external influence on the commercialisation of innovation, rated as of 'high' importance by around 70 per cent of businesses across all respondent categories.

iNet beneficiaries were slightly more likely than non-beneficiaries to rate external stakeholders as of 'high' importance. This is particularly true of the use of trade associations to support the commercialisation of innovation, where 17 per cent of iNet beneficiaries rated that group as of 'high' importance (30 per cent of businesses from the sustainable construction sector).

Some 15 per cent of businesses from the healthcare & bioscience sector rated their competitors as of 'high' importance when commercialising innovation, the highest proportion of all business sectors.

Figure 5.8 The proportion of businesses rating selected external sources of information as of 'high' importance when commercialising their innovations



	Food and Drink	Healthcare and Bioscience	Sustainable Construction	Transport	Beneficiaries	Non-beneficiaries
Customers	68%	74%	67%	75%	71%	75%
Suppliers	25%	21%	24%	11%	21%	18%
Competitors	10%	15%	11%	3%	10%	9%
Trade Associations	20%	6%	30%	11%	17%	9%
Other	9%	0%	7%	8%	5%	4%

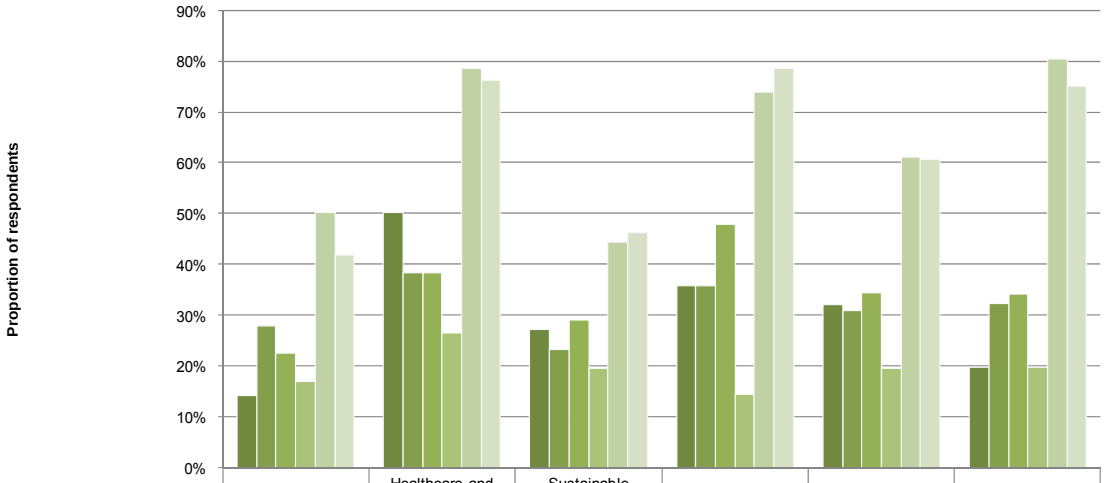
Base = 32 businesses (Food & Drink); 42 businesses (Healthcare & bioscience);46 businesses (Sustainable construction); 40 businesses (Transport); 160 businesses (Beneficiaries); 61 businesses (Non-beneficiaries)

5.6.3 IP protection

Firms' usage of IP protection measures the extent to which they protect their innovations as they bring them to the market. Reflecting the breadth of modern IP protection methods, the usage of different forms of IP protection is considered – ranging from traditional patents through the usage of trademarks, copyright and non-disclosure agreements.

Figure 5.9 shows the proportion of survey respondents who reported that they had made use of each of the forms of IP protection over the past five years. Overall, 32 per cent of iNet beneficiaries had made use of a patent, significantly higher than the figure for non-beneficiaries (20 per cent). Healthcare & bioscience businesses were particularly likely to have made use of a patent to protect IP (50 per cent of survey respondents had done so). Businesses in the sustainable construction sector were the least likely to have used IP protection.

Figure 5.9 The proportion of survey respondents who have made use of various forms of IP protection at least once in the past five years



	Food and Drink	Healthcare and Bioscience	Sustainable Construction	Transport	Beneficiaries	Non-beneficiaries
Patent	14%	50%	27%	36%	32%	20%
Trademark	28%	38%	23%	36%	31%	32%
Copyright	22%	38%	29%	48%	34%	34%
Regulation of new designs	17%	26%	19%	14%	19%	20%
Confidentiality agreements	50%	79%	44%	74%	61%	80%
Non-disclosure agreements	42%	76%	46%	79%	60%	75%

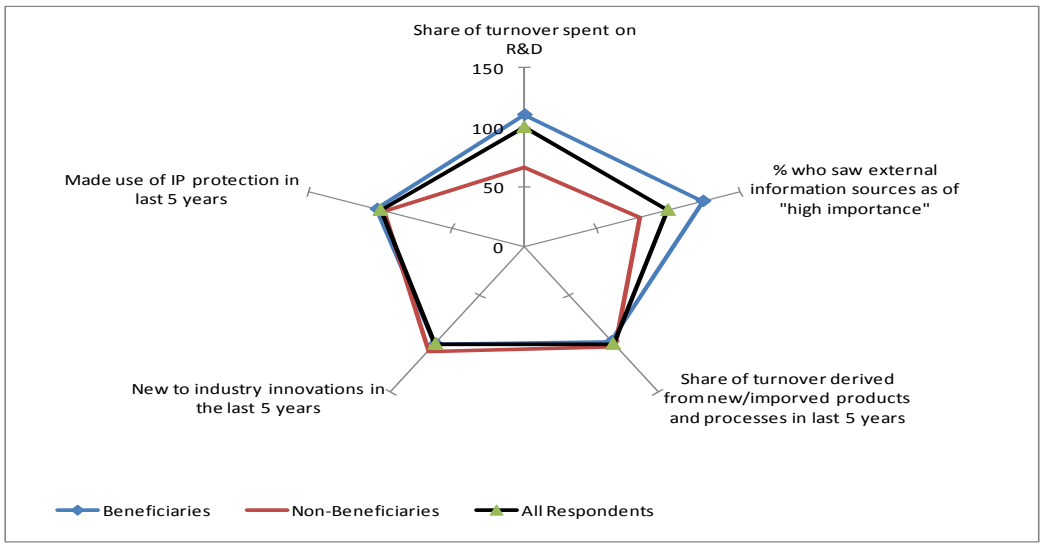
Base = 36 businesses (Food & Drink); 42 businesses (Healthcare & bioscience);52 businesses (Sustainable construction); 42 businesses (Transport); 172 businesses (Beneficiaries); 56 businesses (Non-beneficiaries)

5.7 Comparison of beneficiaries with total sample

The limited response rate of non-beneficiaries does not allow a formal analysis by sector (except Transport, see Section 5.8 below). The analysis has therefore sought to compare, using selected indicators, the results for each iNet against the results of all respondents. This provides only limited insight, but does allow some comparison of the relative innovation performance of the beneficiaries taken together against non-beneficiaries and allows the beneficiaries in the four sectors to be compared against a benchmark comprising all survey respondents.

5.7.1 Comparison of iNet beneficiaries and non-beneficiaries

Figure 5.10 Comparison of innovation performance of iNet beneficiaries compared to non-beneficiaries, for selected indicators

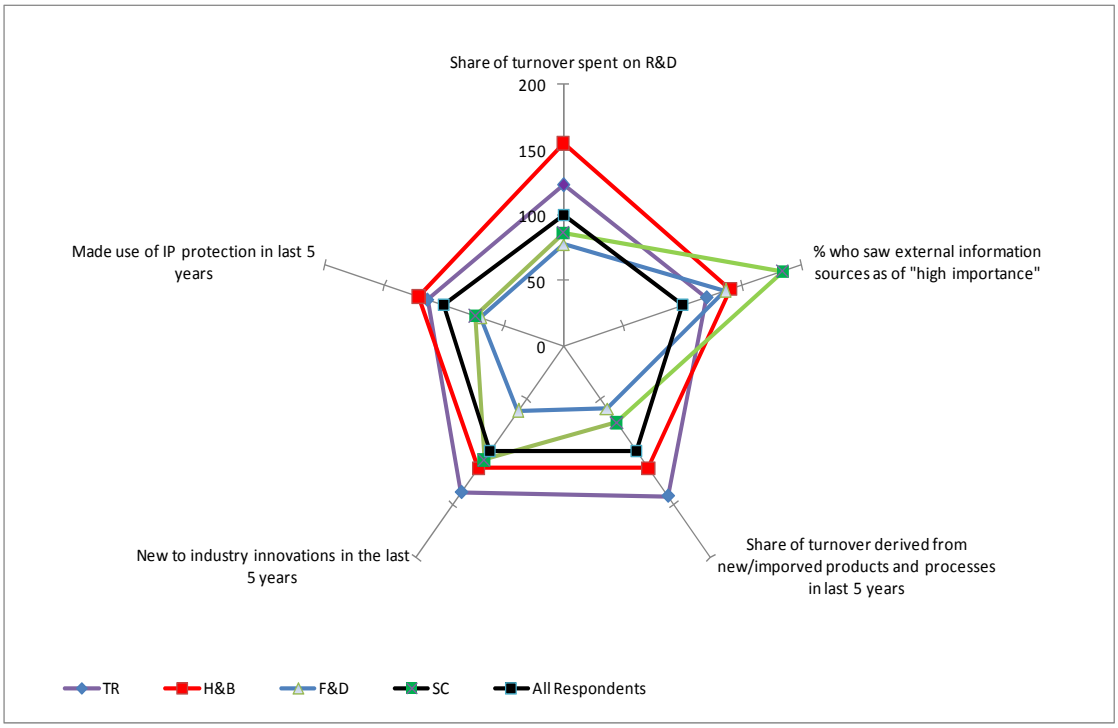


The results indicate that the indicators on which the beneficiaries clearly perform better is on the share of turnover spent on R&D and the greater weight given to the use of external information sources, both of which have clear links to the iNet activity. Two of the indicators relate to performance in the last 5 years; iNets have only been operating for the past 3 years and less than that in some cases.

5.7.2 Comparison of iNet beneficiaries against benchmark

The results indicate that healthcare and transport beneficiaries perform better on all indicators compared to the benchmark of all respondents. In contrast the beneficiaries of the other two iNets perform less well than the benchmark, expect in the case of the weight given to the use of external information sources.

Figure 5.11 Comparison of innovation performance of iNet beneficiaries compared to all survey respondents, for selected indicators



5.8 Comparison by sector

The analysis suggests that sector differences are more important than the differences between beneficiaries and non-beneficiaries; and because of the lack of information on pre-iNet levels of innovation by sector it is difficult to attribute differences between beneficiaries and non-beneficiaries to iNet activity.

Whilst a formal sector by sector comparison of beneficiaries and non-beneficiaries is not possible, because the majority of non-beneficiaries were in the transport sector, a comparison for transport can be undertaken (summarised below). It is also possible to make a brief comment on construction given that this was the only iNet sector covered by the national NESTA research.

5.8.1 Regional Transport Sector

The following section provides a comparison of the responses received by beneficiaries and non-beneficiaries in the transport sector. This analysis compares responses received by 52 companies that had been in receipt of iNet services and those of a further 36 non-beneficiaries, with whom the transport iNet had not provided assistance. This analysis follows the format used in Section 5.4, using the NESTA Innovation Index as a basis for assessment.

5.8.1.3 *Accessing Knowledge*

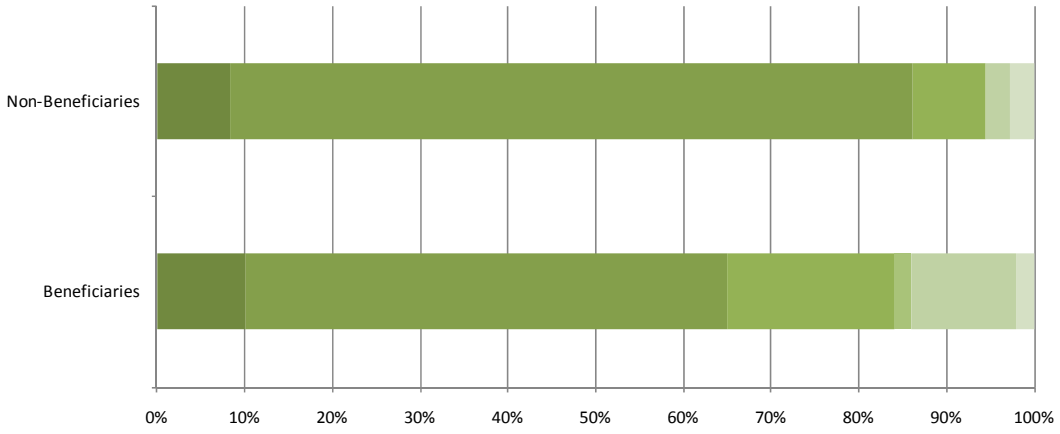
The analysis examines expenditure on R&D (Figure 5.12), and attitudes towards accessing various external sources of knowledge (Figure 5.13).

Analysis of expenditure on R&D (Figure 5.12) indicates:

- The vast majority of beneficiaries and non-beneficiaries in the transport sector spend a low proportion of turnover on R&D activity. In the case of non-beneficiaries, 86% spend less than 25% on R&D; the figure for beneficiaries is 65%, of which 10% do not spend anything on R&D.
- The share of beneficiaries who spend more than 50% of turnover on R&D is higher for beneficiaries than for non-beneficiaries (14% compared to 3%)

Taken as a whole, this evidence presents a picture of slightly higher spending on R&D among iNet beneficiaries than non-beneficiaries in the sector, however, the difference between beneficiaries and beneficiaries is not highly significant.

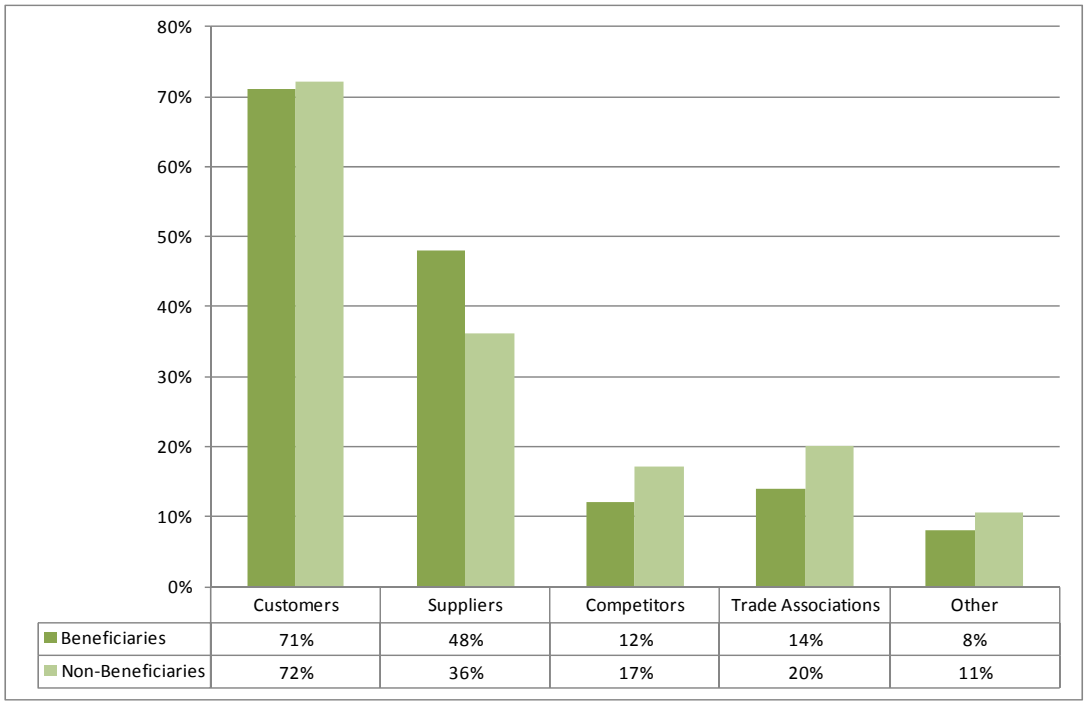
Figure 5.12 The proportion of transport businesses' annual turnover that was spent on R&D



	Beneficiaries	Non-Beneficiaries
0%	10%	8%
1%-25%	55%	78%
26%- 50%	19%	8%
51%- 75%	2%	0%
76%-100%	12%	3%
Don't know	2%	3%

Base = 52 Beneficiaries; 36 Non-beneficiaries

Figure 5.13 The proportion of transport companies rating selected external sources of information as of 'high' importance



	Customers	Suppliers	Competitors	Trade Associations	Other
Beneficiaries	71%	48%	12%	14%	8%
Non-Beneficiaries	72%	36%	17%	20%	11%

Base = 52 Beneficiaries; 36 Non-beneficiaries

Figure 5.13 illustrates the extent to which respondents rate various external sources of information highly. As one would expect this analysis is consistent with that presented previously, with customers rated as the most significant source of external information for both beneficiaries and non-beneficiaries.

In this case beneficiaries appear to rate suppliers as sources of information more highly than non-beneficiaries do. Interestingly, however, there is a greater recognition among non-beneficiaries of the value of information which comes from competitors and trade associations.

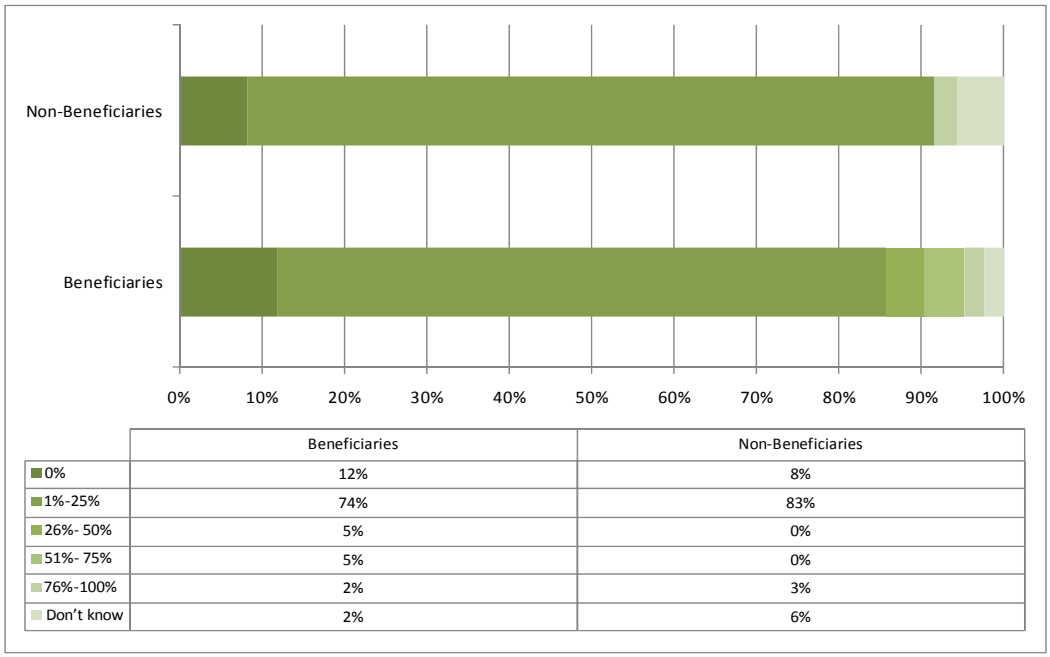
5.8.1.4 *Building Innovation*

The following three charts (Figure 5.14, Figure 5.15 and Figure 5.16) present a comparison of Transport iNet beneficiaries and non-beneficiaries in relation to aspects of building innovation, the process by which knowledge is used by companies to build innovation.

Figure 5.14 illustrates the share of business turnover spent on process development, highlighting the following issues:

- The share of turnover spent on process development is low for both beneficiaries and non-beneficiaries, 96% of non-beneficiaries spend less than 25% of turnover on process development, for beneficiaries the figure is only slightly less at 86%.
- There is, however, some evidence here of a greater propensity among beneficiaries to spend on process development; 7% of beneficiaries spend more than 50% of turnover on process development.

Figure 5.14 The proportion of transport businesses' annual turnover that was spent on process development

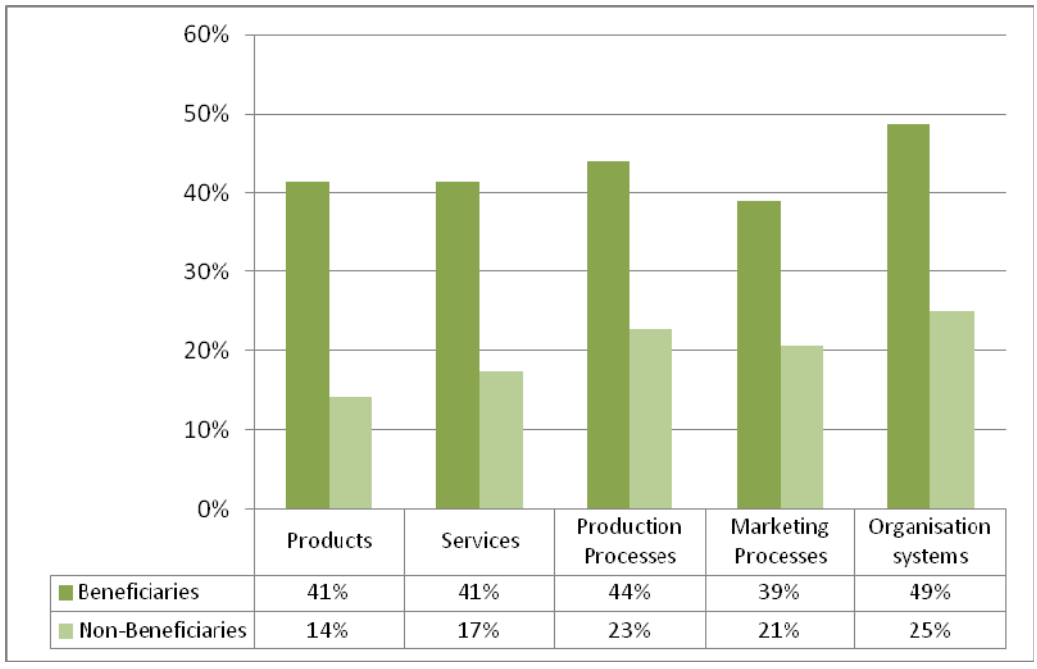


	Beneficiaries	Non-Beneficiaries
0%	12%	8%
1%-25%	74%	83%
26%- 50%	5%	0%
51%- 75%	5%	0%
76%-100%	2%	3%
Don't know	2%	6%

Base = 52 Beneficiaries; 36 Non-beneficiaries

Businesses were asked whether they had introduced any new or improved products, services, production processes, marketing processes or organisational systems in the last 5 years (Figure 5.15).

Figure 5.15 The proportion of transport businesses that have introduced innovations in the last five years (new to the business)



	Products	Services	Production Processes	Marketing Processes	Organisation systems
Beneficiaries	41%	41%	44%	39%	49%
Non-Beneficiaries	14%	17%	23%	21%	25%

Base = 52 Beneficiaries; 35 Non-beneficiaries

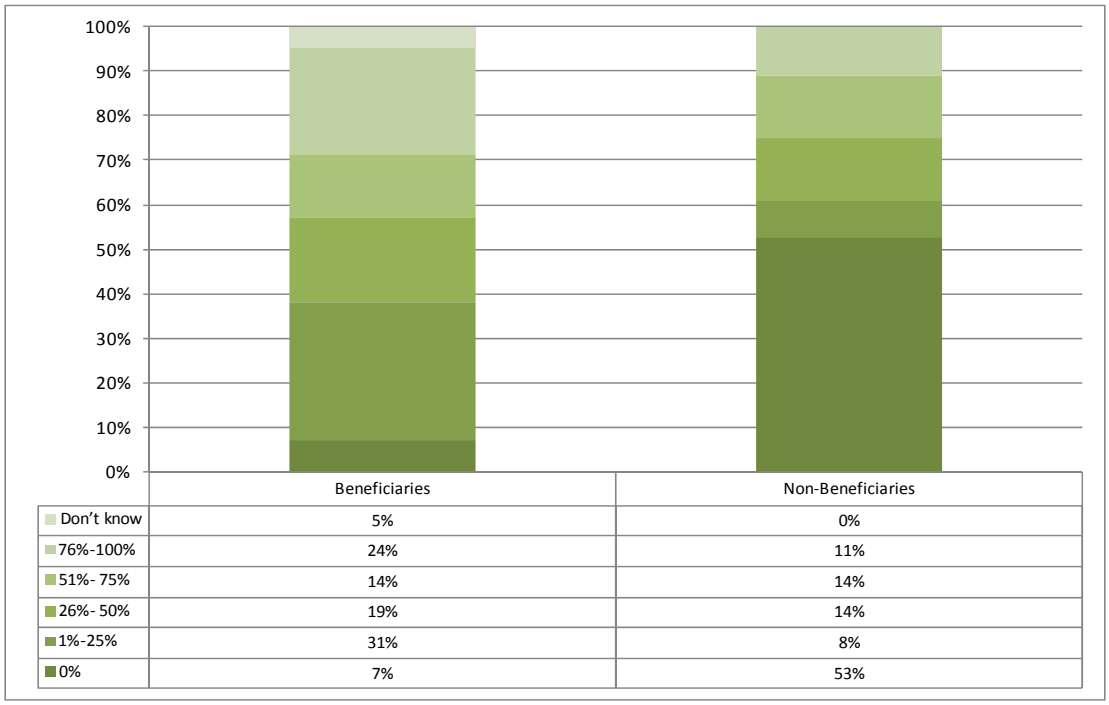
This analysis shows that beneficiaries have introduced new innovations in greater numbers across all categories. It is also worthy of note that the innovation performance of the non-beneficiaries shadows that of the beneficiaries, with organisational systems and production

processes the areas where most respondents stated they had introduced new innovations in the last five years.

The greatest differences between beneficiaries and non-beneficiaries are in relation to the introduction of new products and services. In these areas beneficiaries have been more than twice as active in introducing new innovations over the past five years than non-beneficiaries.

Figure 5.16 takes this analysis further through presenting estimates of the proportion of sales derived from new and improved products, the product of innovative activity.

Figure 5.16 The proportion of transport businesses' annual turnover that was derived from new or improved products



	Beneficiaries	Non-Beneficiaries
Don't know	5%	0%
76%-100%	24%	11%
51%- 75%	14%	14%
26%- 50%	19%	14%
1%-25%	31%	8%
0%	7%	53%

Base = 52 Beneficiaries; 36 Non-beneficiaries

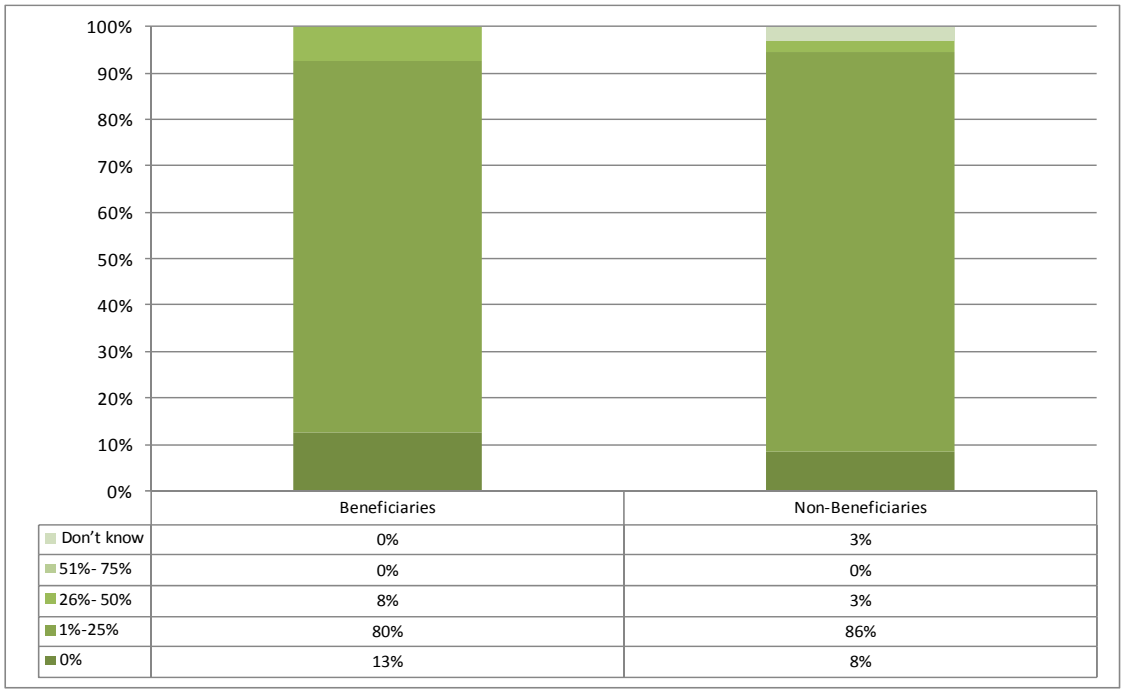
This analysis is perhaps the clearest difference between beneficiary companies and non-beneficiary companies in the Transport sector. Just less than a quarter (24%) of beneficiary companies stated that they derived 76% or more of their income from new or improved products and services, compared to just 11% of non-beneficiaries stating the same. Indeed more than half (53%) of non beneficiaries stated that they derived no annual turnover from new or improved products and services, compared to just 7% of beneficiaries.

On this indicator, it is clear that the beneficiary companies are innovating more and, crucially, are increasing their turnover as a result.

5.8.1.5 *Commercialising innovation*

The final stage of innovation model measures the extent to which firms are able to commercialise and protect the innovation which they have developed. Expenditure on branding and marketing is considered in Figure 5.17.

Figure 5.17 The proportion of transport businesses reporting that they spent selected proportions of their annual turnover on branding and marketing



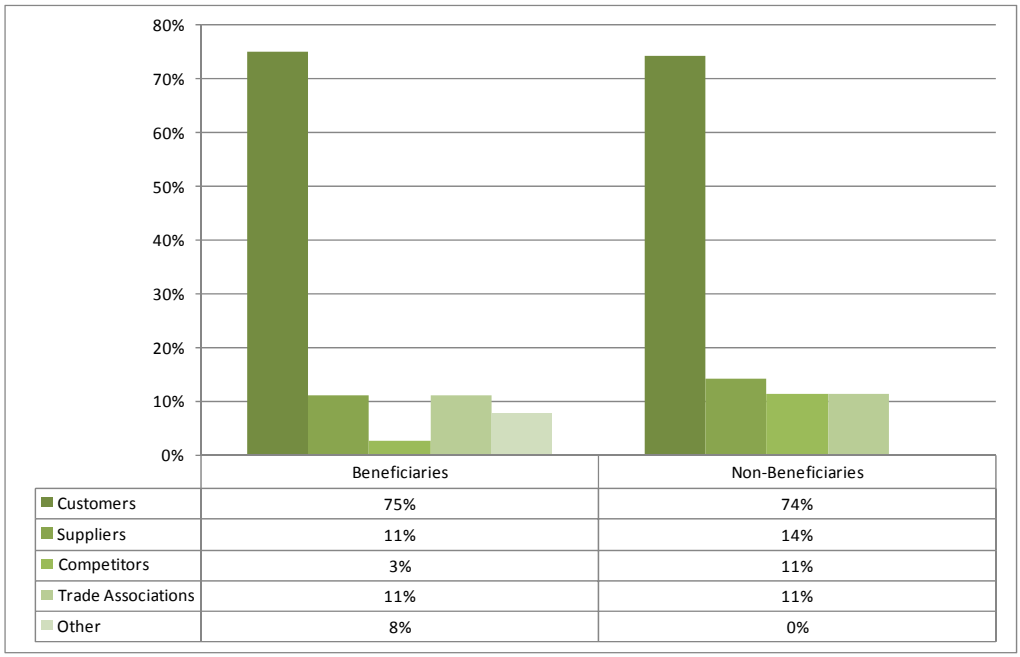
	Beneficiaries	Non-Beneficiaries
Don't know	0%	3%
51%- 75%	0%	0%
26%- 50%	8%	3%
1%-25%	80%	86%
0%	13%	8%

Base = 52 Beneficiaries; 36 Non-beneficiaries

This illustrates that there is only a marginal difference between beneficiaries and non-beneficiaries in terms of their propensity to spend on branding and marketing activity. Whilst there is a slightly greater share of beneficiaries who stated that they spend between 26% and 50% on this activity (8%, compared to 3%), the vast majority of respondents in both cases spend between 1%-25% of turnover on these activities. In this respect these findings are consistent with those of beneficiaries in other sectors presented earlier in this report.

Figure 5.18 presents a comparison of beneficiary and non-beneficiary respondents regarding their propensity to rate selected sources of information of 'high' importance when commercialising innovations. Across all responses beneficiaries and non-beneficiaries gave similar responses to this question. The one exception is that the share of non-beneficiaries who felt that competitors were of high importance as a source of information in relation to innovation commercialisation was higher than for beneficiaries (11% compared to 3%).

Figure 5.18 The proportion of transport businesses rating selected external sources of information as of 'high' importance when commercialising their innovations

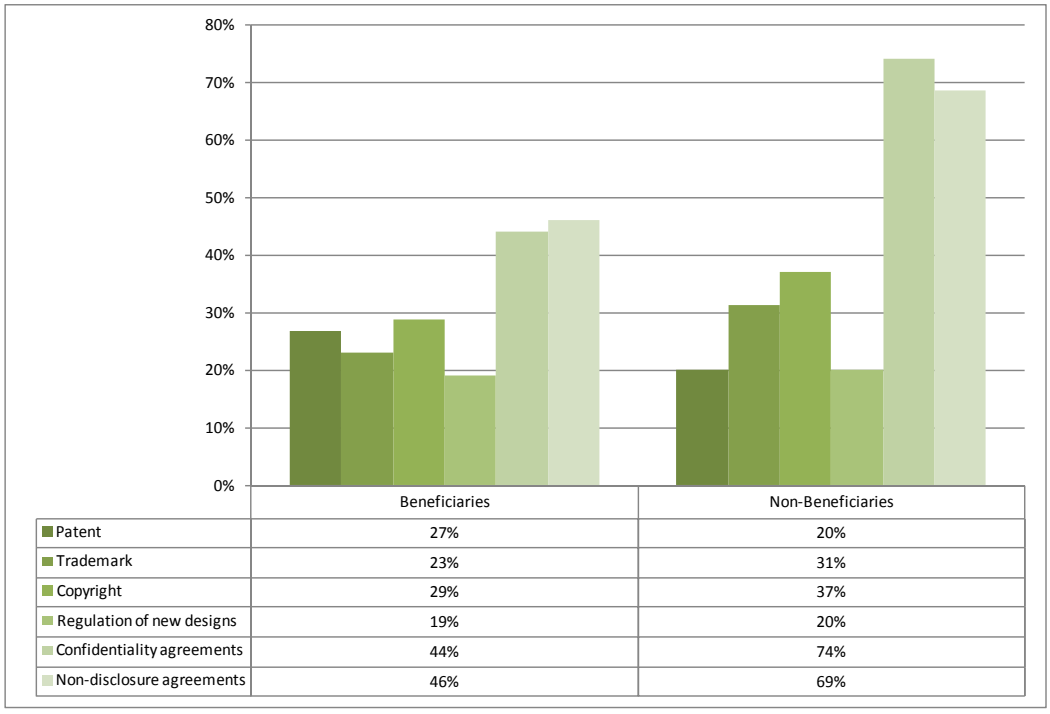


	Beneficiaries	Non-Beneficiaries
Customers	75%	74%
Suppliers	11%	14%
Competitors	3%	11%
Trade Associations	11%	11%
Other	8%	0%

Base = 52 Beneficiaries; 35 Non-beneficiaries

Figure 5.19 illustrates the proportion of beneficiaries and non-beneficiaries that have made use of a range of forms of Intellectual Property protection at least once in the past five years. Overall 27% of beneficiaries had made use of a patent, compared to 20% of non-beneficiaries. More non-beneficiaries, however, had made use of trademarks (31% compared to 23% of beneficiaries) and a greater share of non-beneficiaries had made use of copyright protection, confidentiality agreements, and non-disclosure agreements.

Figure 5.19 The proportion of transport businesses who have made use of various forms of IP protection at least once in the past five years



	Beneficiaries	Non-Beneficiaries
Patent	27%	20%
Trademark	23%	31%
Copyright	29%	37%
Regulation of new designs	19%	20%
Confidentiality agreements	44%	74%
Non-disclosure agreements	46%	69%

Base = 52 Beneficiaries; 35 Non-beneficiaries

5.8.1.6 *Summary of Findings*

The evidence presented above suggests:

- R&D spending is slightly higher among iNet beneficiaries than non-beneficiaries in the sector;
- There is little difference between beneficiaries and non-beneficiaries when recognising the value of external information; indeed non-beneficiaries appear to recognise the value of Trade Associations and competitors as valuable sources of information to a greater extent than beneficiaries;
- There is a greater propensity among beneficiaries to spend on process development;
- Across all categories of innovation (products, services, production processes, marketing processes, and organisation systems) beneficiaries are more likely to have introduced innovations in the last five years;
- The introduction of new products and services is far more significant in generating turnover for beneficiaries than for non-beneficiaries;
- Beneficiaries undertake less IP protection than non-beneficiaries, other than in the case of the use of patents.

5.8.2 Construction sector

It is possible to compare the performance of the construction sector in the East Midlands with that of the sector nationally, drawing on the results of the Innovation Index produced by Nesta (note other iNet sectors are not identified in the published Nesta research). As noted previously, the indicators used in this baseline are not directly comparable with the national Innovation Index, but a broad comparison can be made.

Construction was one of nine sectors included in the Innovation Index[60]. It was reported that the sector was the least innovative of all the sectors examined, similar to the position in the East Midlands of the four iNet sectors. R&D expenditure was reported to be low (0.1 per cent of sales on average), and construction companies were found to involve fewer external partners when obtaining new knowledge. Construction firms generated a relatively low proportion of sales from new products or services (4.8 per cent of sales on average), and were reported to make use of IP protection less frequently than businesses from any other sector. These trends are similar to those in reported by businesses in the East Midlands and though no direct comparison can be made, it seems that the regional and national innovation performance is similarly poor.

5.9 Key messages

This section of the report has presented the results of a baseline analysis of innovation performance within East Midlands businesses in the four iNet sectors.

A stated above, the limited response rate of non-beneficiaries does not allow a formal analysis by sector (expect for Transport, see below). Table 5.1 illustrates that these results are heavily influenced by the extent to which Transport non-beneficiaries responded to the non-beneficiary survey

Key messages are as follows:

- In terms of accessing knowledge, there is evidence that iNet beneficiaries are slightly more active in investing in R&D and drawing on external providers of knowledge as part of the innovation process. This is particularly true of businesses in the healthcare & bioscience sector, a minority of whom invested large amounts (upwards of 25 per cent of turnover) in R&D;

[60] Roper, S. et al (November 2009) Measuring sectoral innovation capability in nine areas of the UK economy. Report for NESTA Innovation Index project

- Evidence in terms of the volume of innovation in businesses is mixed, with non-beneficiaries in some instances being more innovative, and in others less innovative, than iNet beneficiaries. iNet beneficiaries tend to spend less than non-beneficiaries on process innovation, but generate considerably more of their income from innovations. Non-beneficiaries tend to undertake more production process innovation, and innovation around organisational management;
- Again, healthcare & bioscience businesses were the most innovative firms, followed by transport businesses;
- Businesses in the sustainable construction sector invested the least in the commercialisation of innovation, and were the least likely to make use of IP protection. Healthcare & bioscience businesses were the most likely to use patents to protection their IP.

In terms of the broader question of whether there is any significant difference in innovation activity, as reflected in these baseline questions, the evidence suggests that there is little difference between the beneficiaries and non-beneficiaries in the four sectors covered by the iNets. The evidence is in fact more suggestive of there being different innovation models for the different sectors, and that differences between sectors are the more pronounced.

However, the detailed analysis of the transport sector does suggest that beneficiaries spend more on R&D and are more innovative, securing greater shares of turnover from new products and services. Unless this is attributable to different business or market characteristics, then the difference would appear to be attributable to the iNet. Of course, without further research it is not clear whether iNet beneficiaries are by their nature more innovative and why they have made use of the services available.

In summary, at a sectoral level the healthcare and transport sectors demonstrate, overall, a higher level of innovation activity than the other sectors, whilst food & drink and construction demonstrate the lowest levels of activity.

To some extent this is predictable from the relative regional productivity performance of the sectors, with healthcare and transport outperforming the national average, and construction achieving less than the national average. The exception is the food & drink sector, which is considerably more productive regionally than nationally, but this performance does not appear to be related to above average levels of innovative activity.

It is difficult to conclude on the influence that the iNets have had on these overall levels, and on any subsequent change in the broader innovation culture of a sector, given the absence of any prior intervention baseline. Given the share of businesses in a sector that have received support through the iNet, one would expect any overall sector level impact to be most clearly recognised in the food & drink sector. Unfortunately the national database although having some sectoral breakdown does not provide a separate analysis of the food & drink sector at the present time.

6 Conclusions

In summary the main conclusions are:

6.8 Quality of service and expected impacts

1. The response of beneficiaries to the services received is very positive, both in terms of the reported quality of the service and the judgements made by businesses as to the actual or potential economic impact.
2. Beneficiaries reported very high levels of satisfaction with the all services received the events programmes is clearly of significant value to survey respondents in this study. This is further evidenced by evidence of attendees travelling from outside the region.
3. Those receiving grant assistance following advisor IDB reported the highest levels of satisfaction and reported the most significant economic impacts, illustrating the significance of this grant as a means of unlocking innovation potential.
4. Substantial future economic impacts are envisaged, with half of businesses expecting future quantifiable economic impacts and half planning to introduce new innovative products and services.
5. Over 30% of beneficiaries have launched new to industry products and processes due to an iNet intervention and a further 30% of beneficiaries are planning a launch in the next few years.

6.9 Estimated economic impact

6. The regional net additional economic impact to-date is estimated to comprise:
    - An additional £5.7m of GVA per year
    - An additional £21m of GVA over the next 5 years (discounted at 3.5%)
    - An additional 355 jobs;
7. Cost per business assisted is much lower than for comparable interventions, suggesting that the iNets have provided a service to companies in the region which represents significant value for money.
8. The intervention (on a cost per job basis) is (in terms of the IAG) more cost effective compared to similar types of programmes, although this probably over-states the impact, given the role of other services in supporting business impacts.
9. Future expected economic impacts will improve the current estimated cost-effectiveness.

6.10 Baseline innovation performance

10. The iNets appear to have led to a slight overall improvement in innovation performance compared to non-beneficiaries, although this is not clear-cut, depending on the particular aspect of the 'innovation value chain'; however, the following can be observed:
    a. iNet beneficiaries spend more on R&D than non-beneficiaries. Of the four iNet sectors, businesses in the sustainable construction sector spent the least on R&D (25 per cent of respondents spent nothing). Some 21 per cent of respondents from the healthcare and bioscience sectors reported that they spent between 76 per cent and 100 per cent of their turnover on R&D, highlighting the importance of R&D investment in the sector.
    b. iNet beneficiaries are more likely to access a wide range of external sources of information, suggesting that they recognise the value of external knowledge and highlighting the fact that they are relatively more open to external sources of information as part of the innovation process than non-beneficiaries. Sources of information recognised of high value were customers, suppliers, trade

associations and competitors. Interestingly, customers were rated as the most important external contributors to innovation for iNet beneficiaries.

c. iNet beneficiaries are far more likely to spend higher proportions of turnover on process development than non-beneficiaries. For example, 12% of iNet beneficiaries indicated that they spent more than a quarter of expenditure on process development compared to just 2 % of non-beneficiaries.

d. Spending on R&D is also translated into sales for iNet beneficiaries: iNet beneficiaries generate more income from innovation than non-beneficiaries (21% of beneficiaries generate over 51% of income from new or improved products or services, compared to 18% of non-beneficiaries).

e. iNet beneficiaries are also more likely to make use of intellectual property protection than non-beneficiaries. Overall, 32 per cent of iNet beneficiaries had made use of a patent, significantly higher than the figure for non-beneficiaries (20 per cent).

11. In the case of transport where a comparison between beneficiaries and non-beneficiaries was possible, the results show a higher level of innovation performance of beneficiaries. It is difficult to establish a formal causal relationship to the iNet; the result could simply reflect that those businesses pre-disposed to be innovators have used iNet services whilst those who are not pre-disposed have not. Nevertheless the results are suggestive of a positive effect from the iNet;

12. The wider review of innovation performance is indicative of different innovation models between the four sectors; and which demonstrate stronger differences between sectors than between beneficiary and non-beneficiary;

13. The innovation performance of the healthcare and transport sector appear highest, and that of the food & drink and construction sectors the lowest

14. The relatively low regional innovation performance in construction appears to mirror the performance nationally (other regional and national comparisons are not available), whilst the performance of the food & drink sector is at odds with its relatively strong regional levels of productivity;

15. The scope to create a wider innovation culture (and related spillovers) within a sector is greatest for food & drink, given the market penetration achieved (due in large part because of the relatively small number of businesses), but also in the healthcare sector.

ANNEXES

Annex 1 Survey Sample Profiles

Table A1.1 Beneficiary Survey Sample Profile

	Food & Drink	Sustainable Construction	Healthcare & Bioscience	Transport	All Beneficiaries
Total Population	715	841	848	385	2,789
Sample Size	35	52	44	42	173
Confidence Interval (at 95% confidence level)	+/-16%	+/-13%	+/-14%	+/-14%	7%
Average No. of Employees	45	64	11	20	35
Average Turnover (£k)	710	920	510	730	720

Table A1.2 Innovation Baseline Survey Profile

	Non-Beneficiaries	Beneficiaries
Total Population	6,505	2,789
Sample Size	57	173
Confidence Interval (at 95% confidence level)	+/-13%	+/-7%
Average No. of Employees	74	35
Average Turnover (£k)	1,230	720

Annex 2 Beneficiary Survey

G H K

Evaluation of the Food and Drink iNet

east midlands development agency

GHK Consulting has been commissioned by the East Midlands Development Agency (emda) to undertake an evaluation of the economic impacts of the iNets (innovation networks). The iNets assist businesses in 4 sectors: Food and Drink, Healthcare and Bioscience; Sustainable Construction; and, Transport. This evaluation will identify the benefits that the iNets have had for the region's businesses and identify ways in which assistance can be most effectively provided in the future.

As part of the evaluation, GHK are carrying out surveys with businesses that have received support through the iNets. We would be very grateful if you could spare 5-10 minutes of your time to answer some questions about your experience of the Food and Drink iNet.

Your responses will be treated in the very strictest of confidence and will not be made available to any third party that would enable the identification of any individual respondent. The information that you provide will only be used for the purposes of the evaluation.

If you have any further questions about this survey, or the study more broadly, please do not hesitate to contact the study manager at GHK Consulting (Richard Smith at richard.smith@ghkint.com or on 0121 233 8900).

Business Details

1.1. **Business name**

1.2. **Is your business based solely in the East Midlands?**

- *Yes*
- *No*

For the purposes of this survey, we would like you to refer only to activity which takes place in the East Midlands (Derbyshire, Nottinghamshire, Leicestershire, Lincolnshire, Northamptonshire and Rutland).

1.3. **Please estimate your current annual turnover:**

- £0 - <£50,000
- £50,000 - <100,000
- £100,000 - <£250,000
- £250,000 - <£500,000
- £500,000 - <£750,000
- £750,000 - <£1m
- £1m - <£1.5m
- £1.5m - <£2m
- £2m +

1.4. **How many employees does your business employ in the East Midlands?**

- 1-<10
- 10- 24
- 25-49
- 50-99
- 100 -249
- 250 +

1.5. **What percentage of your total sales are made within the Food and Drink sector?**

- 0 - <25%
- 25 - <50%
- 50 - <75%
- 75- 100%

1.6. **What support has your business received through the iNet?**

- ☐ Innovation, Advice and Guidance (IAG) Grant
- ☐ Collaborative Research and Development (CRD) Grant
- ☐ Information, advice or other business support
- ☐ Attended an iNet Event
- ☐ None of the above

Involvement with the Innovation Networks

2.1. **Prior to your involvement with the Food and Drink iNet, were you involved with any business networks or organisations supporting innovation in the East Midlands?**

- ○ Yes
- ○ No

If "yes" Please provide detail on the networks or organisations you have been involved with:

2.2. **How did you first become aware of the Food and Drink iNet?**

- ○ Direct approach from an iNet Business Advisor
- ○ We responded to iNet marketing material
- ○ We were referred to the iNet by another business support agency
- ○ Another business recommended the iNet
- ○ We sought support on our own initiative
- ○ Other
- ○ Don't know

If "We were referred to the iNet by another business support agency " Which business support agency referred you to the iNet?

If "Other" Which "other" way did you first become aware of the iNet?

2.3. **When did you first become involved with the Food and Drink iNet?**

2.4. **What motivated your involvement with the Food and Drink iNet? Please rate the following using a scale of 1 to 4 where 1 is "not at all important" and 4 is "very important".**

	Not at all important1	2	3	Very important4
For information / support for innovation	○	○	○	○
To find businesses with similar innovation challenges	○	○	○	○
For funding advice	○	○	○	○
To gain assistance with grant funding	○	○	○	○
To attend a training or skills event	○	○	○	○
Other	○	○	○	○

If "Other" What "other" reason motivated your involvement with the iNet?

Don't know ○

Your views on the Quality of iNet Support

3.1. **For each service(s) you have received, please indicate how satisfied you were, with the quality of service you received from the iNet using a scale of 1 to 4, where 1 is "very unsatisfied" and 4 is "highly satisfied".**

	Very unsatisfied 1	2	3	Very satisfied 4
IAG Grant	○	○	○	○
CRD Grant	○	○	○	○
Information, advice or other business support	○	○	○	○
iNet event	○	○	○	○

3.2. **For each service(s) you have received, please indicate how significant the impact on your company has been using a scale of 1 to 4, where 1 is "insignificant" and 4 is "highly significant".**

	Insignificant 1	2	3	Highly significant 4
IAG Grant	○	○	○	○
CRD Grant	○	○	○	○
Information, advice or other business support	○	○	○	○
iNet event	○	○	○	○

3.3. **Would you recommend the iNet to other companies in the region?**

- ○ Yes
- ○ No

3.4. **What would you say are the 2 <u>best</u> things about your involvement with the iNet?**

1

2

3.5. **What would you say are the 2 <u>worst</u> things about your involvement with the iNet?**

1

2

The Impacts of iNet Support

4.1. **As a result of your involvement with the Food and Drink iNet has your business introduced any new or significantly improved:**

	No	New to the business	New to the industry	Don't know
Products	○	○	○	○
Services	○	○	○	○
Production processes	○	○	○	○
Marketing processes (e.g. distribution)	○	○	○	○
Organisational/ management systems	○	○	○	○

4.2. **As a result of your involvement with the Food and Drink iNet is your business planning to introduce any new or significantly improved:**

	No	New to the business	New to the industry	Don't know
Products	○	○	○	○
Services	○	○	○	○
Production processes	○	○	○	○
Marketing processes (e.g. distribution)	○	○	○	○
Organisational/management systems	○	○	○	○

4.3. **Has the support you received through the Food and Drink iNet increased instances, or intensity, of collaboration with any of the following?**

- ○ Suppliers
- ○ Customers
- ○ Competitors

4.4. **Has the support you received through the Food and Drink iNet resulted in increased use of external research and information?**

- ○ Yes
- ○ No

If so, how has the support received resulted in increased use of external research and information?

4.5. **Has the iNet support had:**

- ○ A measurable economic impact on the business already
- ○ No measurable economic impact yet, but is expected to have a measurable impact in the next year
- ○ No measurable economic impact yet, and is not expected to have a measurable impact

Section only asked if grant received or measurable impact identified - Quantification of Benefits from iNet Support

5.1. **If you had NOT received support through the iNet, how much lower would you expect your current business turnover to be?**

- *0%*
- *1- 25%*
- *26- 50%*
- *51 - 75%*
- *76 - 100%*
- *Don't know*

5.2. **If you had NOT received support through the iNet, how many less employees would you have?**

- *1 - <5*
- *5 - <10*
- *10 - <15*
- *15 - <20*
- *20+*
- *Don't know*

5.3. **If quantifiable impact over next year - As a result of support received through the iNet, what percentage increase in turnover would you expect to realise in the next year?**

- *0%*
- *1- 25%*
- *26- 50%*
- *51 - 75%*
- *76 - 100%*
- *Don't know*

5.4. **If quantifiable impact over next year - As a result of the support received, what do you predict the increase in your employment level to be, in the next year?**

- *1 - <5*
- *5 - <10*
- *10 - <15*
- *15 - <20*
- *20+*
- *Don't know*

5.5. **Approximately how long do you expect the measurable impacts of the support that you received through the iNet to last?**

- Up to 3 years
- 3-5 years
- 5-10 years
- Over 10 years
- Don't Know

5.6. **If you hadn't received any support from the iNet, do you think you would have been able to receive similar service(s) to those you received from elsewhere?**

- ○ No, not at all
- ○ Yes, but with a delay
- ○ Yes, but to a lower standard
- ○ Yes, to the same standard and within the same timeframe

If "yes" Where else could you have received the service from?

5.7. **If there had been no assistance through the iNet would you have been willing to pay for business support from private sector providers?**

- ○ Yes
- ○ No

If "yes" Please give details of where you would have sought this advice:

5.8. **Without the support received through the iNet, would the benefits still have been realised?**

- ○ No, not at all
- ○ Yes, over the same time period, but on a reduced scale
- ○ Yes, but delayed and on a reduced scale
- ○ Yes, at the same scale, but not as quickly
- ○ Yes, on the same scale and over the same time period
- ○ Don't know

5.9. **Please estimate the share of the following who are located within the East Midlands region (Derbyshire, Nottinghamshire, Leicestershire, Lincolnshire, Northamptonshire and Rutland).**

	0%	1-25%	26-50%	75-100%	Don't know
Direct Competitors	○	○	○	○	○
Customers	○	○	○	○	○
Suppliers	○	○	○	○	○
Employees	○	○	○	○	○

5.10. **Do you plan to relocate outside of the region in the next 5 years?**

- ○ Yes
- ○ No

5.11. **What percentage of your purchase of goods and services is from suppliers inside the East Midlands?**

- ○ 0%
- ○ 1-25%
- ○ 26- 50%
- ○ 51 - 75%
- ○ 76 - 100%
- ○ Don't know

5.12. **Do you plan to increase purchases from suppliers based in the East Midlands? If so, approximately by much?**

- ○ No plans to increase purchases from regional suppliers
- ○ 1-25%
- ○ 26- 50%
- ○ 51 - 75%
- ○ 76 - 100%
- ○ Don't know

The remaining questions seek to understand your companies approach to innovation.

Access to Information

Accessing information either through in house R&D activity or external knowledge sources.

6.1. **Which of the following statements best describes your company's approach towards innovation?**

- ○ Innovation is of no strategic importance to the business
- ○ Innovation is one of a number of strategic considerations
- ○ Innovation is core to business strategy
- ○ Don't know

6.2. **What percentage of your turnover did you spend on Research & Development (R&D) in the last year?**

- ○ 0%
- ○ 1%-25%
- ○ 26%- 50%
- ○ 51%- 75%
- ○ 76%-100%
- ○ Don't know

6.3. **Which of the skills groups listed below are involved in accessing knowledge within your company? (Please tick all that apply)**

- ☐ Directors/ Workforce
- ☐ External Consultants and Universities
- ☐ Trade Associations
- ☐ Other

If "other" Which "other" skills groups are involved in accessing knowledge for the company?

6.4. **How important are the following groups in providing knowledge for your company?**

	Low	Medium	High	Not experienced
Customers	○	○	○	○
Suppliers	○	○	○	○
Competitors	○	○	○	○
Trade associations	○	○	○	○
Other	○	○	○	○

If "Other" What other groups are utilised to provide knowledge for your company?

○ Don't Know

Innovation Activity

Innovation activity is the transformation of knowledge into innovations such as new or improved products, processes or organisational forms.

7.1. **What percentage of your turnover did you invest in process development in the last year?**

- ○ 0%
- ○ 1%-25%
- ○ 26%- 50%
- ○ 51%- 75%
- ○ 76%-100%
- ○ Don't know

7.2. **In the last 5 years, has your company introduced any new or significantly improved ....**

	No	*New to business*	*New to the industry*
Products	○	○	○
Services	○	○	○
Production Processes	○	○	○
Marketing processes (e.g. Distribution)	○	○	○
Organisational/ Management Systems	○	○	○

7.3. **What percentage of turnover has resulted from new or improved products or services over the last 3 years?**

- ○ 0%
- ○ 1%-25%
- ○ 26%- 50%
- ○ 51%- 75%
- ○ 76%-100%
- ○ Don't know

7.4. **Which of the skills groups listed below are involved in developing innovation within your company? (Please tick all that apply)**

- ☐ Directors/ Workforce
- ☐ External Consultants and Universities
- ☐ Trade Associations
- ☐ Other

If "Other" Which "other" skills groups are involved in developing knowledge for the company?

7.5. **How important are the following drivers in <u>developing innovation</u> for your company?**

	Low	Medium	High	Not experienced
Customers	○	○	○	○
Suppliers	○	○	○	○
Competitors	○	○	○	○
Trade Associations	○	○	○	○
Other	○	○	○	○

If "Other" What "other" groups are utilised to develop knowledge for your company?

○ Don't Know

Commercialising Innovation

For example, the intensity of marketing activity, use of IP protection and the skills required to turn innovative products/services into improved company sales or productivity.

8.1. **What percentage of turnover did you spend on branding and marketing in the last financial year?**

- ○ 0%
- ○ 1%-25%
- ○ 26%- 50%
- ○ 51%- 75%
- ○ 76%-100%
- ○ Don't know

8.2. **Which of the skills groups listed below are involved in commercialising innovation within your company? (Tick all that apply)**

- ☐ Directors/ Workforce
- ☐ External Consultants and Universities
- ☐ Trade Associations
- ☐ Other

If "Other" Which "other" skills group are involved in commercialising innovation?

8.3. **How important are the following groups in assisting you to market or sell, new or improved, products or services?**

	Low	Medium	High	Not experienced
Customers	○	○	○	○
Suppliers	○	○	○	○
Competitors	○	○	○	○
Trade Associations	○	○	○	○
Other	○	○	○	○

If "other" What "other" groups are utilised to build knowledge for your company?

8.4. **Has your business utilised any of the following forms of IP protection over the past 5 years?**

	Yes	No	Don't know
Patent	○	○	○
Trademark	○	○	○
Copyright	○	○	○
Regulation of new designs	○	○	○
Confidentiality agreements	○	○	○
Non-disclosure agreements	○	○	○
Other	○	○	○

If "other" What "other" IP protection has been utilised?

9.1. **Further comments:**

Please note, your responses will be treated in the very strictest of confidence and will not be made available to any third party that would enable the identification of any individual respondent. The information that you provide will only be used for the purposes of the evaluation.

Thank you for your time, please click the SUBMIT button below to send your answers to GHK.

Annex 3 Non Beneficiary Survey

East Midlands Business Innovation Survey

On behalf of the East Midlands Development Agency (emda), GHK Consulting are working to establish an evidence base which will form the basis for future provision of support to companies in the East Midlands. This support will assist companies to become more innovative and profitable. In order to achieve this, we are seeking to establish a baseline of the innovation position of companies in the key sectors of Food and Drink; Healthcare and Bioscience; Sustainable Construction; and, Transport. We are seeking your input into this work through an online survey.

Your responses will be treated in the very strictest of confidence and will not be made available to any third party that would enable the identification of individual respondents.

The survey will be open until 06 March 2011. It should only take 5 minutes of your time to complete.
If you have any further questions about this survey, or the study more broadly, please do not hesitate to contact the study manager at GHK Consulting (Richard Smith at richard.smith@ghkint.com or on 0121 233 8900).

Business Details

1.1. **Please provide your business name:**

1.2. **Please estimate your current annual turnover?**

- £0 - <£50,000
- £50,000 - <100,000
- £100,000 - <£250,000
- £250,000 - <£500,000
- £500,000 - <£750,000
- £750,000 - <£1m
- £1m - <£1.5m
- £1.5m - <£2m
- £2m +

1.3. **How many employees does the business employ in the East Midlands?**

- 1-<10
- 10- 24
- 25-49
- 50-99
- 100 -249
- 250 +

1.4. **In what sector does your business primarily operate?**

- Food and Drink
- Healthcare and Bioscience
- Sustainable Construction
- Transport

1.5. **What percentage of total sales are made within this sector?**

- 0 - <25%
- 25 - <50%
- 50 - <75%
- 75- 100%

Access to Information

Accessing information either through in-house R&D or external knowledge sources.

2.1. **Which of the following statements best describes your company's approach towards innovation?**

- ○ Innovation is of no strategic importance to the business
- ○ Innovation is one of a number of strategic considerations
- ○ Innovation is core to business strategy
- ○ Don't know

2.2. **What percentage of your turnover did you spend on Research & Development (R&D) in the last year?**

- ○ 0%
- ○ 1%-25%
- ○ 26%- 50%
- ○ 51%- 75%
- ○ 76%-100%
- ○ Don't know

2.3. **Which of the skills groups listed below are involved in accessing knowledge within your company? (Please tick all that apply)**

- ☐ Directors/ Workforce
- ☐ External Consultants and Universities
- ☐ Trade Associations
- ☐ Other

If "other" Which "other" skills groups are involved in accessing knowledge for the company?

2.4. **How important are the following groups in providing knowledge for your company?**

	Low	Medium	High	Not experienced
Customers	○	○	○	○
Suppliers	○	○	○	○
Competitors	○	○	○	○
Trade associations	○	○	○	○
Other	○	○	○	○

If "Other" What other groups are utilised to access knowledge for your company?

○ Don't Know

Innovation Activity

Innovation activity is the embedding of knowledge into new or improved products, processes or organisational forms.

3.1. **What percentage of your turnover did you invest in process development in the last year? If the figure is not known, what percentage of expenditure was spent on process development?**

- ○ 0%
- ○ 1%-25%
- ○ 26%- 50%
- ○ 51%- 75%
- ○ 76%-100%
- ○ Don't know

3.2. **What share of your sales has been derived from new or improved products or services over the last 3 years?**

- ○ 0%
- ○ 1%-25%
- ○ 26%- 50%
- ○ 51%- 75%
- ○ 76%-100%
- ○ Don't know

3.3. **In the last 5 years, has your company introduced any new or significantly improved ....**

	No	New to business	New to the industry
Products	○	○	○
Services	○	○	○
Production Processes	○	○	○
Marketing processes (e.g. Distribution)	○	○	○
Organisational/ Management Systems	○	○	○

3.4. **Which of the skills groups listed below are involved in developing innovation within your company? (Please tick all that apply)**

- ☐ Directors/ Workforce
- ☐ External Consultants and Universities
- ☐ Trade Associations
- ☐ Other

If "Other" Which "other" skills groups are involved in developing knowledge for the company?

3.5. **How important are the following drivers in <u>developing innovation</u> for your company?**

	Low	Medium	High	Not experienced
Customers	○	○	○	○
Suppliers	○	○	○	○
Competitors	○	○	○	○
Trade Associations	○	○	○	○
Other	○	○	○	○

If "Other" What "other" groups are utilised to develop knowledge for your company?

○ Don't Know

Your approach to Commercialising Innovation

For example, the intensity of marketing activity, use of IP protection and the skills required to turn innovative products/services into improved company sales or productivity.

4.1. **What percentage of turnover did you spend on branding and marketing in the last financial year?**

- ○ 0%
- ○ 1%-25%
- ○ 26%- 50%
- ○ 51%- 75%
- ○ 76%-100%
- ○ Don't know

4.2. **Which of the skills groups listed below are involved in commercialising innovation within your company? (Tick all that apply)**

- ☐ Directors/ Workforce
- ☐ External Consultants and Universities
- ☐ Trade Associations
- ☐ Other

If "Other" Which "other" skills group are involved in commercialising innovation?

4.3. **How important are the following groups in assisting you to market or sell, new or improved, products or services?**

	Low	Medium	High	Not experienced
Customers	○	○	○	○
Suppliers	○	○	○	○
Competitors	○	○	○	○
Trade Associations	○	○	○	○
Other	○	○	○	○

If "other" What "other" groups are utilised to build knowledge for your company?

4.4. **Has your business utilised any of the following forms of IP protection over the past 5 years?**

	Yes	No	Don't know
Patent	○	○	○
Trademark	○	○	○
Copyright	○	○	○
Regulation of new designs	○	○	○
Confidentiality agreements	○	○	○
Non-disclosure agreements	○	○	○
Other	○	○	○

If "other" What "other" IP protection has been utilised?

5.1. **If you have any additional comments relating to the issues raised above, please add them here:**

Thank you for your time, please click the SUBMIT button below to send your answers to GHK.