Opportunities for Innovation within the Greater Lincolnshire Traditional Industries

Final Report

*Commissioned by the Lincolnshire Research Observatory on behalf of the Greater Lincolnshire Local Enterprise Partnership*

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# Executive Summary

**Introduction**

GLLEP have commissioned this research to look at innovation in Greater Lincolnshire’s traditional industries and in particular how the area’s agri-food sectors are harnessing opportunities for innovation.  The main research objective has been to achieve a greater understanding of the level and types of innovation in Greater Lincolnshire’s traditional industries, identifying how the public and private sectors along with the LEP can influence the sector and what opportunities exists which can assist this process.

The main work conducted for this research project covered:

1. Documentary review: covering policy/strategy documents relating to GLLEP area, wider East Midlands, UK and good practice sources covering UK, Ireland and Europe
2. Field work research : including 40 key informant interviews with key target groups; 2 sectoral focus groups and best practice research and analysis
3. Analysis : including an analysis of gaps in the innovation performance of the specific sectors in Lincolnshire; the identification of opportunities to improve and a long-list of proposals from which to select possible GLLEP actions to support innovation in the sector
4. Reporting and Action Planning: including the synthesis of the data, research inputs and findings and taking into account comments made at a draft report meeting with Lincolnshire County Council.”

**Drivers of innovation in the traditional industries**

A number of generic drivers can be identified that create momentum for innovation in the agri-food sector including agricultural engineering, including:

* Competition
* Technology
* Consumer preferences
* Sustainability
* Food security
* Health

The immediate drivers of innovation for businesses tend to be framed in terms of market-based relationships and factors such as:

* Supply chain pressures and opportunities;
* Regulation regarding environmental and health impacts of food production and inputs into the process (e.g. pesticides, fertilizers);
* Business development challenges – diversification; ‘continuous improvement’; resource efficiency; productivity and the application and integration of new technologies.
* Margins that can be achieved and availability of investment capital for innovation
* The prevailing culture, mentality and propensity to adopt new processes and equipment.

**Characteristics of innovation in the traditional industries**

***In the agri-food sector*** there is a general lack of funding for applied R&Dnationally and this limits the take-up of technology in the agri-food sector. However, a number of companies are tapping into demonstration opportunities and are building field trials into their business model.

Relatively low labour costs in the UK, in the agricultural and horticultural sectors in particular (compared to Holland or Belgium) and a resulting limited absorptive capacity of farming businesses acts as a disincentive for innovation.

***In the food processing*** sub sector there is limited scope for radical product innovation, because raw materials remain fairly constant. The sector has a tendency to polarise with a number of large processors and many small players who are not typically part of the large retailer supply chains.

Radical product innovation tends to happen among ‘global’ food processors or knowledge-intensive start-ups - neither of which have a strong presence in the GLLEP area. Consequently, there is a strong focus on process and marketing-led innovation i.e. supply chain integration and ‘me-too’ products

Holbeach (e.g. Management Development Scheme) and Humber Seafood Institute are levering skills and workforce development engagement (specifically for front-line managers) for process innovation activities.

***Agricultural engineering*** is a traditional strength of the area (n.b. around Gainsborough) but although strong ties persist, there does not appear to be a true clustering dynamic. The agricultural engineering sector retains some innovation strengths and works successfully with suppliers/customers and/or with knowledge assets and R&D partners from outside the region. Since the farming sector is very focused on labour costs, innovation in agricultural engineering is important (e.g. an automatic planting machine) but tends to be incremental rather than radical. Timely and effective take-up of agricultural engineering innovations (appropriate and with adequate RoI) is vital to sustain the competitiveness of farming.

***In the seafood sector*** there are strong clustering dynamics that have led to a niche position for the Humber Seafood Cluster. Work is being done on strengthening the sustainable sourcing of fish and the geographical distinctiveness (e.g. smoked fish from Grimsby Dock), but there is strong global R&D competition (e.g. Norwegians funding R&D into marine algae) and innovation and investment in land-based aquaculture is key to sustain niche competitiveness with many inward investment enquiries.

There is a global trend for countries of origin to develop value-adding activities in contrast to the agricultural and horticultural sector where transport costs are high and fresh food is best processed close to where it is sourced.

There is a need to revisit and refresh the investment rationale for a public sector role in supporting the Seafood cluster.

***Innovation and sustainability*** in the sector in the GLLEP area is strong but is largely a reactive take-up of sustainable technologies driven by supply chain pressures from large retailers; the potential for higher margins through resource efficiency and a potential for a stronger Return on Investment than from more generic agricultural/horticultural investment.

Water is becoming an issue across the agri-food industry. Lincolnshire-specific approaches to securing water supplies are required, for example, high salinity of ground water due to proximity to the sea.

There is some evidence of sustainable land management and encouragement of bio-diversity and a broader take on the sustainability of agricultural/horticultural production being on the agenda.

**A role for the GLLEP to support innovation in the traditional industries**

***Some important contextual factors need to be taken into account:***

The focus in the industry is largely on efficiency rather than innovation with the uptake of existing innovation supports limited. With leadership from large retailers, innovation is happening in practice.

The research carried out for this study suggests that the focus in these sectors is on efficiency rather than innovation and that, as a result, there is no strong industry voice calling for innovation support. In fact, the regional level does not have great priority for businesses and no explicit calls for greater collaboration supported by the public sector were made.

However the LEP does have a role to play in this key sector in Greater Lincolnshire from a supply side perspective, for example, accessing Regional Growth Funds or other central government support, needs a coherent strategic narrative regarding the sector and area’s capacity to strengthen employment and contribute to the knowledge economy. The sector’s role in combating rural isolation, pockets of deprivation and poor employment conditions could provide such a narrative and there is potential to align and integrate investments in soft and hard business infrastructure in the agri-food sector across the new economic geography of Greater Lincolnshire.

***Therefore a generic role exists as follows:***

* **To Lead**

Provide a lead on strategically aligning and integrating existing public investment in agri-food industry innovation, most notably Holbeach, the Humber Seafood Institute and the Siemens engineering school.

Lever national industry and policy networking to create an interface between agri-food businesses in the region and large retailers to ensure the industry is aware of key trends and opportunities at all times.

* **To Influence**

Create a secretariat function to identify and realise existing and new opportunities arising from innovation drivers and strengthen industry capacity to tap into R&D funding sources.

Highlight shared innovation opportunities to businesses in the region and encourage regional integration of segmented innovation activities through industry associations and levy-funded bodies.

Work with FE/HE institutions to ensure that skills and workforce development is effectively integrated with innovation support.

* **To Lobby**

Lever existing businesses’ routes into national policy re food and farming and integrate a Greater Lincolnshire voice to develop a strong profile of the region as a Centre of Excellence. Use this as a platform to influence national policy around food production and retail and associated research and development strategies.

***In addition, a specific role exists*** in both supply side and demand side interventions including:

1. **Facilitating innovation through the agri-food and logistics supply chain** by levering GLLEP’s strategic position with large retailers and supply chain organisers
2. **Consolidating and supporting further clusters and niche developments** and capitalising on the investments that have already been made in, for example, seafood and in applied research capabilities (Holbeach)
3. **Developing the skills base of the sectors in the GLLEP area** by engaging businesses and providers in specific skills analyses and provision for process innovation and business model innovation.
4. **Stimulating product and process innovation** through demonstration activities and mentoring of businesses using knowledge transfer approaches and programmes from the HE and FE sector in the GLLEP area.
5. **Championing sustainability through innovation** with a mixed programme of support, networking, best practice learning and industry ‘visits’ and demonstration facilities and events etc.

As a public-private partnership, the GLLEP will need to work closely with the respective stakeholder groups and organisations from local authorities to the private sector itself. In particular, it would be beneficial for the GLLEP to closely coordinate its activities with representative bodies like the Lincolnshire Forum for Agriculture and Horticulture.

# Introduction

## Background to this study

This research was commissioned by the Lincolnshire Research Observatory on behalf of the Greater Lincolnshire Local Enterprise Partnership. The Greater Lincolnshire Local Enterprise Partnership (GLLEP) covers the administrative areas of Lincolnshire, North East Lincolnshire and North Lincolnshire and was one of the first Local Enterprise Partnerships (LEPs) to be given government approval in October 2010.

The GLLEP has produced the ‘Prosperity through Growth’[[1]](#footnote-1) strategy which sets out how it will support businesses and entrepreneurs to exploit growth opportunities, and help them to overcome challenges by addressing market failure.

In 2011, the GLLEP set up a number of task groups to focus on the key economic sectors and the opportunities and challenges they present. The main employment sectors in the GLLEP area are manufacturing (including engineering), the agri-food sector, and service industries, in particular tourism and the public sector.

The GLLEP engaged with the Lincolnshire Research Observatory to develop a programme of research to further inform their understanding and support their work[[2]](#footnote-2). As part of this research programme GLLEP have commissioned this research to look at innovation in Greater Lincolnshire’s traditional industries and in particular how the area’s agri-food sectors are harnessing opportunities for innovation.

The results of the research are expected to:-

1. Help inform and strengthen the work of the task groups
2. Act as evidence upon which the GLLEP can target resources and intervention / support in the future
3. Make proposals to strengthen the specific sectors and recommendations for priority action
4. Provide information on available sources of funding to support any recommendations or actions.

The main research objective however has been to achieve a greater understanding of the level and types of innovation in Greater Lincolnshire’s traditional industries. Specifically, it should[[3]](#footnote-3):

* Investigate the extent to which modern techniques are employed particularly in the traditional industries of agricultural engineering and food manufacturing
* Undertake a comparison against best practice, identifying methodology for incorporating the best practice into the sector industries and any costs attached to doing so
* Investigate the drivers for innovation and the extent to which they exist in Greater Lincolnshire
* Identify any gaps in innovative practice and assess the impact this has on productivity and growth
* Investigate any barriers or opportunities to promote innovation in these areas and how these can be overcome
* Identify opportunities for cross sector co-operation/synergy
* Identify how the public and private sectors along with the LEP can influence the sector and what opportunities to access funding exists which can assist this process.

An experienced consortium led by Rose Regeneration Ltd of Lincoln and supported by innovation and regional development experts, CM International UK Ltd were appointed to conduct the research.

## Methodological approach

The methodological approach followed a broadly linear progression through 4 main work packages, each with specific aims, objectives and outputs that have been built into and informed this Final report.

The research also had the benefit of being conducted alongside two parallel and complementary research projects, although this also created a need to coordinate stakeholder and company contacts. Nevertheless, in a number of areas the research teams have been able to identify synergies and gain added value for Lincolnshire County Council as a result. For example, a survey of firms in the sector being conducted as part of the agri-food supply chains research was able to accommodate a small number of more focused innovation related questions. Similarly, sector focus groups organised under this research were opened to participation by researchers from the other projects and allowed the integrated exploration of questions relating to supply chains and innovation[[4]](#footnote-4).

The main work conducted for this research project covered:

1. **Documentary review:** covering policy/strategy documents relating to GLLEP area, wider East Midlands, UK and good practice sources covering UK, Ireland and Europe
2. **Field work research** : including 40 key informant interviews with key target groups; 2 sectoral focus groups and best practice research and analysis
3. **Analysis :** including an analysis of gaps in the innovation performance of the specific sectors in Lincolnshire; the identification of opportunities to improve and a long-list of proposals from which to select possible GLLEP actions to support innovation in the sector
4. **Reporting and Action Planning** : including the synthesis of the data, research inputs and findings and taking into account comments made at a draft report meeting with Lincolnshire County Council.

# The traditional industries in Greater Lincolnshire

This section of the report concentrates on describing, largely on the basis of employment data, the key sectors within the scope of the study.

**Note:** In our analysis we have only analysed those Standard Industrial Classifications (SICs) employing at least 100 people in any given local authority area within the LEP area to ensure that we focus on substantive areas of employment. In this sense, the figures shown do not represent the full total number of employees, only the most significant concentrations.

The charts and tables in this section summarise this analysis and provide an illustration of the location quotients for the key elements of the agri-food and logistics sectors.

## Agri Food in the GLLEP area

1. Location quotients and employment change in agri-food 2000 - 2008

The Agri-food sector has a number of components: primary production, food processing, wholesale, retail and ancillary activities around agricultural engineering and packaging. Figure 1 shows, as depicted by the size of each circle, that retail activities is the largest employment sub sector followed by food processing.

The horizontal line marked on figure 1 represents the location quotient (expected share of the UK employment enjoyed by the GLLEP area based on its share of population) of the sub sector in the GLLEP are. A position above the line would show a greater than expected share of UK employment. In this case, it may be observed that all sub sectors analysed have at least their expected share of UK employment and in the case of food processing, the sub sector has as much as 3.5 times its expected share – confirming the importance of the sub sector to the GLLEP area and to the sub sector in the UK as a whole.

The food packaging sub sector has around five times its expected share of employment. Even though in absolute scale its employment is of much less significance, it has been growing in the period 2000-2008 while food processing has fallen back in that same period.

Specifically, and taking geography into account, the GLLEP area has a heavier than UK average distribution, using location quotients, in the following areas:

1. Employment change in Agri-food in the GLLEP area 2000 - 2008

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sector** | **LA with High LQ** | **Number of Employees 2008** | **Number of Employees 2000** | **Change** |
| **Agri Food** |
| **Primary Production** | Boston | 1792 | 1590 | 202 |
| *GLLEP Total 2008 – 10727* | E Lindsey | 2121 | 2215 | -94 |
|  | W Lindsey | 1352 | 1274 | 78 |
|  | N Kesteven | 1458 | 1614 | -156 |
|  | S Holland | 2744 | 2935 | -191 |
| **Food Processing** | Boston | 1221 | 1153 | 68 |
| *GLLEP Total 2008 – 18225* | N Kesteven | 1867 | 2680 | -813 |
|  | S Holland | 5035 | 6915 | -1880 |
|  | S Kesteven | 3009 | 2720 | 289 |
|  | W Lindsey | 555 | 1151 | -596 |
|  | N Lincolnshire | 2592 | 3081 | -489 |
|  | NE Lincolnshire | 3559 | 10482 | -6923 |
| **Wholesale** | Boston | 1008 | 995 | 13 |
| *GLLEP Total 2008 – 7007* | S Holland | 2194 | 2839 | -645 |
|  | NE Lincolnshire | 1217 | 1095 | 122 |
| **Retail** | NE Lincolnshire | 4653 | 4803 | -150 |
| *GLLEP Total 2008 – 21584* | N Lincolnshire | 4310 | 4092 | 218 |
|  | E Lindsey | 2924 | 2508 | 416 |
| **Ancillary Areas** | S Holland | 1109 | 14 | 1095 |
| *GLLEP Total 2008 – 1809* | N Kesteven | 302 | 46 | 256 |

This table gives us the following picture:

***Primary production:*** on farm jobs, farming of poultry, other farming of animals, growing of crops combined with farming animals, agricultural services activities, animal husbandry service activities, forestry and logging related service activities.

The local authorities with the highest distribution of activities in these areas are: Boston, East and West Lindsey, North Kesteven and South Holland.

Overall between 2000 and 2008 employment within this area has remained relatively stable with a very modest overall decline in numbers.

***Food processing:*** production and processing of poultry meat, production of meat and poultry meat processing, processing and preserving of fish and fish products, processing and preserving of potatoes, processing and preserving of fruit and vegetables, manufacturing of refined oils and fats, manufacturing of ice cream, manufacturing of prepared pet foods, manufacture of condiment and seasoning, manufacture of other food products, manufacture of malt

The local authorities with the highest distribution of these activities are: Boston, North Kesteven, South Holland, South Kesteven, West Lindsey, North and North East Lincolnshire.

Overall employment in this sector has declined significantly between 2000-08 (9782). This has been very pronounced in North East Lincolnshire (6923) with not insubstantial declines in North Kesteven (813) and South Holland (1880).

One additional interesting insight in relation to the contrast between the northern sector with its locus in North East Lincolnshire and southern sector with its locus in South Holland, is that in South Holland much of the processing is based on locally grown produce – creating a link between producers and processors, whereas in North East Lincolnshire, the truly international nature of the producer end of the arrangement, means that there is little apart from tradition to necessitate an ongoing relationship between producers and processors.

***Wholesale:*** wholesale of grains and seeds, wholesale of flowers and plants, wholesale of fruit and vegetables, wholesale of other food including fish, crustaceans and molluscs, non specialised wholesale of food.

The localities with the highest distribution of these activities are: Boston and South Holland and North East Lincolnshire. Boston and South Holland forms a southern and North East Lincolnshire a northern hub for the wholesale of agri-food in the GLLEP area. Overall there has been a decline in employment in this sector in the southern area in South Holland by 23% whilst it has remained largely static in the other two districts.

***Retail:*** retail sale in non specialised food stores, retail sale of fruit and vegetables, retail sale of meat and meat products, retail sale of fish crustaceans and molluscs, retail sale of bread, cakes, flour, other retail sale of food in specialised stores, canteens

The local authorities with the highest distribution of these activities are: North East Lincolnshire, East Lindsey and North Lincolnshire. Employment has remained very stable in this sector.

***Ancilliary areas:*** renting of agricultural equipment, packaging activities

The local authorities with the highest distribution of these activities are: North Kesteven and South Holland. There has been a significant in percentage, but relatively small in the context of all employees in the LEP area, growth in employment in these two sectors between 2000 and 2008. This has been mainly driven by the creation of 1095 jobs in packaging in South Holland.

## Logistics in the GLLEP area

1. Location quotients and employment change in logistics 2000 - 2008

Figure 2 shows that the GLLEP area has a heavier than GB average distribution, using location quotients, in the areas of freight transport by road, Cargo handling, storage and warehousing, other supporting water transport activities, activities of other transport agencies.

The local authorities with the highest distribution of these activities are: Boston, South Holland, North and North East Lincolnshire. The distinctive features of the logistics sector in this area are its Port infrastructure with Immingham an international port and part of a network or ports managed by Associated British Ports (including Grimsby, Hull and Goole) and two far smaller “niche” ports in the south of Lincolnshire in Boston and Sutton Bridge.

Humberside airport in North Lincolnshire is the other distinctive feature of the Greater Lincolnshire LEP logistics sector although while in employment terms, air transport has grown 2000-2008; in terms of the areas share of UK employment, its significance has decreased. Notably, in the case of Sea and coastal water transport, employment has fallen significantly as has the areas location quotient for the sub sector.

More specifically and taking into account geography, the following data is relevant.

1. Employment change in logistics in the GLLEP area 2000 - 2008

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sector** | **LA with High LQ** | **Number of Employees 2008** | **Number of Employees 2000** | **Change** |
| **Logistics** |
| *GLEP Total 2008 – 13107* | Boston | 610 | 623 | -13 |
|  | S Holland | 1930 | 1445 | 485 |
|  | N Lincolnshire | 3277 | 3258 | 19 |
|  | NE Lincolnshire | 4015 | 3988 | 27 |

Overall the number of employees in this sector has risen modestly with the largest increase in employment being the creation of 485 jobs during this period in South Holland.

## The sector by local authority area

While it is important to remember that economic development is not conditioned by local authority boundaries, it is useful to think about the distribution of sectoral activity not just at the individual local authority level but also in terms of its distribution across combined local authority areas. Most data is still provided at district council level and commentators find it easy to relate to local authorities conceptually.

With this caveat about the importance of functioning economic geographies we have therefore organised our description of the sub-geographies of the LEP area around local authorities.

**Boston:** has significant employment in the agri-food sector with particular strengths around primary production, food processing and wholesale activities. This area is also strategically important in terms of logistics as the host to the largest port in the south of the LEP area.

**East Lindsey:** has a very important role in terms of primary production being the second biggest net employer in this sub sector in the GLLEP area. The district also has strengths in independent food retail.

**Lincoln:** has a very small footprint in the GLLEP’s traditional industries sectors.

**North Kesteven:** has a distinctive role within the food processing element of the agri-food sector and also within the agricultural engineering agenda.

**South Holland:** has an internationally significant agri-food sector, hosting some 30% of all those employed in the agri-food sectors (excluding retail) in the GLLEP area. In the south Lincolnshire food cluster the South Holland district also has the highest number of individuals employed in logistics. Overall its economic boundaries combine powerfully with Boston in the context of the traditional industries in primary production, food processing, wholesale and logistics. It is also home to a successful but modest (in terms of tonnage) port at Sutton Bridge.

**South Kesteven:** has strengths in the food processing sub sector of the agri-food sector.

**West Lindsey:** has significant employment in primary production and some important bright spots in food processing, with key companies (Cherry Valley Ducks and Sealord fish processing). The proximity of these companies to the food processing cluster in North and North East Lincolnshire provides an important geographical context for their operation.

**North East Lincolnshire:** is an internationally significant area in terms of sea-food and fish processing and is host to a port of world significance at Immingham. Within the agric-food sector it also has significant employment in food processing, wholesale and retail. However, the area has experienced a profound decline in the number of employees in food processing from 2000-08 (66%). Local dialogue with companies and business support agencies in the area (including the local authority) has suggested a number of factors underpinning this including: contracting out of logistics activities, introduction of agency workers to replace direct employees and increasing consolidation of the sector leading to larger employers with more mechanised and lower labour based activities.

**North Lincolnshire:** has strengths in food processing and logistics (including being host to the only large commercial airport in the LEP area) but has suffered some employment losses in the food processing sector.

# Innovation drivers in the traditional industries

Against the backdrop of this spatial analysis of sectoral activity in the Greater Lincolnshire area, a review of what actually drives innovation in the sector forms a key starting point for an analysis of regional innovation performance. A number of generic drivers can be identified that create momentum for innovation in the agri-food sector, including agricultural engineering.

**Consumer preferences:** Food and drink is an end consumer product and consumer preferences can therefore be expected to play a key role in driving innovation. Consumer choices are regularly analysed in market research studies that highlight the considerable diversity of preferences from convenience to healthy life styles, from a focus on provenance to price consciousness. A European Foresight study into the food and beverages sector summarises the situation thus:

*‘Consumer preferences in no way point towards the same direction. Mainstream trends such as an increasing consumption of convenience foods like pre-packaged and processed foods and beverages, easy to consume products (e.g. “TV dinners”), snacking, fast food, take-away food and out-of-home consumption are likely bound to continue, whereas also here health consciousness may get bigger. […]. Other choices, especially in the context of active lifestyles, enjoyment, wellness as well as environmental and social concerns have – as a result of steadily rising incomes – also become important consumer trends that importantly affect food and beverage sales and consumption.[[5]](#footnote-5)’*

At the same time, the competition for consumer loyalty in the UK is becoming ever fiercer; *‘intangible assets such as brand have risen in importance as companies vie for shorter and shorter attention spans from consumers with less and less loyalty.’*[[6]](#footnote-6)In addition, in the UK, large retailers have a prominent position in the market and now adopt a crucial position at the interface between the agri-food production value chain and the consumer by developing and implementing market segmentation approaches. As a result, they have also taken on a key role in analysing and interpreting consumer preferences and channelling communication between consumers and food producers in the supply chain.

**Technology:** While not all innovation depends on it, technology remains an important building block, be it through ‘demand pull’ or ‘technology push’ dynamics. Demand for specific developments in a sector or market will often fuel technological developments to improve a production process, integrate new functionalities into existing products or create new value creation opportunities around existing products.

Alongside this, new technologies can create the momentum for the development of entirely new products or services and new technological possibilities can open up new demand spaces that create commercial opportunities. The ICT and biotechnology revolutions, for instance, have illustrated how technology has the potential to revolutionise a sector like agri-food that is often perceived as not offering too much new value adding potential.

From an ever improving understanding of and ability to interact with biological systems including the human body (e.g. biotechnology, genetics and neurosciences) to incorporating ICT into food supply chains and agricultural machinery (e.g. GPS in agricultural engineering, ‘lab on a chip’ food testing technologies or automation and robotics in the field or food manufacturing), new technologies provide access to new ways of doing things as well as doing new things.

Research into innovation in the agri-food industry suggests, however, that the uptake of both biological and mechanical innovations in agriculture may take many years up to a time lag of perhaps 15 – 25 years.

**Competition:** As in most industries, in the agri-food sector competition is a key driver of innovation. The agri-food industry is extensively exposed to global markets and an international commodity and trade regime that is fundamentally based on the notion of competitive advantage and as a result is a highly competitive sector.

For agri-food businesses, this competitive pressure takes different forms depending on their functional and geographical position in the supply chain; for example, for agri-food businesses in high income countries such as the UK, rather than attempting to compete in commodity markets on the basis of price, competitive pressures have heightened a focus on efficiency and economies of scale (partly through consolidation and automation) while increasing the value adding potential of the sector. As a result, family farm units (and rural communities) have come under intense competitive pressure to achieve economies of scale and other efficiencies while also seeking increased margins through adding value to their produce.

Similarly, food processors are under pressure to develop their products and processes to increase profitability. According to a report commissioned by the Food and Drink Federation, *‘surviving in the food and drink industry demands constant improvement. The need to update and introduce new products has increased as competition in the sector has become fierce. This is reflected in the number of new product launches each year, with over 1,500 new products introduced each quarter since the beginning of 2008.’* [[7]](#footnote-7)

By exploiting opportunities from differentiation (product innovation), efficiency (process innovation) and new ways of interacting with consumers and the wider market place (service innovation and business model innovation) businesses thus seek to strengthen their position in the market place.

**Sustainability:**

Sustainability has emerged as a key theme in innovation as a result of environmental and resource issues becoming recognised as a very real challenge to ‘business as usual’. Climate change in particular has highlighted how innovation is required regardless of whether the emphasis is on mitigation or adaptation. Water is becoming scarce; soils are losing fertility; GHG emissions from agricultural production and distribution are contributing substantially to climate change; and, renewable energy and other alternative crops create competition for agricultural land.

As a result, agriculture, food manufacturers, processors, distributors and retailers are all under pressure to be more resource efficient and tackle waste throughout the food system. A combination of innovation through technology; reviewing business models and new approaches to distribution has therefore gained prominence as a response in the agri-food sector.

Beyond this immediate response, however, the systemic nature and complexity of finding solutions to major sustainability challenges is increasingly coming to the fore. The UK government’s foresight study on the future of food and farming paints a stark picture as follows:

*“The global food system will experience an unprecedented confluence of pressures over the next 40 years.*

*On the demand side, global population size will increase from nearly seven billion today to eight billion by 2030, and probably to over nine billion by 2050; many people are likely to be wealthier, creating demand for a more varied, high-quality diet requiring additional resources to produce.*

*On the production side, competition for land, water and energy will intensify, while the effects of climate change will become increasingly apparent. The need to reduce greenhouse gas emissions and adapt to a changing climate will become imperative. Over this period globalisation will continue, exposing the food system to novel economic and political pressures.”* [[8]](#footnote-8)

This analysis suggests strongly that integrated approaches are needed that consider issues ranging from biodiversity to the impact of different approaches to food production and consumption on livelihoods in different parts of the world - as well as socio-economic and political implications of different solutions.

The solutions put forward are diverse ranging from more integrated approaches levering natural systems resilience to a new ‘green revolution’ deploying new technologies from GM to vertical farming. The Technology Strategy Board-led Sustainable Agriculture and Food Innovation Platform, with up to £90M over five years to fund innovative technological research and development in areas such as crop productivity, sustainable livestock production, waste reduction and management, and greenhouse gas reduction, is testimony to the government’s recognition of the need to rethink agriculture and food from a systemic perspective[[9]](#footnote-9).

**Food security:** Closely associated with sustainability is the issue of food security; the world population is growing, incomes are rising and life styles are changing. The recent food price rises have sharpened attention on the need to increase productivity and make more efficient resource use throughout farming and food systems. What is less clear, is what might be the most effective approach to achieving this, as more intensive food production will in itself reinforce some of the sustainability concerns highlighted above in that increasing food production will also pose further challenges to the natural systems supporting food and farming globally.

**Health:** Finally, food production is closely bound up with health concerns. Since BSE and foot-and-mouth at the latest, food safety is top of the agenda. Responses include technological and organisational progress in managing food supply chains to avoid contamination and rule out food safety hazards and risks. Alongside this, doubts regarding the long-term effects of using modern technologies in food production and an associated focus on small, local, organic production contrast with advancing knowledge in bio sciences, neuro sciences and genetics that might pave the way for functional and personalised foods that can be deployed for specific health effects.

Food is also a key element of public policy around health covering aspects such as obesity and a range of diet-related diseases from heart diseases to cancer. This is thus a further arena in which R&D and innovation might play a crucial role, creating manifold commercial opportunities in the process.

The following diagram taken from the cross-government food research strategy suitably illustrates the integrated nature of issues impacting on innovation in the agri-food sector and – in turn – how food research and development has a bearing on a wide range of other issues and concerns. [[10]](#footnote-10)

1. Integration of food issues with ‘grand challenges’

The generic innovation drivers outlined above play out in different ways for different parts of the agri-food innovation system.

Innovation is ultimately a process of adding value and value is realised in a market place. For agri-food businesses in Lincolnshire, markets therefore play a key role in shaping innovation spaces and opportunities; big picture challenges and opportunities are filtered and mediated by market structures.

The food sector fundamentally trades in commodities, which are subject to world markets and command world market prices without any strong levers to negotiate and seek out opportunities for profit maximisation. As suggested above, differentiation is one strategy that high-income countries in particular can lever to increase the added value of food production and thus increase the margins that can be achieved. Within the agri-food market in the UK, large retailers have assumed an almost dominant position of interpreting consumer preferences and to an extent shaping demand.

As a result of these forces shaping the market, businesses in the various sub sectors making up the supply chain in the agri-food industry are to a large extent ‘at the receiving end’ of these drivers of innovation rather than having much scope to nurture market power and/or shape the market place. The drivers are interpreted and communicated by supply chain partners and the wider market place. Consequently, the immediate drivers of innovation for businesses tend to be framed in terms of market-based relationships and factors such as:

* **Supply chain** pressures and opportunities;
* **Regulation** regarding environmental and health impacts of food production and inputs into the process (e.g. pesticides, fertilizers);
* **Business development challenges** from introducing diversification into product ranges to ‘continuous improvement’ to increase resource efficiency and productivity and the application and integration of new technologies into production (e.g. farm machinery incorporating ICT, packaging machinery);
* **Margins** that can be achieved and thus the availability of capital to invest in innovation projects;
* The prevailing **culture and propensity** to innovate by adopting new processes, management practices and technologies, typically equipment.

# Characteristics of innovation in the traditional industries

A number of layers and facets of the characteristics of innovation are usefully considered in understanding the relative innovation performance and opportunities for the traditional industries in the Greater Lincolnshire area. These include:

* the fabric of the ‘innovation eco-system’,
* the role of supply chains,
* the different types of innovation that manifest themselves in the region,
* the comparative R&D performance of businesses in the region,
* the nature and level of collaboration and

All of these have an important bearing on the choices regarding whether and how the GLLEP can play a role in stimulating and/or supporting innovation in the region.

## The GLLEP ‘innovation eco-system’ for the traditional industries

To help understand the innovation ecosystem in the traditional industries in the GLLEP area, it is useful to identify the key stakeholders, participants and contributors within the innovation ecosystem. This will help to focus later discussion around the interactions and relationships at play within the ecosystem and, crucially, the engagement and interaction of innovative companies in the GLLEP innovation ecosystem.

The overall picture that has emerged can be described in the following schematic diagram shown as Figure 4:

1. The innovation ecosystem in the traditional industries in the GLLEP area

**Lincoln – Holbeach Campus:** Holbeach Campus, based in South Lincolnshire, is part of Lincoln University and is the National Centre for Food Manufacturing. Over and above undergraduate and postgraduate training provision, it operates two fully equipped processing halls and provides a range of services to large and small businesses.

**Lincoln – Siemens:** New engineering school established at Lincoln University focusing strongly on research informed teaching. Siemens Industrial Turbo-machinery made a multi-million pound commitment to support the school. This includes the transfer of R&D equipment as well as co-location of their training team. Furthermore, they also contribute sponsored research PhDs and student numbers.

**Riseholme College:** Situated in the centre of Lincolnshire, just three miles north of Lincoln, Riseholme College of Further Education specialises in agriculture, horticulture, animal and equine training and education. Programmes, both full-time and work-based, have been developed to meet the demands of the rapidly changing rural economy.

**Seafood Cluster Grimsby:** Seafood cluster centred around the Humber Seafood Institute facility that was set up with support from North East Lincolnshire County Council and supports seafood and seafood logistic companies with skills and research facilities around frozen food technology. Located in the Greater Grimsly area, the cluster's strategic direction is steered by the board of Humber Seafood Ltd which brings together key stakeholders and businesses from the industry.

**Technology Strategy Board:** The Technology Strategy Board’s role is to stimulate technology-enabled innovation in the areas which offer the greatest scope for boosting UK growth and productivity. The TSB promotes, supports and invests in technology research, development and commercialisation. Levering public and private funding for R&D, the TSB manages a range of programmes and delivery mechanisms to drive innovation.

**Levy Boards:** Traditionally, the ‘Levy Boards’ have worked to improve industrial standards (food production and animal welfare) and have provided marketing services to the agricultural sector, members of which paid a levy to the relevant organisation. As a result of reorganisation in recent years and the creation of the Agriculture and Horticulture Development Board (AHDB),a UK government-funded umbrella organisation, now provides marketing and research services to the UK agricultural industry.

**Defra:** The Department for Environment, Food and Rural Affairs (Defra) is a government department in the UK.

**RC UK:** Research Councils UK (RCUK) is the strategic partnership of the UK's seven Research Councils. The primary role of Research Councils UK (RCUK) is to fund research at UK universities, Research Council Institutes, and in securing access to international facilities for UK researchers. The objective of Research Councils is to fund the very best world-class research as judged by independent, expert [peer review](http://www.rcuk.ac.uk/research/Pages/PeerReview.aspx).

**EU FP7:** European 'Framework programmes' (FPs) have been the main financial tools through which the European Union supports research and development activities covering almost all scientific disciplines. FPs have been implemented since 1984. The **Seventh Framework Programme (FP7)** bundles all research-related EU initiatives together under a common roof playing a crucial role in reaching the goals of growth, competitiveness and employment.

**Select Lincolnshire:** The Select Lincolnshire project, funded by Lincolnshire County Council, was set up in 2005. The project aims to showcase the range and quality of Lincolnshire produce and is a provenance marque that is about the protection and development of jobs in Lincolnshire. It is a key project of the Lincolnshire Forum for Agriculture and Horticulture which is a public and private sector partnership with support from local authorities as well as individual companies and organisations including the National Farmers' Union.

**Tastes of Lincolnshire:** Tastes of Lincolnshire is a Lincolnshire County Council funded project encouraging people to choose local food and drinks. Tastes of Lincolnshire acts as a signpost to those businesses that source and supply Lincolnshire produce. The project works with restaurants, farm shops, B&Bs, hotels etc.

Food & Drink i-Net: The Food and Drink iNet (innovation network) was established in 2008 to co-ordinate specialist support to stimulate innovation in the food and drink industry. Part-funded by the European Regional Development Fund (ERDF), the Food and Drink iNet is managed by a consortium, led by The Food and Drink Forum and including, Nottingham Trent University, the University of Lincoln, and the University of Nottingham. It is based at Southglade Food Park, Nottingham, with advisors covering the East Midlands region.

A number of important caveats are needed however; firstly, no mapping of this sort can ever be comprehensive or fully accurate and secondly, mapping the innovation ecosystem in this way should not obscure the important fact that at the core of any innovation ecosystem are companies, people and relationships and not organisations or investments[[11]](#footnote-11).

A key point that emerges from a review of this schematic is that there is a wide range of stakeholders and ‘players’ within the innovation ecosystem in the GLLEP area as it relates to the traditional industries. A number of quite strong agri-food fora exist, notably Lincolnshire Forum for Agriculture and Horticulture. However, relationships across the whole GLLEP area may need building and strengthening in order to fully lever the potential to integrate diverse players at different points of the supply chain and in different market segments.

This is a finding that will be returned to in the final section of this report when the potential role and activities of the GLLEP to innovation in the traditional industries is considered.

## R&D performance of the agri-food sector in the GLLEP area

Research and development (R&D) is often seen as the core of innovation and as outlined above, technological developments and the integration of new technologies in new products and services remains a key driver of innovation. It is therefore pertinent to look at the specific dimension of R&D performance. From that perspective the sector falls into three main sub sectors in the region:

1. **Agriculture and horticulture**

R&D performance in the agriculture and horticulture sectors is typically low. Nationally, this is recorded at less than 0.25% of agricultural GDP [[12]](#footnote-12) and [[13]](#footnote-13). National industry representatives see the root causes of this in the fact that central government policy in relation to agricultural and horticultural R&D in recent decades has not sufficiently focused on making the funding and strategy support available to nurture a coherent ‘pipeline’ of research from basic research into pre-commercial and near market research and support for innovation activities in the sector. The institutional and policy landscape related to this issue is currently undergoing considerable change, but issues remain[[14]](#footnote-14).

The evidence gained from the field work interviews suggests that there are few research strengths in the agri-food sector in the GLLEP area. For example, there are no independent research centres in the GLLEP area and while the University of Lincolnshire has made significant strides in recent years in improving its quality assessed research activities and gaining a significant increase in its research funding from national sources, the relevant departments and research centres within the University are not entirely focused on the local economy and supporting the local agri-food sector.

Moreover, the process of gaining greater research funding is a long one for any HEI. The institutional arrangements for the allocation of research funding have led to a strong trend for consolidation and a considerable concentration of research capacity. As a result, the comparative lack of research activity locally and historically has inevitably meant that the sector in the GLLEP area cannot easily access research funding from sources such as the UK Research Councils; Defra; the European Union FP7 and the UK Technology Strategy Board[[15]](#footnote-15). Developing or nurturing new research capacity in HE institutes in the area (e.g. Riseholme and Holbeach) is therefore requires a careful strategic assessment of likely returns.

Typically, therefore, innovation linked to R&D by the sector in the GLLEP area draws on knowledge assets from elsewhere including Holland and Belgium; Adam Harper and the Silsoe Research Institute[[16]](#footnote-16) and is guided by strategic agendas that are structured along national and crop-specific lines rather than regionally. There is evidence, for example, of R&D engagement along sectoral/national lines exploiting opportunities for product innovation in areas such as new crop varieties with the seed research being conducted largely in the Netherlands and France and ‘bought in’ by the larger agricultural operations based in Lincolnshire.

1. **Agricultural engineering**

There is a strong tradition of agricultural engineering in the GLLEP area particularly around Gainsborough and traditionally benefitting from its proximity to a large farming community. In more recent times, however, while the ‘niche’ remains to some extent, there appears to be little focus on research at the local level and while engineering companies remain active in innovation this activity is often supplier instigated and/or responding to customer requirements rather than taking its stimulus from the research base or acting as ‘inventors.

Therefore while, new technologies are important insofar as the use of new materials and processes may be required to meet the innovation and product and process development needs established within the supply chain, the research is typically conducted elsewhere, including internationally, or is ‘bought in’ and applied locally. To allow this, some of the larger engineering companies have their own in-house design and development capacity and work with customers rather than with other technology or research providers to achieve their innovations.

R&D efforts in both the agriculture & horticulture and the agricultural engineering sectors depend to a large extent on the availability of funding and support for applied research, since the viability of new crop varieties or cultivation techniques and tools requires extensive testing under real-life conditions. Against the backdrop of a shortage of investment capital due to low margins and profitability in the sector, the difficulties associated in the UK with accessing external funding for R&D and innovation as outlined above affects the agricultural engineering sector just as much as the agriculture and horticulture sector and was repeatedly raised by interviewees as a factor curtailing R&D efforts in terms of integrating and applying new technologies in horticultural and agricultural production.

1. **Food and drink processors**

Food processors, traditionally located in the region, have been subject to an intense process of industry consolidation and as a result are increasingly organised on a national or even global scale. As a result, local facilities operate as part of a corporate marketing, R&D and innovation drive and have only limited interaction with local producers and providers of research and technology.

The Food and Drink i-Net, established in Nottingham under the emda regional innovation strategy, supports businesses to conduct or participate in collaborative research with a research provider (usually a university), but take-up from the GLLEP area has been limited. The i-Net would like to see more successful proposals from Lincolnshire, but recognises that it cannot work with larger processors or growers because it is largely ERDF funded. The i-Net reports that it has however worked with some innovative farm diversification projects in the GLLEP area.

Within the sub sector of food and drink, there is a focus emerging on supporting applied process innovation, as opposed to R&D focused on scientific research and technology development, in the food processing industry. For example, the Humber Seafood Institute and the Lincoln University Holbeach Campus both provide a range of technical and training support. However, neither makes a significant impact in respect of scientific research, applied or otherwise, – focussing more on ‘D’ (Development) rather than ‘R’ (Research).

## The role of supply chains and innovation

A parallel research project commissioned by the GLLEP will focus extensively on the role of supply chains in the area’s economy more generally and the traditional industries specifically. Here therefore we have restricted comments purely to the link between supply chains and innovation across the sector.

Most agricultural production and agri-food processing is increasingly integrated in logistical ‘supply’ chains and product ‘value’ chains with downstream (markets) and upstream (producers and supply) linkages. From this perspective, the key challenge within the agri-food supply chain is to be able to effectively and efficiently link supply and demand. Achieving this places innovation impulses and information about those impulses at the heart of the sector supply chain dynamic.

Here, the dominant model that has emerged is one where the retailer, most notably the major multinational retailers and supermarket chains control both the flow of information and the development, implementation and exploitation of the innovation. These processes are structured nationally with very limited scope for regional players or individual producers beyond some limited role for ‘Tier 1’ suppliers to shape the interface with retailers.

Information about consumer demands and preferences pass up the supply chain and, as the information is received, analysed and acted upon, innovation will usually occur. The control of information, its interpretation and the opportunities to innovate are, by and large, filtered and mediated so that smaller players in the sector throughout the UK including in the GLLEP area have little opportunity or incentive to innovate within the rigidities of supermarket supply chains. This dominance and control is a key explanatory factor for the low level of food product research and radical innovation exhibited in the traditional industries.

The evidence gathered for this report suggests that the general trend of the resulting market-led innovation being very fast paced and often even short-lived prevails in the GLLEP area too. A strong dependence on ‘me-to’ products often results in acute difficulties in effectively managing agri-food innovation projects. For example, the perishable nature of many food products means that the time scales adopted for innovative products to get established in the market place is very short e.g. shorter for chilled than for frozen products.

At the same time, as will be discussed in more detail later in this report, product innovation in the agricultural and horticultural sector requires large investments in new equipment and new varieties with uncertainty of success in the market place and as a consequence uncertain returns. Consequently, economies of scale act as a further blockage to innovation in the sector. This makes it difficult for smaller suppliers to break into large retail supply chains and for large growers to grow their businesses other than through ‘buying’ market share from others. Not only does this divert attention away from innovation-led growth but it also produces a strong drive towards consolidation across the different sub-sectors and crops.

This scenario of limited innovation opportunities within large retailer supply chains has, however, stimulated GLLEP area agri-food business innovation projects aimed at diversifying into other crops or business activities in order to gain access to other market segments and supply chains (e.g. bulbs and cut flowers, environmental services) that will be discussed in more detail in the section on business model innovation below. By the same token, there is evidence of supermarket chains that have made a strategic choice based on market (e.g. as a result of their own relative small scale they need to formulate a USP that differentiates their offer from the large retailers) and ethical (e.g. Board-level commitment to supporting local communities’ economic development) reasons to work closely with and support smaller local suppliers. While largely focused on business development and again marketing, they do open nurture sectoral strengths that can form the foundation for more innovative behaviours.

## Types of innovation exhibited in the traditional industries

At this point, it is useful to introduce a distinction between different types of innovation. Innovation practices are typically distinguished along two intersecting dimensions. Firstly, this relates to the nature and content of the innovation project in terms of whether it relates to a new product or process, with other related dimensions such as service innovation, business model innovation or social innovation and systemic innovation increasingly being considered here as well.

Secondly, a distinction is made in terms of the intensity of the innovative effort, i.e. a between radical innovation, that introduces something genuinely new and changes the parameters for production and marketing in a certain sector, and incremental innovation that takes a more gradual approach of continuous improvement, although it can also open up new commercial opportunities.

The research undertaken for this report suggests that the scope for the successful introduction of commercially successful radical innovation in the agri-food sector (that does often draw on scientific research as outline above) is limited and largely the prerogative of large multi-national companies with the technical and financial capacity to see such projects through. Nearer-to-market, customer-facing innovation is bound by the limits of existing raw materials and marketing to meet customer preferences for a staple product such as food.

As a result of the generic, global drivers and the prominent position of large retailers as outlined above and in line with experience in the agri-food sector throughout the UK, a large part of the innovative effort in the sector therefore relates to supply chain driven innovation in the form of incremental ‘me-to’ products that allow retailers to increase their market share. The strong focus on such marketing-led innovation and its reliance on increasing market share rather than creating new or additional demand mean that new product introductions in the sector have a relatively high failure rate. Consequently, the scope of using innovation to actually increase margins for food producers is limited.

With innovation drivers being ‘funnelled’ through relatively rigid market structures, there is also a danger that such market relationships block the need for ‘bigger picture’ innovation in a large part of the supply chain, typically the small and medium sized producer, processor or distributor. In these cases, the ‘here and now’ takes precedence over longer-term foresight-driven efforts. This can be associated with a danger of ‘lock-in’ for the sector and an associated risk for the medium to long-term fortunes of businesses, but also the public good effects of a stronger focus on innovation.

Consequently, the typical type of innovation behaviour exhibited in the agri-food sector is one of ‘incremental; innovation as opposed to ‘radical’ innovation. With incremental innovation, the innovator may not even regard themselves as performing innovation, they simply see their efforts to develop new processes and business practices or to ‘tweak’ their products and product ranges as part of the inevitable and necessary process of meeting customer requirements.

By contract, radical innovators in the agri-food sector would be seeking to make maximum use of new technology development and adaptations with which to achieve a ‘step-change’ in their products, processes and business practices.

In the GLLEP area, while there is some limited evidence of agri-food and agricultural engineering businesses being early adopters of radical innovations, they do so largely because their customers have indicated that they want to see these innovations (e.g. new plant varieties or new technologies used in equipment and materials) rather than it feeding off a direct connection to the possibility space of new product markets or new societal needs being identified.. Incremental innovation is the most common type of innovation observed within the sectors in the GLLEP area.

## Business model innovation in the GLLEP area

Innovation is not only achieved through product or process development, it can also be achieved by innovation in business and management practices and the use of Information technology. A further way in which innovation is increasingly being seen in the traditional industries in the GLLEP area is through business model innovation that creates an entirely new offer to customers and/or creates a customer interface that enables new types of market transactions.

Innovation of this type is commonly associated with the drive to diversify – whether in the manufacturing and service sector or through farm diversification itself. There is evidence of successful business model innovation (‘diversification’) in agricultural/horticultural businesses in the GLLEP area that goes beyond integrating farming with tourism and finds new ways of levering existing physical and knowledge assets.

Some examples include the introduction of recycling services in response to regulation; building field trials into a business as a revenue generator that also increases the visibility of the business; building partnerships with external organisations (e.g. in one case with a Belgian mail order company), nurturing new routes to market such as mail order or direct sales and even through adopting a not-for profit, social enterprise model in the case of a prison farm in the area.

Adopting a business model innovation approach can be seen as a response to the market structure that causes smaller producers to be ‘locked-out’ of large supermarket supply chains and ‘weak signals’ about future consumer preference for local, high quality produce.

It should also be noted that there is a movement towards finding new ways of doing traditional things such as developing small scale brewery activities and smoked fish products.

Along the supply chain, smaller retail chains have also been active in offering firms in the traditional industries in the GLLEP area opportunities such as the Co-op operating a local ambient food distribution centre, with purchasing agreed nationally, but procured locally. Similarly the Co-op have been active in introducing local brands and building local sourcing by working with potential suppliers on capacity development.

Within the category of business model innovation it would also be reasonable to include such activities as cooperatively owned producer retail outlets and new models of servicing farmers markets. The important point to note here is that although such forms of innovation are not traditionally regarded as such, are mostly not yet delivered at scale and certainly are not related to R&D activity or new technology developments, in the GLLEP area and the traditional industries in particular, there are many examples of innovations and innovative people and firms that have the potential to contribute to the medium- and long-term outlook for the sector and need to be celebrated as such.

## Collaboration in the agri-food sector

Finally, collaboration is often seen as key to innovative areas and sectors in that they ensure that the innovation momentum and ideas as well as the underpinning culture and achievements from innovation can be optimised.

In the GLLEP area, collaboration may again be characterised according to the various sub-sectors:

* **The agri-food sector** is highly competitive which acts as a limiting factor for collaboration around innovation generally - including in the GLLEP area. Much of the innovation agenda in the fresh produce sector is organised along national lines for individual produce groups e.g. potatoes, peas etc. thus limiting opportunities for collaboration in regional networks.
* **The food processing sector** is itself characterised by strong consolidation dynamics which results in few HQ activities (incl. marketing and R&D) being carried out in the GLLEP area and collaboration activities connecting branches with HQs elsewhere rather than with neighbouring firms.

However, in general and traditionally, the agricultural community has strong informal networking dynamics and collaborative projects are being developed on the basis of ‘word-of-mouth’ interactions. For example, collaboration does occur around sharing machinery and contract farming.

In addition, in recent years, a number of fora for exchange and collaboration have come into existence. For example, Tastes of Lincolnshire; Select Lincolnshire; and the Lincolnshire Forum for Agriculture and Horticulture are increasingly providing a platform for networking and knowledge exchange with in the industry.

Further, in the north east of the GLLEP area a distinct profile and dynamic has begun to build up around the sea food cluster already achieving a high clustering dynamic and an inward investment profile supported by the Humber Seafood Institute. Here, while the fishing industry is traditionally collaborative, the more recent collaborative impetus for seafood processing and marketing has partly developed as a response to pressure from industry consolidation and the global character of the industry.

Finally, both the Humber Seafood Institute and Holbeach Campus have adopted models that engage businesses around a training and skills development offer that has the potential to create the spaces for further industry engagement around collaborative R&D activities and innovation.

# Innovation across the sector and its niches

In this section we bring together some of the key points from the preceding analysis with the perspectives that have been gained from the survey, interviews and the focus groups with the industry and stakeholders in the GLLEP area. A list of the interviewees and focus group participants is included at Annex 4.

To aid understanding and to give fair value to the differences between sub-sectors within the traditional industries and niches that are apparent, we report on the basis of 4 categories:

1. Agriculture & horticulture
2. Food processing
3. Agricultural engineering
4. Seafood

## Innovation in sub sectors: agriculture/horticulture

The agri-food industry in the GLLEP area is at the receiving end of the drivers of innovation affecting the sector as a whole. This tends to limit the opportunities for agriculture and horticulture producers to be able to initiate innovations as opposed to simply implementing product, process or service changes as their customers demand them. For example, much of the product innovation in the fresh produce sector is conducted for individual produce groups e.g. potatoes, peas and organised along national lines.

Since innovation across the agri-food sector is ultimately a process of adding value in the market place, for agriculture and horticulture businesses in Lincolnshire, markets play the key role in determining innovation opportunities and activities. Further, while product and process innovation in the agricultural and horticultural sector typically requires large investments in new equipment, the uncertainty of returns and market success makes innovation less likely to occur in the sector as a whole. Incremental innovation is therefore the most typical form of innovation rather than radical, ‘ideas-led’ innovation.

In particular, a number of key innovation elements are characteristic for the agriculture and horticulture businesses in the GLLEP area and tend to militate against innovation:

* Low labour costs in the sector limits the capacity of farming businesses to innovate but also tends to make innovation a one-dimensional drive to further reduce labour costs to maintain a competitive position against producers in other areas in the UK and internationally.
* Regulatory demands typically regarding environmental and health impacts of food production and inputs into the process (e.g. pesticides, fertilizers) is a strong determinant of the type of technological innovation that is common in agriculture and horticulture businesses in Lincolnshire.
* Since R&D activity in the Lincolnshire agricultural and horticulture sectors is low, the process of introducing technology and know-how is dependent on knowledge transfer into the area from outside including from across the UK, Netherlands and France
* Consolidation across the sector continues to be a common response to the need for economies of scale that will allow producers to gain access to large retail supply chains.

Notwithstanding these characteristics that tend to curtail the innovative momentum, a number of GLLEP area companies in agriculture and horticulture are engaged in innovation projects around the introduction of new tools and techniques and/or are conducting business model innovation.

## Innovation in sub sectors: food processing

Food processing generally is increasingly organised on a national or global scale and in the GLLEP area, the trend towards a small number of large processors and a general trend to consolidation in the food processing sector is evident. This means that the area has fewer and fewer businesses with their head quarters and/or R&D facilities within their Lincolnshire activities. Collaboration activities for these businesses, as noted elsewhere in this report, are most likely to take place with their own branches elsewhere rather than with neighbouring firms in the GLLEP area.

Within the food processing sector, as with agriculture and horticulture, only a limited scope for radical product innovation exists. Generally within this sub-sector, radical product innovation tends to happen among the ‘global’ food processors or highly specialised and speculative knowledge-intensive start-ups neither of which have a strong presence in the GLLEP area. Consequently, in the GLLEP area the main focus is on process and market-led innovation through innovation demands that flow along the supply chain and, very often, is limited to matching the processing practices and efficiencies achieved by other processors within a retailer’s supply chain. Much of this innovation is therefore dedicated to ‘me-too’ products and processing in order to retain a position within a retailer supply chain.

As noted earlier, this type of innovation is often rapid and may even be quite short-lived, following market trends that emerge and evolve quickly and, for the food processor, conveyed to them by their customers above them within the retail (or wholesale) supply chain.

Within the GLLEP area there remain, however, small processors who are not part of the supply chains of large retailers but who nonetheless operate within smaller niche markets and products. It is these businesses in particular that benefit from the recently established support infrastructure, most notably at the Holbeach Campus and the Humber Seafood Institute that are providing more ‘applied’ research and development and are levering skills and workforce development for process innovation activities.

## Innovation in niches in the GLLEP area: agricultural engineering

Agricultural engineering is a traditional strength of the area for example, around Gainsborough but although strong ties persist, there does not appear to be a true clustering dynamic. Therefore while the agricultural engineering sector retains some innovation strengths, it more commonly works successfully with suppliers, customers and with knowledge sources and R&D partners from outside the region rather than with neighbouring firms, farmers or knowledge partners.

Since the farming sector is very focused on labour costs, innovation in agricultural engineering, for example, to develop automatic planting machinery, is important but generally tends to be incremental rather than radical. And yet, timely and effective take-up of agricultural engineering innovations is vital to sustain the competitiveness of farming.

In this sub-sector again, the UK’s focus on basic rather than applied research has led to a limited availability of R&D and limited opportunities for farmers to get involved at the development and trialling stage. For example, long-term trials are required to assess the full potential of some agricultural engineering innovations such as illustrated by the use of GPS for controlled wheeling of equipment in the field that will only demonstrate results over several years. The costs of becoming involved and the uncertainty regarding the results to be obtained often makes this involvement difficult to arrange with farmers within the GLLEP area. Nevertheless, as we note above there are some examples where this is being integrated into business model innovation by some producers.

## Innovation in niches in the GLLEP area: seafood cluster

By contrast with agricultural engineering, the seafood sector that mostly works with imported raw materials (fish and other seafood) sourced from elsewhere has a natural clustering dynamic that Grimsby has been able to capitalise upon by developing a niche position for the Humber Seafood Cluster.

Under increasing pressure from global competition, work is being done here to sustain the existing processing expertise and capacity while strengthening aspects such as the sustainable sourcing of fish as well as fish processing and production from land-based aquaculture, a key emerging area of interest in response to an increasing focus in inward investment enquiries. Similarly, work is being done on the geographical distinctiveness, for example, smoked fish from Grimsby Dock.

However, strong global R&D competition arises particularly from across the North Sea, from Norway that is funding R&D in the seafood sector including around its environmental impact and seafood processing technologies.

Here it is hoped that these activities will help sustain the niche’s competitiveness. To maximise the innovative and competitive potential of the niche or cluster there are a number of key aspects that require strategic attention:

* An improving transport infrastructure and strong investment in support of the sector by the French government represents a significant competitive threat from the main competitor cluster based in Boulogne that could potentially break into markets in the South East of England.
* There is a growing global trend for countries of origin to develop their own value-adding activities counteracting previous patterns of fish being processed where the best facilities were (as opposed to the agricultural and horticultural sector where transport costs are high relative to the profitability of the produce itself so that fresh produce is best processed close to where it is sourced).
* The strategic intent behind the original ‘step change’ investment in support of the cluster (that was focused on physical assets) needs to be refreshed with a particular emphasis in the future on the human resource requirements and public good knowledge assets of the cluster. This will require a particular focus on nurturing sustained commitment by individual companies and industry leaders in the sector by coordinating activities to strengthen the overall knowledge economy competitiveness of the cluster (possibly via a secretariat supported with public funding). This would create an incentive to contribute to public good outcomes and help avoid knowledge acquired through knowledge transfer interactions and demonstration activities migrating solely into individual businesses.
* The original investment happened at a time when many smaller companies were already locked into a low value added business model and therefore highly vulnerable. The ensuing consolidation trend has significantly shaped the nature and structure of the cluster, a pattern that needs to be integrated in a strategic review.

## Innovation & sustainability in the traditional industries

In the traditional industries in the GLLEP area there is evidence of innovation taking place in response to the threats and opportunities of sustainability and sustainable technologies. However, as with product and process innovation, this strong take up tends to be focused on reactive take-up of sustainable technologies. This is typically driven by:

* Supply chain pressures with large retailers demanding sustainability credentials from suppliers.
* Potential for cost savings and higher margins through resource efficiency, a key requirement for businesses in a sector that is characterised with low levels of profitability.
* The incentive to achieve a stronger return on Investment than can be achieved from investments in agricultural or horticultural equipment and activities (for example by investing in renewable energy) and thus again strengthening the overall profitability of a business in the agri-food sector.

In addition however and partly as a by-product, there is evidence of broader process innovation projects being developed on the back of integrating sustainable development technologies into operations and business models.

However, doubts remain regarding the overall efficiency and effectiveness of certain sustainable technologies (e.g. Anaerobic Digestion) that are not yet mature and returns remain uncertain in both economic and environmental terms. A considerable amount of work is going on nationally and internationally to develop sustainable technologies further and it will be important for businesses in the GLLEP area to benefit from participation in or at least knowledge of such developments from involvement in innovation and/or demonstration activities.

An area that is receiving increasing innovation attention, however, is that of water scarcity, which is becoming a key issue and beginning to drive individual innovation investments such as water recycling processes. In view of the fact that ground water conditions are affected by local environmental factors, this does require specific responses in the GLLEP area. Through the initiative of individual agri-food businesses, new approaches are being tested such as, for instance, a water engineering project focussing on a new reservoir-based extraction method which is highly specific to Lincolnshire, since the ground water is too saline through the proximity to the sea. Projects like this also have the potential to develop responses to competitive threats to the horticultural industry (e.g. carrots and potatoes) in particular from new irrigation techniques.

There is also some evidence in the GLLEP area of innovation in response to ‘weak signals’ regarding the overall sustainability of agricultural production such as, for instance, through the adoption of sustainable land management practices, the encouragement of bio-diversity and a broader approach generally to the sustainability of agricultural and horticultural production. Similarly, regulation and legislation plays a key role in stimulating innovative activities around sustainability and is more often than not the immediate driver. The example of herbicides being classed as a hazard rather than a risk under the Thematic Strategy and European legislation illustrates how legislation drives experimentation in agricultural businesses with different approaches and solutions (e.g. mulches, biological controls or the development and testing of new chemicals to replace the de-classified ones).

While businesses in the GLLEP area can draw on traditional knowledge and experience over many farming generations, integration between the productivity-driven approaches of major producers and processors with business models that rely on scale to support the overall profitability and new approaches emerging from alternative solutions being increasingly championed by ‘ethical’ producers.

However, there is take-up of initiatives like, for instance, the LEAF project that works with a network of certified farms (incl. several in the GLLEP area) to challenge assumptions and tests approaches of integrated farm management. Similarly, there is some evidence of more ‘blue sky’ innovation, often in lower order activities that can ultimately make a big difference (e.g. a farmer growing and processing hemp for sustainable construction applications).

# A role for the GLLEP to support innovation in the traditional industries

The key question this study needs to address relates to the potential role of the GLLEP in supporting the types and extent of innovation in the traditional industries revealed by the field research undertaken. This is the topic for this section.

## The rationale for innovation support

Greater Lincolnshire LEP was inaugurated as one of the first wave of Local Enterprise Partnerships in November 2010. It has a "Humber to Wash" geography comprising all the administrative local authorities in Lincolnshire and the unitary authorities of North and North East Lincolnshire. These two authorities are also members of the Humber LEP. The LEP has a board of 16 members the majority of whom are drawn from the private sector (with several Board members having an agri-food background).

LEPs generally are operating in an environment of very limited resources and very modest economic growth arising from the 2008 recession. The Greater Lincolnshire LEP has adopted a strategic and sectoral approach to give it the maximum potential to exercise its influence over others in both the public and private sectors to stimulate investment and growth.

Focusing specifically on how this role might best be undertaken with regard to the agri-food and traditional industries, the research carried out for this study suggests that the focus in these sectors is on efficiency rather than innovation and that, as a result, there is no strong voice from industry calling for innovation support. It is also the case that with leadership from large retailers, innovation is happening in practice as described in the analysis above. The evidence shows that the uptake of existing innovation supports on the other hand is limited and, because of the reliance on external inputs for technology, innovation and the drivers for innovation, the regional or GLLEP level does not have great priority for businesses.

However, as the research also shows, against the backdrop of larger generic and sector specific innovation drivers, there is a danger of ‘lock-in’ in the region. This would occur where the dominance of the food sector supply chains in market and innovation terms, leads to atrophy of the innovation eco-system and over-dependence within the sector on innovative impulses and demands being passed down from the main retailers and wholesalers or new innovative technologies and practices being sourced exclusively from outside the GLLEP area. This would make the sectors in the GLLEP area vulnerable to sectoral consolidations, external market trends and weaknesses with little ability to stimulate and support innovation from within the area and the sector.

The rationale for support for innovation from the GLLEP is therefore for innovation as a public good where obtaining an appropriate return on the investment in innovation support infrastructure already made (most notably in Holbeach Campus and the Humber Seafood Institute, but also cooperation with Siemens around the new engineering school and the GLLEP stake in the i-Nets) depends on that infrastructure being more strategically integrated. In particular, there is potential to strategically integrate investments in soft and hard business infrastructure (incl. policy influence in the context of national agri-food policy development generally and in relation to R&D and innovation in particular) in the agri-food sector across the new economic geography of Greater Lincolnshire and levering the LEP role for the benefit of this key sector in Greater Lincolnshire.

An example here would be in making the case for Regional Growth Funding or other central government support for the traditional industries and the agri-food sector in particular in Greater Lincolnshire. Here a coherent narrative is needed regarding the opportunity and capacity to strengthen employment and contribute to a modern economy using knowledge and innovation to make itself less vulnerable and dominated by large external drivers and economic forces. The need to supporting such a vital sector in a region that suffers from rural isolation, pockets of deprivation and poor employment conditions could provide such a narrative building on the existing sector connections to the national agri-food governance level.

Overall, a strategic approach to supporting innovation in the agri-food sector in the GLLEP area needs to adopt an approach that integrates a focus on innovation with a broader development perspective for the industry. As a result of the development of the sector in the UK in recent years as outlined in sections 4 and 5, many businesses in the sector have limited absorptive capacity for R&D and innovation. In other words, investing in the innovation capacity of the sector needs to be carefully interfaced with a focus on broader business development from strategic management to human resource management, nurturing career paths in the industry and strengthening the supply chain as a whole. The focus in considering potential roles for the GLLEP in nurturing and supporting innovation capacity in the region therefore rested on making practical and realistic recommendations that are likely to achieve an adequate return on investment. These will need to be implemented in conjunction with broader measures to strengthen the sector in the region.

## GLLEP role in supporting innovation

In defining a broad role for the GLLEP in supporting innovation we have followed the structure adopted by GLLEP under the 3 headings of ‘to lead’, ‘to influence; and ‘to lobby’. As a public-private partnership, the GLLEP will need to work closely with the respective stakeholder groups and organisations from local authorities to the private sector itself. Reference to the most relevant stakeholder group(s) that need to play their part in taking the respective recommendation forward is therefore included for each. In particular, it would be beneficial for the GLLEP to closely coordinate its activities with representative bodies like the Lincolnshire Forum for Agriculture and Horticulture,

**To lead**

1. Provide a lead on strategically aligning and integrating existing investments in agri-food industry innovation, most notably Holbeach Campus, the Humber Seafood Institute and the Siemens engineering school *(in association with the three local authorities)*.
2. Integrate national industry and policy networking undertaken by industry fora in the GLLEP area to strengthen the interface between agri-food businesses in the region and large retailers while championing a specific focus on innovation to ensure the industry is aware of key trends and opportunities at all times *(in association with the private sector and relevant key fora and bodies in the region, e.g. Select Lincolnshire)*.

**To influence**

1. Provide a secretariat function to identify and realise existing and new opportunities arising from innovation drivers and strengthen industry capacity to access funding for R&D *(in association with the three local authorities and HE/FE institutes in the region)*.
2. Highlight innovation opportunities to businesses in the region and encourage regional integration of innovation activities through industry associations and levy-funded bodies *(in association with industry bodies and HE/FE institutes in the region)*.
3. Work with Further and Higher Education institutions to ensure that skills and workforce development is effectively integrated with innovation support *(in association with the three local authorities)*.

**To lobby**

1. Lever and integrate existing businesses’ and representative fora’s routes into national policy regarding food and farming and integrate a Greater Lincolnshire voice to develop a strong profile of the region as a centre of excellence while linking opportunities identified and results secured back into a wider economic development strategy for the GLLEP area *(in association with the private sector and the three local authorities)*.
2. Support and integrate existing industry fora’s role in influencing national policy around food production and retail and associated research and development strategies and create an interface between these activities and a wider policy debate in the region regarding the role of innovation in the agri-food sector in contributing to economic development of the GLLEP area *(in association with the private sector and the three local authorities)*.

## Specific actions to support innovation

In addition to the generic role for the GLLEP in supporting innovation in the traditional industries, there are potential specific actions that would further enhance and focus innovation support for the sector in the GLLEP area.

The specific actions outlined below are designed to allow the GLLEP to focus any new initiatives clearly on driving productivity and growth in the traditional industries. However, a realistic perspective is required regarding the funding environment. For example, some of the existing innovation support infrastructure is facing an uncertain future, such as the Innovation Lincolnshire Programme, funding for which is due to come to an end in 2012. Proposing fresh activities here will therefore not be practical.

Identifying relevant national and European funding streams in the domains of research, development and innovation from sources such as the Technology Strategy Board and Defra to DG Research and DG Enterprise will need to go hand-in-hand with identifying the key levers to strengthen innovation performance in the traditional industries in the GLLEP area.

In particular, at an EC level the ‘smart specialisation’ focus of the Horizon 2020 and the forthcoming Europe 2020 regulations for EAFRD and the Competitiveness programme under ERDF and ESF provides possible fresh opportunities. The focus of the GLLEP on an innovative and progressive agri-food and related traditional sector should provide a strong platform for attracting additional funding streams if properly presented and prepared.

The proposed actions build on good practices in innovation support that can be observed elsewhere (highlighted in Annex 2) and that operate on both the supply side and demand side for innovation as it takes place within the traditional industries in the area.

1. **Facilitating innovation through the agri-food and logistics supply chain.**

In a key demand-side stimulation intervention, the GLLEP has the potential to lever its strategic position with large retailers and supply chain organisers for the benefit of smaller businesses in the agriculture, horticulture, food processing and logistics sectors in the GLLEP area. As described in section 4 above, one of the key characteristics of the flow of innovation along the agri-food supply chain is that by the time the information about customer needs is transferred to firms down the supply chain there is little need or opportunity for creativity or innovation other than to implement the change that has already been decided on further along the supply chain. If information regarding customer needs and preferences and the anticipated response of the supply chain can be more effectively and more quickly conveyed to small companies then the opportunity to offer some creativity and innovative response can more effectively be captured.

The North West Supply Chain programme organised by Food NorthWest is a good example of an attempt to strengthen the sector by encouraging collaboration around innovation between the key players in the sector and their respective supply chain partners including small and medium sized businesses in the North West area. Activities supported include cost reduction programmes across the whole supply chain and the introduction of better manufacturing processes leading to opportunities for greater efficiency.

Although some dialogue with retailers has been organised by, for example, Select Lincolnshire, a supply chain development programme would ideally also offer an on-going dialogue between retailers and supply chain partners allied to development supports to improve the capacity of the supply chain as a whole to the benefit of the small firms, the retailers at the head of the supply chain and, ultimately, the consumers.

An example of a successful approach here is that of the SDS Wales. This service provides support for SMEs in responding to public procurement and other supply chain opportunities through a network of 10 ‘Supplier Champions’ who provide tendering support to businesses and offer an interface between the public sector buying community and the SME community in Wales. The SDS is delivered through combined online and offline approaches.

1. **Consolidating and supporting clusters and niche developments**

At the supply-side end of innovation in the GLLEP area, important investments have already been made in seafood (Humber Seafood Institute) and in applied food processing research capabilities (Holbeach Campus) for the traditional industries in the GLLEP area. Improved returns on that investment in infrastructure can be obtained by greater strategic integration of the supports offered by these institutions.

Clustering as a tool of economic development and innovation is a well known and sometimes over-used approach, however, there are many benefits that can arise from pursuing a broad clustering approach. For example, access to specialised suppliers, services and skills; flexibility and fast reactions due to rapid sharing of information within the cluster and an increased capacity for innovation by sharing of knowledge and innovative ideas. In addition, new businesses are typically more readily formed as employees become entrepreneurs in spin –off ventures.

Currently, at the EU level, there is an increasing focus on a slightly altered concept, that of ‘smart specialisation’ which is analogous in many respects. The underlying rationale behind the Smart Specialisation concept is that by concentrating knowledge resources and linking them to a limited number of priority economic activities, countries and regions can become, and remain, competitive in the global economy. This type of specialisation allows regions to take advantage of scale, scope and spillovers in knowledge production and use, which are important drivers of productivity. Opportunities for the GLLEP to access EU funding support will be enhanced within an overall approach to clustering and niches in the sector.

1. **Developing the skills base of the sectors in the GLLEP area**

Successful innovation activity depends to a great extent on the underlying business management and absorptive capacity of businesses. In this respect, the GLLEP can lever its strategic position and stakeholder influence to ensure that a strategic approach to assessing and then meeting the skills needs of the traditional industries is adopted. In particular, strategic management and leadership skills within the individual agri-food businesses, and across the sector as a whole, were identified as a requirement in the study. Such skills have been undermined by the consolidation across the businesses in the sector ‘thinning out’ the staff base in producer businesses and leaving many food processing businesses in the GLLEP area strategically managed from outside the area thus weakening opportunities for innovation led by staff within the area.

The long term development and innovation capacity of the sector will be enhanced by engaging businesses and providers in specific skills analyses and making provision for both process and business model innovation. Similarly, stakeholder suggestions of strengthening collaboration with schools and sixth form colleges to communicate messages about career opportunities in the agri-food sector would make sense in this context.

GLLEP could begin by commissioning a skills needs analysis across the sector followed by subsequent analysis of the skills development support available within the area for the agri-food sector. Working with the HE and FE sectors and private providers should then be pursued to ensure adequate specification and provision of the skills required.

An example of such a programme is that led by the Scottish Agricultural College and funded under the EC’s Leonardo da Vinci programme. The main objective of the ‘Vocational Training For Farm, Wholesale & Retail Managers’ programme has been to develop training material (primarily as case studies) that can be used to enhance the skills of farmers and agri-business wholesale and retail managers. The project consisted of a number of work-packages including training needs assessment; development of and piloting of vocational training materials; piloting of materials; dissemination of the needs analysis and training materials to stakeholders, industry and vocational training organisations.

1. **Stimulating product and process innovation**

Demonstrating the practical application of innovation and new innovative technologies and business practice in the agri-food sector is a key method for showing farmers and processors the practical and tangible benefits that innovation and new technologies can bring. This is important because, as noted in the report, the uncertainty of returns and the long time-scales typical in the sector are often key factors in dissuading farmers and producers to take up innovations.

A number of producers and businesses in the GLLEP area are already using income from their own demonstration activities as part of business model innovation. Further, the BBSRC and Defra are currently working to develop a network of demonstration farms to enable the testing and showcasing of new techniques, products and technologies.

The GLLEP can support innovation in the sector and the area by encouraging and lobbying for demonstration activities both on the farm and in technical centres (Holbeach Campus) and encourage the mentoring of businesses using knowledge transfer approaches and programmes from the HE and FE sector in the GLLEP area.

An example of this approach is the Food Innovation Centre in Cheshire. This is a factory-standard food processing and manufacturing facility for the use of national and regional businesses for new product development and trial runs. The centre is open to manufacturers of all foods including dairy products, butchery, bakery and confectionery, and is also host to a dairy processing plant. The Centre has a dedicated specialist staff and food scientists and is able to support the development of new food innovations, as well as train food and drink manufacturing students and staff already working in the industry.

1. **Championing sustainability through innovation**

As noted above in section 5, there is evidence of innovation taking place in support of sustainability in the traditional industries in the GLLEP area. However, this is largely focused on the reactive take-up of sustainable technologies.

In order to help the sector deal with the impact of climate change and shifting consumer habits and preferences for more sustainable products at the global level and to help the sector prepare for local threats, the GLLEP can champion sustainability in the sector through innovation. More particularly, GLLEP can provide a ‘foresight-based’ appreciation of the future for the sector and help the sector to prepare itself for inevitable change and pressures to increase the sustainability of its activities.

Examples here will include the challenges of dealing with local and regional water scarcity, further strengthening the adoption of an integrated approach to agricultural production and renewable energy technologies, and the demand for more resource efficient means of agricultural production and food processing and distribution (incl. in terms of the ecosystem services bottom line).

GLLEP can use its influence and leadership to bring together an integrated programme of foresight for the sector with a mixed programme of support activities, networking, best practice learning and industry ‘visits’, demonstration facilities and events etc.

The work conducted on foresight for the agri-food sector in Northern Ireland under the matrix programme is a useful example here[[17]](#footnote-17).

# Annex 1: Background to the GLLEP

Greater Lincolnshire LEP was inaugurated as one of the first wave of Local Enterprise Partnerships in November 2010. It has a "Humber to Wash" geography comprising all the administrative local authorities in Lincolnshire and the unitary authorities of North and North East Lincolnshire. These two authorities are also members of the Humber LEP.

The LEP has a board of 16 members the majority of whom are drawn from the private sector. It has established a number of task and finish groups to consider the barriers to growth and opportunities for development for the following key sectors:

* visitor economy,
* renewables,
* manufacturing,
* care,
* agri-food
* ports and logistics.

These groups are tasked with addressing the following questions:

1. What are the top 5 opportunities for growth in the sector?
2. What are the top 5 barriers to growth in the sector, and how could these be removed?
3. What role could the public sector play in facilitating new investment?
4. How are national policies affecting companies at a local level?
5. What critical issues would the sector group like the Greater Lincolnshire LEP to lobby national and local governments about?

The LEP has developed a number of important strategic roles:

* + - * *Overseeing the "Growing Places" fund for Lincolnshire - entailing a budget of £6.5 million to help kick start stalled housing and commercial development.*
			* *Championing the roll out of Broadband into Lincolnshire in the context of the BDUK project to overcome poor connectivity in the hardest to reach areas of the County.*
			* *Supporting the development of a Lincolnshire Rural and Farming Network, as one of the 17 nationally recognised bodies providing a direct dialogue with ministers about key rural issues.*

LEPs are operating in an environment of very limited resources and very modest economic growth arising from the 2008 recession. The strategic and sectoral approach of the Greater Lincolnshire LEP gives it the maximum potential to exercise its influence over others in both the public and private sectors to stimulate investment.

# Annex 2: Good practices

**Theme: Agri-food knowledge transfer sector linkages**

**Agri-Food and Biosciences Institute (AFBI)**

AFBI makes a significant contribution to innovation in the agri-food sector in Northern Ireland. AFBI is formally classed as a non-departmental public body (NDPB) that undertakes analytical, surveillance and R&D activities for the Department of Agriculture and Rural Development (DARD). It also carries out research and other scientific services as a commercial activity.

Public funding for AFBI in the period 2011-15 is forecast to be reduced and is therefore increasingly seeking to widen its activities and services by extending its customer base and as a result supplementing its funding base.

While ensuring that it meets its core duties to the Department for Agriculture and Rural Development (DARD) and the broader agri-food and rural community in Northern Ireland, AFBI has adopted a strategy of activity seeking new markets for its skills, services and staff. AFBI’s current business plan sets out, amongst its strategic objectives and targets, a clear emphasis on commercialisation in the following terms[[18]](#footnote-18): ‘*Sustain and develop AFBI’s knowledge base and position AFBI as a leader in the delivery of innovation and scientific support to the agri-food sector*’.

To achieve this objective, AFBI will ‘*Rigorously pursue and promote innovation through knowledge transfer and commercialisation of AFBI’s intellectual assets for the benefit of AFBI, DARD, the agri-food sector and wider economy*.’

**Scottish Agricultural College (SAC)**

SAC supports the development of land-based industries and communities through the provision of specialist research; education and training; and, advisory and consultancy services. SAC has 4 main areas of research interest covering: animal health; crop and soil systems; land economy and environment; and sustainable livestock systems.

SAC offers courses that relate to the existing and emerging land-based industries and pursuits as well as applied food, plant and animal sciences, and sustainable land use. Degrees and learning programmes at HND level are mostly accredited by the University of Glasgow and at MSc and PhD level by the |University of Edinburgh. SAC receives funding from Scottish Funding Council for this activity.

In the area of research, as well as providing policy relevant research under its RERAD contract, (only 45% of income for research now comes from RERAD) SAC provides regular contract and funded research outputs for the UK and Scottish Governments as well as European and other international clients. The scope of work covered, for example, includes, farm animal genetics, the monitoring and surveillance of animal health and welfare issues and crop and soil sciences as well as in rural economics, policy and environment including climate change related issues. SAC also participates in EU FP7, Research Council and DEFRA funded collaborative projects and employs over 230 staff in its research area.

Consultancy is however the largest source of external income for SAC with a large-scale consulting operation that stretches across the UK and works out of a series of offices. SAC employs a team of over 400 consultants, veterinarians, technicians and support staff who offer advice and assistance on a wide range of issues including: farm business services; veterinary support services; farm diversification; and environmental services.

In enterprise and innovation activities there are two areas of focus for SAC.

Firstly, SAC does not generally regard itself as having a portfolio of intellectual property (IP) arising from its research activities although it retains IP Advisors and has had its own IP officers in the past . This means that SAC takes a case by case approach to protecting IP from research and negotiates a share of IP with collaborators. This has resulted in one spinout to date.

Secondly, while SAC does not generally regard itself as having a portfolio of intellectual property (IP) in respect of products and processes they do have a ‘portfolio of knowledge’. SAC consultants have, for example, provided training for 12,000 farmers regarding CAP reforms; undertaken professional updating for landowners & farmers; provided entrepreneurship training for agri-food sector; and operated a telephone enquiry service for subscribers on a wide range of topics. They also provide regular assistance to farmers with annual return forms that trigger payments and capital grants. The portfolio of knowledge is also of practical use in research based services, for example, through crop ‘clinics’ genetic evaluations and CT scanning.

SAC hold an annual consultancy conference to bring together researchers and consultants from across SAC to update information on research outputs produced at the College. This also allows the team to establish internal collaborations and identify different types of researchers for potential development into the consultancy field. Added to this, where RERAD research programmes have a knowledge transfer element, SAC uses these to typically ‘embed’ consultants in to the research teams to act as ‘technology translators’.

In the area of international consultancy, SAC has been active in a number of themes including vocational training and skills development. For example, funded under the EC’s Leonardo da Vinci programme, the ‘Vocational Training for Farm, Wholesale & Retail Managers’ programme has developed training material that enhances the skills of farmers and agri-business managers. The project consisted of a number of work packages including training needs assessment; development of and piloting of vocational training materials; piloting of materials; dissemination of the needs analysis and training materials to stakeholders, industry and vocational training organisations.

See: <http://www.sac.ac.uk/consulting/services/s-z/international/projects/ldvagrimarketing/>

**Theme: Relationships and supplier development**

**Agri-Food Quest Competence Centre**

The Agri-food Competence centre is an early stage project supported by Invest Northern Ireland. The centre will seek to drive the development of collaborative business-led research in partnership with the science and technological expertise of Northern Ireland’s universities and research institutes.

The aim of the Competence Centre is to stimulate collaborative projects in areas of priority research and encourage knowledge transfer to industry, promoting innovation – a key driver of productivity improvement and underpinning international competitiveness.

The Competence Centre will define and commission, from the local research providers, an industry led R&D programme for the purpose of advancing R&TD activities relating agri-food. The companies that are currently involved in the consortium include Moy Park, Dale Farm, Carritech Research, Devenish Nutrition, Dunbia, John Thompson & Sons, Skea Eggs and Wilson’s Country. The key research delivery agents for the competence centre are Queens University Belfast, University of Ulster and the Agri-Food and Biosciences Institute.

**Supplier Development Service Wales (SDS)**

SDS Wales provides support for SMEs and social enterprises in responding to public procurement and other supply chain opportunities through a network of 10 ‘Supplier Champions’ who provide tendering support to businesses and offer an interface between the public sector buying community and the SME community in Wales.

The SDS is delivered through combined online and offline approaches. Key steps in the process include (i) online and offline marketing and awareness raising, initial engagement and assessment (ii), and a menu of service activities. These include access to network events and development sessions, for example, workshops or events such as ‘How to Tender’ and ‘Meet the Buyer’ activities, as well as follow on opportunities for ‘one-to-one’ support in cases where specific needs are identified. Working with buyers is also an important element of this support, and a key role of the Supplier Champion is to engage with buyers to help identify their specific needs and facilitating links with suppliers.

This strand is targeted at SMEs in tiers 1, 2 and 3 and uses an approach based around sectors (for example Construction, Creative industries and agri-food), spatial needs and key strategic opportunities and issues where appropriate. While the service works with buyers from the public and private sector, the programme is primarily targeted at public sector procurement.

**Theme: Demonstration**

**Food Innovation Centre, North West**

The Food Innovation Centre, based at Reaseheath College in Cheshire, is a factory-standard food processing and manufacturing facility for the use of national and regional businesses for new product development and run trials. The centre is open manufacturers of all foods including dairy products, butchery, bakery and confectionery, and is also host to a dairy processing plant.

The Centre has a dedicated specialist staff and food scientists and is able to support the development of new food innovations, as well as train food and drink manufacturing students and staff already working in the industry.

The Centre has received funding from the Skills Funding Agency, under the Nation Skills Academy capital programme. Other contributors included the North West Regional Development Agency, leading industry bodies, and employers in the dairy industry.

**Food for Thought**

Food for Thought is an annual event supported by DARD Northern Ireland, focusing on innovation and R&D in the food industry. The programme is designed to showcase innovation to the food industry in Northern Ireland, and provide access to trend information and targeted workshops.

**Future developments (demonstration)**

BBSRC and Defra are currently working to develop a network of demonstration farms to enable the testing and showcasing of new techniques, products and technologies. These plans are likely to be based around existing demonstration farms and discussions are taking place to examine how these assets can be better linked. The AHDB has agreed to work together with other organisations (including the National Farmers Union), to take forward stakeholder proposals for increased recognition and coordination of these demonstration farms together with access to them by farmers themselves.

Source: <http://archive.defra.gov.uk/food-farm/farm-manage/documents/taylor-review-response-110131.pdf>

**Theme: Supply chain development**

**Food Northwest Supply Chain Project**

Food Northwest is the representative body of the food and drinks industry in the North West of England. It is leading a supply chain project to strengthen the sector by encouraging ongoing collaboration between the key players in the sector and their respective supply chain partners. The project intends to:

* Improved engagement between suppliers, processors (OEM’s) and retailers
* Implementing cost reduction programmes across the whole supply chain
* Establishing better manufacturing processes, creating greater efficiency
* Achieving improvements which could not be achieved by an individual company if working alone.

The project focuses on the Bakery, Brewing and Red Meat sub-sectors, including activity focused on upstream constraints with customers, internal waste and efficiency at the OEM, and downstream opportunities with suppliers.

*Source:* [*http://www.foodnw.co.uk/Projects/Food-NW-Build-a-Future-Proof-Supply-Chain/*](http://www.foodnw.co.uk/Projects/Food-NW-Build-a-Future-Proof-Supply-Chain/)

# Annex 3: Sources for innovation funding and support in the traditional industries

**1. Regional support for innovation**

**Innovation Lincolnshire**

Innovation Lincolnshire Phase 2 is a £2.5m programme designed to raise the economic performance and generate a culture of innovation amongst SMEs within the County. To this end it provides support for businesses to adapt to ‘innovative’ approaches in order to achieve business strength, stability and growth.

Support available through the programme combines a series of events and intensive one to one support to diagnose innovative business growth opportunities. The programme builds on an earlier Innovation Lincolnshire pilot (2007 and 2009) and is part-funded by ERDF for the period 2009 to 2012.

*Source:* [*http://innovationlincolnshire.co.uk/*](http://innovationlincolnshire.co.uk/)

**Food and Drink i-Net**

The Food and Drink i-Net (innovation network) was established in 2008 to co-ordinate innovation support to the food and drink industry. The i-Net is based around a concentration of businesses (large and small), public sector organisations, universities and individual within the East Midlands region. It is part-funded by the European ERDF, the Food and Drink i-Net is managed by a consortium, led by The Food and Drink Forum and including, Nottingham Trent.

The Food and Drink i-Net coordinates specialist innovation support for businesses, individuals and academic institutions that operate in the food and drink industry. The i-Net seeks to raise the level of innovation in the food and drink sector, stimulating the research and development of new products, services and processes. In its first three years the Food and Drink i-Net has supported more than 80 Small and Medium Enterprises (SMEs) with grants for innovation projects and delivered over 1000 instances of one-to-one tailored business advice and guidance.

*Source:* [*http://www.foodanddrink-inet.org.uk/about-us*](http://www.foodanddrink-inet.org.uk/about-us)

***NB. The use of ERDF as the funding mechanism means that both Innovation Lincolnshire and the F&D I-Net are unable to support primary production (agriculture, fishery and aquaculture etc) businesses. This restriction relates to sectors which are otherwise supported through the EAFRD or EFF.***

*Source:* [*https://support.erdf.communities.gov.uk/User%20Manual/Forms/AllItems.aspx*](https://support.erdf.communities.gov.uk/User%2520Manual/Forms/AllItems.aspx)*).*

**2. Research Councils**

There are a number of Research Councils that support research in areas relevant to agri-food:

* BBSRC – Biotechnology and Biological Sciences Research Council
* NERC - Natural Environment Research Council
* EPSRC - Engineering and Physical Sciences Research Council
* MRC – Medical Research Council

In addition to this funding Research Councils UK (RCUK) has established a series of cross-cutting multidisciplinary research programmes. These are intended to address key research challenges for the future. In each of these areas RCUK acts as a coordinator, with the objective of accelerating delivery of benefits and economic impact:

|  |  |
| --- | --- |
| Sustainable energy systems | [EPSRC](http://www.epsrc.ac.uk/ourportfolio/themes/), [ESRC](http://www.esrc.ac.uk/about-esrc/what-we-do/our-research/UKERC.aspx), [RCUK](http://www.rcukenergy.org.uk/) |
| Living with environmental change (LWEC) | [ESRC](http://www.esrcsocietytoday.esrc.ac.uk/impacts-and-findings/research-catalogue/), [NERC](http://www.nerc.ac.uk/research/programmes/lwec/), [RCUK](http://www.lwec.org.uk/) |
| Global uncertainties: security for all in a changing world | [ESRC](http://www.globaluncertainties.org.uk/), [RCUK](http://www.globaluncertainties.org.uk/) |
| Ageing: Lifelong health and wellbeing | [MRC](http://www.mrc.ac.uk/Fundingopportunities/Calls/LLHW/index.htm), [RCUK](http://www.mrc.ac.uk/Ourresearch/ResearchInitiatives/LLHW/index.htm) |
| Digital economy | [EPSRC](http://www.epsrc.ac.uk/ourportfolio/themes/), [RCUK](http://www.rcukdigitaleconomy.org.uk/) |
| Nanoscience through engineering to application | [EPSRC](http://www.epsrc.ac.uk/ourportfolio/themes/), [RCUK](http://www.rcuknano.org.uk/) |
| Food security | [BBSRC](http://www.bbsrc.ac.uk/media/releases/2010/100311-food-security-programme-launch.aspx), [RCUK](http://www.foodsecurity.ac.uk/) |

Source: <http://www.rcuk.ac.uk/research/xrcprogrammes/Pages/home.aspx>

**Relevant cross Council multi-disciplinary research programmes**

**RCUK Food Security Programme**

The UK's main public funders of food-related research and training are working together through Global Food Security to meet the challenge of providing the world's population with a sustainable, secure supply of good quality food from less land and with lower inputs. Waste from food production and supply must be reduced and must have a lower environmental impact. Food must be nutritious, safe and affordable and available to all with equity of distribution, reflecting local needs.

<http://www.foodsecurity.ac.uk/>

**RCUK Energy Programme**

Led by the Engineering and Physical Sciences Research Council (EPSRC), the Energy Programme brings together the work of EPSRC and that of the Biotechnology and Biological Sciences Research Council (BBSRC), the Economic and Social Research Council (ESRC), the Natural Environment Research Council (NERC), and the Science and Technology Facilities Council (STFC).

Further information on the programme can be found via the links below:

* [About the Energy Programme](http://www.rcuk.ac.uk/research/xrcprogrammes/energy/Pages/Mission.aspx)
* [Why energy research matters](http://www.rcuk.ac.uk/research/xrcprogrammes/energy/Pages/energymatter.aspx)
* [Energy Funding Opportunities](http://www.rcuk.ac.uk/research/xrcprogrammes/energy/Pages/EnergyFundEnergy.aspx)
* [Further information about the Programme](http://www.rcuk.ac.uk/research/xrcprogrammes/energy/furtherinfo)
* [Impact of energy research and capacity building](http://www.rcuk.ac.uk/research/xrcprogrammes/energy/Impactenergy)
* [Updates from the Programme](http://www.rcuk.ac.uk/research/xrcprogrammes/energy/highlights)
* [What the Energy Programme funds](http://www.rcuk.ac.uk/research/xrcprogrammes/energy/EnergyResearch)

**Living with Environmental Change**

LWEC is a major interdisciplinary research and policy partnership to tackle environmental change and the societal challenges it poses, and so to provide a firmer basis for people to deal with the unprecedented changes that the world will face over the next century. All seven Research Councils, working with partners in at least nine Government departments, will design the LWEC programme across the relevant research areas and policy and industrial sectors.

<http://www.lwec.org.uk/>

**3. Technology Strategy Board (TSB)**

TSB is the UK’s lead innovation agency, responsible for stimulating technological innovation in support of growth and productivity. It provides advice to Government, and a range of support measures for research, development and commercialisation.

The TSB has identified specific focus areas which include:

* Advanced materials
* Bioscience
* Built environment
* Creative industries
* Development
* Digital
* Electronics, photonics and electrical systems
* Emerging technologies and industries
* Energy
* Food supply
* Healthcare
* High value manufacturing
* High value services
* Information and communication technology
* Nanotechnology
* Space
* Sustainability
* Transport

TSB funding for innovation is available through a number of programmes including:

**Innovation Platforms**

Innovation Platforms are designed to address societal challenges through coordinated action between industry, academia and government. The platforms focus on identifying technological solutions to overcome challenges. Current platforms include:

* Assisted living
* Detection and identification of infectious agents
* Low carbon vehicles
* Low impact buildings
* Stratified medicine
* Sustainable agriculture and food (see below)

**Sustainable Agriculture and Food Innovation Platform**

The Sustainable Agriculture and Food Innovation Platform is a joint initiative with the Department for the Environment, Food and Rural Affairs (Defra) and the Biotechnology and Biological Sciences Research Council (BBSRC). The Platform is a collaborative venture between industry, academia and government with a focus on the development of new technologies that will increase food productivity, while decreasing the environmental impact of the food and farming industries. Up to £90 million will be invested in the Platform over the next five in priority areas such as crop productivity, sustainable livestock production, waste reduction and management, and greenhouse gas reduction.

TSB and the Department for Environment Food and Rural Affairs (Defra) have recently announced (2012) that investment of up to £500k will be made available to promote innovation in the agriculture and the food and drink sectors. This includes (competitive feasibility/demonstration grants for micro, small and medium-sized companies and aims to develop new systems and processes and delivery of better products and services. Funding is available to businesses in the agricultural (including horticulture) and food and drink sectors.

Projects last between three and six months, with grants will be available for up to 100% of the cost and will not exceed £25k.

Sources: <http://www.innovateuk.org/_assets/pdf/corporate-publications/sustainableagriculturefood%20ip-final.pdf>

<http://www.innovateuk.org/_assets/comp_agri-food_feasibility_final.pdf>

**Collaborative Research and Development**

Collaborative research and development (R&D) funding supports R&D projects in strategically important areas of science, engineering and technology. Funding is allocated on a competitive basis and can support large projects as well as smaller feasibility projects, with grants of between 25 and 75 per cent available. Eligible projects must involve two or more collaborators, at least one of which is from a business.

TSB has funded a range of food supply projects through this programme, in areas such as:

* new approaches to crop protection
* increasing the domestic supply of sustainably produced vegetable protein for farmed animals and fish
* improving conversion efficiency in animal production systems and reducing waste in the food chain to the point of retail sale.

Other potential areas of support include food processing and the manufacturing sector, integrated production systems, precision agriculture and initiatives that address soil, water and nutrient-management efficiency.

*Source:* [*http://www.innovateuk.org/deliveringinnovation/collaborativeresearchanddevelopment.ashx*](http://www.innovateuk.org/deliveringinnovation/collaborativeresearchanddevelopment.ashx)

[*http://www.innovateuk.org/content/competition/food-processing-and-manufacturing-efficiency1.ashx*](http://www.innovateuk.org/content/competition/food-processing-and-manufacturing-efficiency1.ashx)

**SMART**

Smart (formerly Grant for R&D) provides funding for SMEs to develop new products, processes and services in the strategically important areas of science, engineering and technology. The programme funds R&D projects which offer the potential to stimulate UK economic growth. Smart funding is available to single companies, in contrast with the Collaborative R&D programme. Three types of grant are available:

* Proof of market *– for projects lasting up to 9 months, have a maximum grant of £25k, and up to 60% of total project costs may be funded.*
* Proof of concept *- for projects lasting up to 18 months, have a maximum grant of £100k, and up to 60% of total project costs may be funded*
* Development of prototype *- for projects lasting up to 2 years and have a maximum grant of £250k; up to 35% of total project costs for medium enterprises, or up to 45% for small and micro enterprises, may be funded.*

All pre start-ups, start-ups, and small and medium-sized businesses from all sectors across the UK may apply for the Smart programme.

*Source:* [*http://www.innovateuk.org/deliveringinnovation/smart.ashx*](http://www.innovateuk.org/deliveringinnovation/smart.ashx)

**Knowledge Transfer Partnerships (KTPs)**

The KTP programme supports the transfer knowledge from academia to business, and transform the capacity of business to take advantage of this knowledge and expertise on an ongoing basis. To achieve this the KTP programme funds partnerships between businesses and academic institutions (Higher or Further Education) enabling companies to access skills and expertise to address strategic challenges. Each partnership comprises a company and academic supervisor, and knowledge is embedded through projects undertaken by recently qualified people (known as Associates). These projects can vary in length from 10 weeks to three years), according to the needs of the business.

KTP funding is focused funding primarily on SMEs and third sector organisations across the UK, and particularly those which show high growth potential. Participation in KTP by large companies (and organisations) must be linked to participation by their supply chain companies, particularly SMEs.

In relation to the agri-food sector there are a number of relevant KTP funding partners:

* Defra support KTPs to promote technology transfer to companies throughout the whole food chain, i.e. from the farm right through to the consumer. This includes suppliers of raw materials, processors, manufacturers and retailers in the food and agricultural sectors.
* BBSRC supports KTPs in the biosciences (excluding clinically focussed projects) that address company needs and fall within at least one of BBSRC priority areas for: Food Security, Bioenergy and Industrial Biotechnology and Fundamental Bioscience Enhancing Lives and Improving Wellbeing.

*Source:* [*http://www.ktponline.org.uk/assets/Sponsors-Criteria/TSB-KTP-Criteria-Septemberl-2011-Final.doc*](http://www.ktponline.org.uk/assets/Sponsors-Criteria/TSB-KTP-Criteria-Septemberl-2011-Final.doc)

**SBRI**

The SBRI programme seeks to develop innovative solutions to specific public sector needs, by engaging SMEs and larger companies in competitions for ideas that result in development contracts. It operates through open competitions for ideas and new technologies by government departments and other public bodies. The government department (or public sector body) acts as the lead customer and is instrumental in helping the business develop its product or technology. This typically begins with an initial feasibility stage (2-6 months, up to £100K). selected projects may then be awarded a further contract (up to 2 years / £1M) to develop a new prototype. Companies are then expected to commercialise the resulting product or service.

Approximately 30 new competitions are launched every year with key public bodies such as the Defra, Department for Health, Department of Energy and Climate Change etc.

**Catapult centres**

TSB are in the process of launching a number of Catapults centres to bridge the divide between business and academia, and helping to commercialise the outputs of research for the benefit of UK economic growth. To this end the centres will provide businesses with access equipment and expertise, as well as conducting their own in-house R&D. They will also help businesses access new funding streams and point them towards the potential of emerging technologies. Seven areas have been identified for potential centres, including high value manufacturing (launched in 2011), cell therapy, offshore renewable energy, satellite applications, connected digital economy, future cities and transport systems.

**4. Levy boards and membership organisations**

Traditionally, the ‘Levy Boards’ have been concerned with the improvement of industrial standards (food production and animal welfare) and have provided marketing services to the agricultural sector, members of which paid a levy to the relevant organisation.

In recent years, following the Radcliffe Report, there has been some reorganisation of the levy boards with the creation of the Agriculture and Horticulture Development Board (AHDB),a UK government-funded umbrella organisation which provides marketing and research services to the UK agricultural industry. The AHDB is now segmented into seven marketing organisations. The levies are set by Defra, covering the pork, milk, beef and lamb, seafish, horticulture, cereals and oilseeds, potato and livestock industries[[19]](#footnote-19).

In addition, there are other membership organisations which are also concerned with providing research and marketing services such as Quality Meat Scotland[[20]](#footnote-20) and the British Beet Research Organisation.

Traditionally, the Levy Boards have played an important role in the funding of research acting as an industrial partner through the LINK programme, though this is no longer the case since the LINK funding has now been incorporated within the TSB (see above). The new marketing organisations which fall under the umbrella of the AHDB continue to fund R&D activity, however, there is an effort to encourage collaboration under the main umbrella organisation as well as an effort to source external funds for research activity.

Each industry body has its own strategy and will fund research according to its own priorities. For example, the Horticulture Development Company (HDC) has developed sector strategies that outline the high priority issues that need addressing and invite potential contractors to submit concept notes and full proposals based on these strategies.

Of the membership boards under consideration, there are a number of funding approaches. For example, the British Beet Research Organisation commission and implement research and technology transfer along similar lines to the Levy Boards (i.e. accepting proposals based on priority areas).

**5. Defra**

Defra’s financial support for R&D and innovation is currently delivered through the TSB programmes noted above, notably the Collaborative R&D programme and KTPs.

Other relevant programmes include:

**Rural Economy Grant (REG)**

REG is a £60 million support programme designed to promote improvements in economic potential of rural businesses in areas such as job creation, increased turnover, access to new markets etc. Grants are open to businesses in sectors such as farming, forestry, tourism, agri-food, ranging from £25,000 up to circa £1 million.

Support is available to large and small businesses, as well as micro businesses in certain areas. Project applications need to demonstrate they will achieve a significant step change in performance.

**Defra Skills and Knowledge Transfer Framework**

The Skills and Knowledge Transfer framework is a £20 million programme to provide work-based training for rural businesses. The programme offers subsidised vocational training courses to help improve business skills. This includes areas such as business management and computer skills (ICT), improving resource efficiency, developing leadership qualities, and improving animal health and welfare.

Training is also available for businesses to improve traditional rural and farming skills and take new business opportunities in rural tourism.

# Annex 4: Interviewees and Focus group participants

Alex Carter, Trepko (Regal Packaging)

Amanda Davey, Taste of Lincolnshire

Andrew Goudie, Humber Seafood Processing

Barry Billinghay, Construction i-Net

Brian Moreland &Wayne Shepard, Moy Park

Colin Adams MD, Simba Great Plains

David Robinson, North East Lincolnshire County Council

David Robinson, Rookery Farm

Doug Robinson, Lincolnshire County Council

Edward Tong, Tong Peel

George Reid, Staples Vegetables

Graeme Beattie, Branston Potatoes

Haydn Biddle, George Bateman and Sons Brewery

Helen Scott, Select Lincolnshire

Helen Thompson, North East Lincolnshire County Council

Janet Godfrey, xxx

Jenny Couch, North Lincolnshire County Council

Jill McCarthy, Lincolnshire County Council

Kevin Woods, QV Foods and The Food and Drink Forum

Mark Swainson, University of Lincoln, Holbeach Campus

Mark Tinsley, Lincolnshire Forum for Agriculture and Horticulture and PC Tinsley

Matthew Thompson, Grimsby Institute, University Centre Grimsby

Nichola Berry, Lincolnshire Co-operative

Nick Cheffins, Peak Hill Associates

Nigel Burch, South Holland District Council

Pete Moores, Formerly Faraday Partnership

Rachel Linstead, independent consultant (formerly Food and Drink i-Net

Robert Moore, Agri.cycle Limited

Robert Willey MD, Househam Sprayers

Robin Buck, Jack Buck Growers

Samantha Harrison, Lincolnshire County Council

Steve Milson, Sealord Fish Processing

Stevie Jackson, Food and Drink i-Net

Stuart Earl, Bakkavor Group (Cucina Sano)

1. <http://microsites.lincolnshire.gov.uk/GLLEP> [↑](#footnote-ref-1)
2. The Lincolnshire Research Observatory commissioned report The Future of Food and Farming (The Andersons Centre, 28th June 2011) moreover provided key contextual information on the fabric of the agri-food sector in the region. [↑](#footnote-ref-2)
3. Summarised from the Lincolnshire County Council Research Brief – Opportunities for Innovation within the Greater Lincolnshire Traditional Industries [↑](#footnote-ref-3)
4. Please note that issues regarding work across the agri-food supply chain are largely covered in the ‘sister’ report and only touched upon here where they are of particular, specific relevance to the innovation arena. [↑](#footnote-ref-4)
5. Leis M, Gijsbers G. & van der Zee F (December 2010), Sectoral Innovation Foresight Food and Beverages Sector, Final Report, Task 2, Europe Innova Sectoral Innovation Watch [↑](#footnote-ref-5)
6. Institute for Manufacturing (July 2010) [↑](#footnote-ref-6)
7. Institute for Manufacturing (July 2010), Value of food & drink manufacturing to the UK, Centre of Industry and Government, University of Cambridge [↑](#footnote-ref-7)
8. Foresight. The Future of Food and Farming (2011), Final Project Report. The Government Office for Science, London. [↑](#footnote-ref-8)
9. Further information is shown at Annex 3 [↑](#footnote-ref-9)
10. UK Cross-Government Food Research and Innovation Strategy (2011), Government Office for Science [↑](#footnote-ref-10)
11. BIS (2011) ‘Innovation and research strategy for growth’ – in December 2011 UK Dept BIS refers extensively to the innovation ecosystems of ‘Global Innovation Leaders’ [↑](#footnote-ref-11)
12. The Commercial Farmers Group (2008), The need for a new vision for UK agricultural research and development [↑](#footnote-ref-12)
13. As opposed to food and drink manufacturers who account for over 4% of the total R&D spend reported in the annual R&D Scoreboard (Value of food & drink manufacturing to the UK 2010 IfM, University of Cambridge) [↑](#footnote-ref-13)
14. See National Horticultural Forum (July 2011), *A New Vision for Horticulture R&D* and Annex 3 for further details on the funding environment for R&D. [↑](#footnote-ref-14)
15. See Annex 3 for more information on R&D and Innovation funding sources [↑](#footnote-ref-15)
16. Which doesn’t exist in this form anymore, but the people and knowledge assets are still accessible through existing relationships and networks. [↑](#footnote-ref-16)
17. http://www.matrix-ni.org/downloads/matrix\_vol4\_agrifood.pdf

 [↑](#footnote-ref-17)
18. Agri-Food and Biosciences Institute Business Plan 2011-2012 [↑](#footnote-ref-18)
19. In addition, the Horserace Betting Levy Board remains as a statutory Levy Board, funded through the betting industry. [↑](#footnote-ref-19)
20. QMS is no longer a Levy Board but a non-departmental public body [↑](#footnote-ref-20)