Advanced manufacturing and nuclear in the North West

A New Economy report for: North West Regional Leaders’ Board
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>i</td>
</tr>
<tr>
<td>1 Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2 Literature and policy review</td>
<td>2</td>
</tr>
<tr>
<td>3 Manufacturing in the North West</td>
<td>9</td>
</tr>
<tr>
<td>4 Company Case Studies</td>
<td>25</td>
</tr>
<tr>
<td>5 Consultation Programme</td>
<td>34</td>
</tr>
</tbody>
</table>
Executive Summary

Study Background

The British economy urgently needs to grow its private sector and create more private sector jobs. In particular, there is also a stated desire on behalf of government to better promote growth in export-driven manufacturing and in areas outside London and the South East to create a more sustainable model of growth.

Against this background, the Government is currently consulting on the role of advanced manufacturing in the economy, where excellence is centred and ultimately therefore where future Government support should be targeted. Any message to Government must be backed by a strong evidence base and this report therefore analyses the advanced manufacturing and nuclear sector across the five Local Enterprise Partnership (LEP) areas of the North West, identifying key sub-sector strengths based on the latest employment data. For the purposes of the research, the advanced manufacturing and nuclear sector has been defined as follows:

<table>
<thead>
<tr>
<th>2007 SIC Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Manufacture of chemicals and chemical products</td>
</tr>
<tr>
<td>21</td>
<td>Manufacture of basic pharmaceutical products and pharmaceutical preparations</td>
</tr>
<tr>
<td>26</td>
<td>Manufacture of computer, electronic and optical products</td>
</tr>
<tr>
<td>27</td>
<td>Manufacture of electrical equipment</td>
</tr>
<tr>
<td>28</td>
<td>Manufacture of machinery and equipment n.e.c.</td>
</tr>
<tr>
<td>29</td>
<td>Manufacture of motor vehicles, trailers and semi-trailers</td>
</tr>
<tr>
<td>30</td>
<td>Manufacture of other transport equipment</td>
</tr>
<tr>
<td>33</td>
<td>Repair and installation of machinery and equipment</td>
</tr>
<tr>
<td>325</td>
<td>Manufacture of medical and dental instruments and supplies</td>
</tr>
<tr>
<td>2446</td>
<td>Processing of nuclear fuel</td>
</tr>
<tr>
<td>7112</td>
<td>Engineering activities and related technical consultancy</td>
</tr>
</tbody>
</table>

The report also looks at other sub-sectors, which while not necessarily falling within a traditional definition of advanced manufacturing, still contain elements of innovative processes within them. In addition draws on the views of stakeholders around the region to identify key assets, challenges and opportunities. Supplemeting this analysis, a series of company case studies are provided throughout the report, outlining in further detail what businesses in the region are working on and the issues they are facing.

Employment Data

In total there are just over 323,000 manufacturing employees in the North West, the highest figure for any UK region. As a whole, manufacturing is a major generator of wealth for the North West, generating gross value added (GVA) per employee of approximately £51,000 per employee per annum in 2011. This was higher than the national average of £35,000 per employee across all sectors.

Between 2000 and 2012 there was a 35% reduction in manufacturing employment in the North West. Significantly, the rapid decline in manufacturing employment has not
translated into declines in manufacturing output. As Figure 1 shows, labour productivity in the sector has grown rapidly over the same period, having experienced a rapid increase in worker productivity.

**Figure 1: Productivity and employment in North West manufacturing, 2000-12**

![Manufacturing Productivity and Employment Chart]

Source: GMFM, 2012

A detailed review of the latest employment data drawn from the Business Register and Employment Survey reveals that the North West has the following strengths in advanced manufacturing and nuclear and the wider manufacturing sector:

- **Aerospace**: Employing more than 16,000 people (accounting for almost 20% of national employment in the sector), 13,000 of whom are in the Lancashire LEP area – the largest single concentration of aerospace employment production in the country. The sector encompasses all aspects of aerospace activity in engine, airframe, avionics, missiles and ground support equipment; from R&D to wide-ranging design, manufacturing, servicing and testing capability. Key facilities include BAE Systems at Warton and Samlesbury, and the Rolls Royce aero-engine plant at Barnoldswich. GVA per employee in aerospace is also high, at around £70,000 per annum. This compares to an average GVA per head for all sectors in the North West of approximately £35,000 per employee per year.

- **Automotive**: Employing more than 9,000 people across in the region (16% of total national employees in the sector and second only in size to the West Midlands). Activity is concentrated around a number key sites – Bentley Motors (Cheshire), Jaguar Land Rover (Halewood), General Motors (Ellesmere Port), and Leyland Trucks (Lancashire). GVA per employee in the automotive sector is around £40,000 per year, above the regional average for all sectors of £35,000 per employee per annum.
- **Building of ships & floating structures**: Employing more than 6,000 people (representing nearly one third of all national employment in the sub-sector – the highest share of any region), with the vast majority concentrated in Cumbria, and Barrow-in-Furness more specifically.

- **Chemicals**: Employing around 26,000 people (25% of the Great Britain total), many of whom are concentrated around Runcorn and a cluster of sites along the M62/M56 motorway corridor. One of the largest sub-sectors is the manufacture of other chemical products, employing over 4,000 people (accounting for almost one third of all national employment in this sub-sector) – this includes Borregaard’s biorefinery in Warrington. Other large sub-sectors within the chemical manufacturing industry in the North West are the manufacture of plastic in primary forms (mostly in Lancashire), and the manufacture of paints, varnishes & similar coatings (concentrated in Greater Manchester and Lancashire), both employing around 4,000 people in the region. Furthermore, the North West is the largest regional chemicals exporter, achieving exports in excess of £13 billion in 2011.

- **Food & drink**: The North West boasts one of the largest food and drink sectors in the UK, with 50,000 people (14% of national employment) employed in more than 1,000 companies. Well-known international brands such as Kellogg’s (Trafford), Typhoo tea (Wirral) and the Heinz baked bean canning plant (Wigan) are headquartered in the region. The manufacture of bread, fresh pastry goods & cakes alone employs over 13,000 individuals in the region, about half of which are in Greater Manchester; and the manufacture of rusks, biscuits, preserved pastry goods & cakes employs almost 6,000 people – mostly around Greater Manchester and Lancashire.

- **Glass manufacturing**: Flat glass manufacturing is another area of manufacturing specialism, particularly in St Helens, home to the headquarters of multinational glass manufacturing company Pilkington. Over 70% of national employment in this sub-sector is located in the region. Manufacturing of glass fibres is another regional specialism located in this local area.

- **Manufacture of machinery for paper & paperboard production**: The North West is home to two thirds (62% of national employment in the sector) of the national manufacture of machinery for paper & paperboard production, employing 740 people. Jobs are particularly concentrated in Bury, with other concentrations of activity in Hyndburn and Stockport.

- **Nuclear**: Together, Cumbria and Lancashire account for almost all nuclear fuel processing employment in Great Britain – almost 99%. Around 8,500 people are involved in the processing of nuclear fuel – accounting for 86% of the national total. A further 1,300 are employed by the sector in Lancashire, which includes Springfields near Preston – the UK’s biggest nuclear fuel manufacturing site. There are also specialisms elsewhere in the region in the wider nuclear engineering and consultancy sector. For example, there is a strong presence in Cheshire and Warrington of civil, mechanical, electrical, electronic and chemical engineering skills and this is matched by a
complementary concentration of consulting engineering businesses – supporting both the manufacturing and energy sectors.

- **Pharmaceuticals:** The sub-sector of manufacture of basic pharmaceutical preparations employs almost 2,500 people in the North West – accounting for 40% of all employment in this sub-sector in Greater Britain. The broader pharma/biomedical industry encompasses companies operating across diverse areas including pharmaceuticals specifically (e.g. Bristol Myers Squibb, Eli Lilly, GSK, Novartis, MEdimmune, Redx Pharma, Teva) biotechnology (e.g. Ai2, Conformetrix, Evgen, Epistem, F2G, Intercytex) and contract manufacturing (e.g. Cobra Biomanufacturing, Eden Biodesign, Fujifilm Diosynth, Recipharm, SCM Pharma) among others. AstraZeneca also have a presence in the region, however the company announced in March 2013 that it will end R&D activities at its site in Cheshire. This will impact on the North West’s strengths in the sector as large firms such as AstraZeneca account for a significant proportion of the region’s R&D spend and employment. However, the companies outlined above show that there is still a strong presence which can be used to grow the region’s offer in the future.

- **Textiles:** The North West comes out very strongly relative to Great Britain in textiles manufacturing, in which it has a number of specialist sub-sectors. The manufacture of non-wovens & articles made from non-wovens employs approximately 300 individuals, half of which are in Bolton. This represents over a third (36%) of employment in this sub-sector nationally. The North West also employs just under 1,000 people in the manufacture of footwear, two thirds (65%) of which is in West Lancashire and a fifth in Allerdale.

**Challenges Facing the Sector**

Consultation with stakeholders and companies involved in the North West manufacturing and nuclear sector revealed that the region must address a number of challenges:

- **Skills:** Firstly, companies are having trouble recruiting skilled people to fill available positions. Secondly, investment in apprenticeships has gone down significantly over the last 30 years. This means the demographic profile of the manufacturing sector is aging. Thirdly, there is a disconnect between the education sector and what firms actually need.

- **Promoting the sector:** The North West needs to do more to promote the sector to a wider audience. There is often the perception that manufacturing is a low skilled and low paid sector, which is not the case and better promotion could help to address this issue and attract more people into industry.

- **Investment timeframes:** It is important to recognise that sectors such as advanced manufacturing have longer investment pipelines than other industries, and the banks, Higher Education (HE) etc. need to understand how long technology programmes are.
- **HE and public-private sector interaction:** The UK has traditionally been good at invention, but less so at innovation – the latter involves commercialisation and is about better collaboration between industry and academia. There needs to be better co-ordination in order to take advantage of opportunities.

- **Quality of premises:** A lot of the premises in the manufacturing sector across the North West are not fit for purpose. As manufacturers become more advanced, they see changing land, premises and infrastructure requirements. This has left many advanced manufacturers with a legacy of ageing premises and large sites, which they often own.

- **Supporting infrastructure:** Relating to having good road, rail, sea and air links, as well as developing the North West digital infrastructure. While issues such as this aren't manufacturing specific, they fit within the wider aim of shaping the North West as a place to invest and to live.

### Utilising Regional Assets

In order to address the challenges outlined above, stakeholders and businesses also highlighted a number of assets which the North West must utilise in order to grow the manufacturing and nuclear sector:

- **Maximising HE:** The region needs to utilise its HE asset base and increase the level of interaction with the private sector. There needs to be increased dialogue between universities and the private sector in order to fully identify the strengths of the North West and build on them – which could include the universities becoming more aligned with the skills needs of firms.

- **Utilising existing facilities:** The North West has a number of world class facilities which can help to support growth in the manufacturing sector. This includes Manchester Science Park and Sci-Tech Daresbury in Cheshire, with the latter facility being one of only two National Science and Innovation Campuses in the UK.

- **Utilising existing businesses and the linkages they have:** Many manufacturing firms in the North West are foreign owned, which presents the opportunity to work with the parent companies and exploit overseas markets.

- **Enterprise Zones:** The development of Enterprise Zones (EZ) in Lancashire, at Mersey Waters & Sci-Tech Daresbury (both in Liverpool City Region) and at Airport City in Manchester offer significant opportunities for the North West. In particular, the Lancashire EZ based at Samlesbury represents the most suitable location for a new national UK Aerospace Supply Chain Centre.

- **Exploiting strengths in the digital sector:** The digital sector was identified as presenting a significant opportunity. With continuing advancements being made in new technologies, the North West manufacturing sector should be forging stronger links with major assets like MediaCityUK to identify cross-working opportunities that exist – i.e. improving the interface between digital and manufacturing industries.
1 Introduction

1.1 This report analyses the advanced manufacturing sector across the five Local Enterprise Partnership (LEP) areas of the North West to identify key strengths – either a strong niche in one place, or cumulative volume across the region. The research is based on: a desk-based review of national documents on the manufacturing sector; statistical analysis on the size of manufacturing sub-sectors across; and consultation with stakeholders and firms.

1.2 Previous research published by the OECD has looked at trends in medium and high-tech manufacturing, which aligns closely with how the advanced manufacturing sector is defined. Following the release of 2007 SIC codes, an updated definition of the advanced manufacturing sector has been produced and this uses the OECD work as its starting point. Given the importance of the nuclear industry to the North West, it has also been included in the sector definition – a summary of which is provided below.

Table 1.1: SIC definition of advanced manufacturing & nuclear

<table>
<thead>
<tr>
<th>2007 SIC Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Manufacture of chemicals and chemical products</td>
</tr>
<tr>
<td>21</td>
<td>Manufacture of basic pharmaceutical products and pharmaceutical preparations</td>
</tr>
<tr>
<td>26</td>
<td>Manufacture of computer, electronic and optical products</td>
</tr>
<tr>
<td>27</td>
<td>Manufacture of electrical equipment</td>
</tr>
<tr>
<td>28</td>
<td>Manufacture of machinery and equipment n.e.c.</td>
</tr>
<tr>
<td>29</td>
<td>Manufacture of motor vehicles, trailers and semi-trailers</td>
</tr>
<tr>
<td>30</td>
<td>Manufacture of other transport equipment</td>
</tr>
<tr>
<td>33</td>
<td>Repair and installation of machinery and equipment</td>
</tr>
<tr>
<td>325</td>
<td>Manufacture of medical and dental instruments and supplies</td>
</tr>
<tr>
<td>2446</td>
<td>Processing of nuclear fuel</td>
</tr>
<tr>
<td>7112</td>
<td>Engineering activities and related technical consultancy</td>
</tr>
</tbody>
</table>

1.3 Analysis has not been exclusively limited to the definition outlined in the table above. While not in a standard SIC definition of advanced manufacturing, other sub-sectors within the wider manufacturing sector will contain elements of advanced manufacturing processes within them. These sectors have also been analysed as part of the research.

Structure of the report

1.4 The report is structured as follows:

- **Section 2** presents the main findings from a desk-based review of the latest policy position and research on manufacturing and nuclear.

- **Section 3** analyses the manufacturing sector in the North West, breaking it down into sub-sectors to identify where key strengths lie. In addition to a series of company case studies on manufacturing firms across the region.

- **Section 5** summarises findings from a consultation programme with stakeholders in the North West.
2 Literature and policy review

2.1 In this section, we present the main findings from a desk-based review of the latest policy position and research on the advanced manufacturing sector. The review is structured around four main themes:

- UK strengths in manufacturing;
- the changing context of manufacturing;
- challenges and opportunities for the sector;
- skills issues; and
- Government policy and the most recent initiatives developed to support future growth in the sector.

UK strengths

2.2 As part of a review of advanced manufacturing undertaken by the Government in 2010, the following sectors were identified as being particularly strong:\(^1\):

- **Aerospace**: With a 25% share of the global aerospace market, the UK aerospace market is the largest in the world behind the USA. It also generates 20% of UK manufacturing sector output from 5% of its employment.

- **Life Sciences**: The UK is a leader in life sciences in Europe, while the UK pharmaceutical sector is the leading UK sector for investment in R&D, investing £4.3 billion in 2008, which represents over a quarter of all business R&D expenditure in the UK.

- **Automotive**: In 2008 the automotive sector was worth over £10 billion to the economy and employed around 180,000 people. 11 of the world’s volume vehicle manufacturers have a UK presence, supported by 19 of the world’s top 20 suppliers.

- **Chemicals**: The UK chemicals sector is the seventh largest producer globally with annual sales of around £56 billion, representing 12% of all UK manufacturing.

2.3 The five sectors outlined above all fall within the SIC codes identified in Table 1.1 in the first section of the report. However, in addition to these sectors, the Government has recognised the UK's strengths in food & drink – which is the UK’s largest manufacturing sector. It comprises over 7,000 enterprises, consisting of nearly 10,000 manufacturing sites/factories and employing over 400,000 people.

---

\(^1\) Growth Review Framework for Advanced Manufacturing. BIS, December 2010

2.4 Over the past thirty years, manufacturing in industrialised countries, including the UK, has gone through a significant series of changes. The transition in manufacturing is largely due to the acceleration of globalisation over this period, which has changed the nature of the manufacturing value chain and allowed for different functions of a manufacturing supply chain to be carried out in geographically distant locations. Developments that have driven this change include the improvement of global travel infrastructure, advancement in ICT technologies and the elimination of tariffs and trade restrictions in key markets.

2.5 The increasingly globalised economy has intensified competition in the transnational manufacturing sector, with UK manufacturers having to compete not only with established developed nations, such as Germany and the USA, but increasingly with developing nations where companies are increasing engaging in higher value manufacturing operations. Manufacturers have responded to these changes by off-shoring and outsourcing lower value activities to emerging economies, which has helped to maintain revenues but has substantially reduced the amount of employment that the sector has supported in the UK.

2.6 In another important development in manufacturing, UK manufacturers are increasingly supplementing their traditional production-based business model by offering services along with goods, which has come to be known as the “servilization” of manufacturing.

2.7 Recently attention in the developed world has focussed on the necessity to repatriate or “reshore” manufacturing which has been outsourced to emerging nations. In part, this has been due to the increasing pace of growth in developing nations, which has begun to drive up the price of labour in countries such as China and India, meaning that UK manufacturers may be able to compete again. In addition, with increasingly short production runs required in many industries, there is scope for the design of these to remain global but for their manufacture to be more localised in order to be close to final demand.

Challenges and opportunities for the sector

2.8 According to the UK Commission for Employment and Skills (UKCES), the principal challenge facing the advanced manufacturing sector is the rapid pace of technological development which is taking place on a global scale. The challenge for the sector is to capture and retain a leading share of the high value added segment of the global market in manufacturing. The evidence points to the high value added segment being in the research and development (R&D) of new products and processes, design for manufacture, and the manufacture of relatively complex products. Even where manufacturers are engaged in high volume rather than niche production there is a need to ensure that they possess the product market strategies which will
allow them to prosper in this segment of the market and make a significant contribution to overall value-added in economy³.

2.9 The Institute for Manufacturing (IM) and the Technology Strategy Board (TSB)⁴ have identified several drivers for growth in the advanced manufacturing sector. These include:

- **Rising Production Costs in Asia**: As economic development gathers pace in the major manufacturers in the developing world (particularly China and India), the population of these countries is increasingly demanding better pay and conditions from work. This has resulted in a significant reduction in the cost-savings for UK companies that locate their manufacturing operations in these countries.

- **Growing demand for products using advanced manufacturing**: Complex goods which require high tech manufacturing processes are becoming increasingly popular across a range of markets. From luxury electronic goods to products for the low carbon economy, products that require advanced manufacturing are seeing a growth in sales.

- **Increasing resource scarcity**: This will require production processes to minimise the use of raw materials and energy, creating an incentive for high tech, efficient manufacturing techniques.

2.10 In addition to growth drivers identified by the IM and TSB, the Government has outlined four key trends in the global economy where there are significant opportunities for UK manufacturing⁵:

- **Growing global markets**: Where consumers are increasingly looking for high tech, quality products. This is particularly the case in Brazil, Russia, India, China (BRICs), but also in other emerging geographical markets. Demographic changes (including ageing populations) and the rise of the middle class in developing countries are likely to generate new demand for more sophisticated medical devices, instrumentation and delivery of healthcare.

- **Low Carbon and Environmental Market Opportunities**: With opportunities in areas particularly related to low carbon, green technology, environmental and energy efficiency.

- **The use of new technologies**: New approaches to increase productivity, for example through increased use of ICT and digital in manufacturing processes and products, and the exploitation of new industrial technologies is a significant opportunity.

- **New business models**: With the rise of services as a key revenue stream for manufacturing, and the trends towards new business models based around new production processes.

---

⁴ Institute for Manufacturing and TSB, A Landscape for the Future of High Value Manufacturing in the UK, 2012
⁵ Growth Review Framework for Advanced Manufacturing. BIS, December 2010
2.11 In order to capitalise on growth opportunities such as those outlined above, the Government has identified a number of barriers that must be addressed. These:

- **Innovation and knowledge transfer**: Knowledge of the latest industrial technologies and their application to manufacturing processes is often difficult to access, particularly for SMEs. Information is often contained within a particular sector, and not disseminated widely across sectors where it could also be beneficial.

- **Take up of new technologies**: The costs of demonstrating and testing the use of new technologies can be very high, particularly for SMEs, and can require access to equipment beyond the affordability of an individual company. Firms often lack knowledge about the range of technologies that are available and their potential benefits.

- **Accessing skills and training**: The costs of training and skills can be high, particularly in specialised areas of manufacturing technologies. The fast-moving nature of manufacturing, and the often cross-cutting skills needed, can make it difficult to identify suitable training and where it can be found. There is a significant skills shortage in sectors such as science, engineering and technology (SET) that could partly be addressed by better retention of skilled workers and tackling the gender imbalance.

- **Access to finance**: Some investment projects involving manufacturing can be hampered by difficulties obtaining appropriate and affordable finance, especially at the initial design, development and demonstrator phases of the innovation processes.

- **Exporting**: Businesses looking to export may experience difficulties gaining access to networks and contacts in overseas markets, accessing markets due to trade barriers, navigating unfamiliar business environments, handling intellectual property, and operating in different legal and regulatory frameworks.

- **Regulatory issues**: Modern manufacturing often involves a complex system of operations – from production to end of life disposal – each of which is impacted by legal and regulatory frameworks, both in the UK and in other countries.

- **Energy costs and security of supply**: Many UK advanced manufacturing firms are within or closely related to energy intensive industries that depend on manageable energy costs and security of supply to remain globally competitive. The higher costs of transportation and the need to reduce carbon emissions also create barriers.

---

6 Growth Review Framework for Advanced Manufacturing. BIS, December 2010
Skills Issues

2.12 The UK Commission for UKCES\(^7\) identify the key skills issues facing the sector as follows.

- The speed of change is increasing and forcing supply chains to become more like supply networks requiring higher levels of flexibility, agility and a broader spread of soft skills across the workforce. It is likely that in the future higher levels of employee responsibility, autonomy and managerial delegation will be required at all levels in the organisation. This is driving up skill levels in manufacturing.

- Occupational restricting away from skilled trades and process and machine operatives towards managers, professional, and associate and technical occupations resulting in a higher demand for skills. In particular, the sector has and will continue to have a strong demand for people with Science Technology Engineering and Mathematics (STEM) skills. However, due to retirements, the sector will have a continued demand for people trained to Level 3 (typically via Apprenticeships).

- The sector is thought to be well supported by an extensive initial and continuing vocational education and training infrastructure with a substantial increase in the number of people being qualified each year in the subjects and skills upon which the manufacturing sector is dependent.

- In the advanced manufacturing sub-sector the supply-side often has to run very fast in order to keep pace with developments on the demand side. Accordingly, employers at the cutting-edge may need to look internally to develop the skills they require.

- Attracting and retaining the best staff as core requirements – e.g. high levels of numeracy – are in high demand across sectors.

- Key skills deficiencies relate to professional and senior managers and their ability to adequately research the drivers of change to enable them to develop effective product market strategies.

Government policy

2.13 Rebalancing the economy towards manufacturing is a major part of the Government’s ‘Plan for Growth’. National policy has gone on to set out a number of strategies and initiatives to help revitalise manufacturing and help to drive employment in the sector. This includes:

- **Collaborative manufacturing centres**: Research suggests that the most successful manufacturing research takes place at collaborative centres, with the most prominent example provided by the German Fraunhofer Institute. A programme of ‘Catapult’ Centres has now been

established, which complements a pre-existing network of Centres for Innovative Manufacturing, funded by the Engineering and Physical Sciences Research Council (EPSRC).

- **The Advanced Manufacturing Supply Chain Initiative:** This programme provides a £125 million fund for companies to grow their supply chains and increase their international competitiveness.

- **The R&D tax credit scheme:** This offers tax credits or tax relief to companies that engage in research activities. Tax credits are provided related to the company’s expenditure on R&D, with special benefits provided for SMEs.

2.14 The most recent policy development in relation to advanced manufacturing came with the publication in September 2012 of a BIS sector analysis paper, which considered a range of evidence on which sectors could make the greater contribution to future economic growth and employment in the UK. Significantly, the paper identifies three key sectors where it wants to build and maintain strategic partnerships and one of these is advanced manufacturing – in particular, aerospace, automotive and life sciences. The other two sectors identified are: knowledge-intensive traded services; and enabling industries such as energy and construction.

2.15 The three sectors are recognised by BIS as those where:

- Societal drivers indicate there is likely to be significant increases in domestic and global demand.
- UK business has the potential knowledge and skills to exploit new market opportunities – i.e. it has a comparative advantage in global markets in virtually all these areas.
- A sector-based approach has a clear role.

2.16 In advanced manufacturing, the BIS paper states that the UK has a strong comparative advantage in the aerospace and automotive industries which, because of their highly innovative nature, are a major source of knowledge and innovation spillovers. The UK aerospace industry is the biggest in Europe and second largest in the world, whilst the UK has some of Europe’s most productive car plants. There is high and increasing demand for new aircraft and luxury cars from rising incomes in emerging economies, whilst environmental drivers are leading to innovative changes to reduce emissions and noise from combustion engines, the redesign of aircraft wings, and innovation to accommodate non fossil fuel alternatives in the auto market. Studies show that both industries generate significant pull through of demand for key goods and services from other parts of the economy. Both industries are also recognised as having very important local economic and rebalancing effects.

---

2.17 Life sciences are also specifically mentioned by the BIS paper, helping to generate significant welfare gains from increased health and longevity. Ageing populations and lifestyle changes are likely to generate a significant increase in demand for personal and healthcare products.

2.18 In terms of the nuclear sector, the Nuclear Supply Chain Action Plan\(^9\) suggests the Government has a vision of the UK nuclear industry becoming a global leader, with key companies forming an integral part of the domestic civil nuclear market supported by a large and diverse supply chain across manufacturing, professional services, construction, skills, training and educational services. If this is achieved, the UK supply chain would be in a prime position to supply to the major nuclear developers, reactor vendors and operators in both the domestic and global nuclear markets.

2.19 The action plan focuses on the complete civil nuclear fuel cycle including front end, operations and maintenance, new nuclear build, waste management, decommissioning, with the following key objectives:

- To maximise UK economic activity and growth from the nuclear sector at national and local level, including employment and business opportunities for the UK supply chain.
- To boost job creation in the nuclear industry, and to ensure that potential skills shortages do not act as a barrier to the future development of the industry in the UK.
- To use the domestic nuclear market to enhance a sustainable and successful UK civil nuclear industry, and to use this basis as a lever to access export opportunities.
- To maintain and develop a vibrant supply chain covering key capabilities to deliver safe, innovative and cost effective clean up of the legacy facilities and to exploit synergies with new build.
- To raise awareness across the supply chain of nuclear sector opportunities, to identify barriers preventing access to those opportunities and to develop actions for Government and industry that will help place the supply chain in a stronger position to compete for those opportunities.

---

3 Manufacturing in the North West

3.1 This section outlines in detail the size of the region advanced manufacturing & nuclear sector, identifying where it has particular concentrations of employees and specialisms when compared to the rest of the country. In addition, given that the definition of advanced manufacturing & nuclear is based on SIC codes and therefore excludes a broad range of other activities, the section also presents similar analysis for other manufacturing sectors in the North West. Future indications on what manufacturing could look like in the long-term are also presented.

MANUFACTURING EMPLOYEES

3.2 There are just over 323,000 manufacturing employees in the North West, the highest figure for any UK region (see Figure 3.1). As a whole, manufacturing is a major generator of wealth for the North West, generating GVA per employee of approximately £51,000 per employee per annum in 2011. This was higher than the national average of £35,000 per employee across all sectors.

Figure 3.1: Manufacturing employees by region, 2011

Source: Business Register and Employment Survey, 2012

RECENT CHANGE OVER TIME

3.3 Figure 3.2 illustrates that between 2008 and 2011 there was a 9.3% reduction in manufacturing employment nationally. This trend was similar but more pronounced in the North West, with a decrease of 20% in ‘other manufacturing’ employment, 12% in food & drink manufacturing, and 6% in advanced manufacturing.
3.4 Significantly, the rapid decline in manufacturing employment has not translated into declines in manufacturing output. This shows that while manufacturing as a whole has seen employment decline over the last decade, labour productivity in the sector has grown rapidly. Figure 3.3 highlights how the sharp fall in manufacturing employment in the North West has been accompanied by a rapid increase in worker productivity over the same period.

**Figure 3.3: Productivity and employment in North West manufacturing, 2000-12**

Source: GMFM, 2012

3.5 Forecasts produced by Oxford Economics (see Figure 3.4) show that the trend for declining employment in manufacturing is projected to continue. For the North West, overall employment in advanced manufacturing is expected to
decrease by around 4% from 2011 to 2022; food & drink manufacturing by 4%; and other manufacturing by 10.1% during the same period. In contrast, GVA is forecast to increase, in part as new production processes and technologies have been employed and as manufacturers have moved to exploit opportunities in research, design and services that offer further value to manufactured goods. In food & drink manufacturing GVA is expected to benefit from a 28% rise in GVA between 2011 and 2022. Advanced manufacturing GVA is forecast to increase by around 23%. (see Figure 3.5).

**Figure 3.4: Manufacturing employment forecasts, North West, 1992 to 2022**

**Figure 3.5: Manufacturing GVA forecasts, North West, 1992 to 2022**

*Source: GMFM, 2012*
ADVANCED MANUFACTURING & NUCLEAR EMPLOYEES

3.6  Looking in more detail at advanced manufacturing and nuclear, there are around 169,000 people working in the sector across the North West. This makes it the second largest advanced manufacturing and nuclear sector in the UK and only the South East has more employees (see Figure 3.6).

Figure 3.6: Advanced manufacturing & nuclear employees by region, 2011

3.7  Table 3.1 gives an overview of the sectors included in the definition of advanced manufacturing and employee numbers for each sector in each sub-region of the North West. The engineering sector is the largest, employing 34,600 people in the region, followed by the manufacture of chemicals (26,000), and manufacture of other transport equipment (25,000).

3.8  Looking at advanced manufacturing employment as a percentage of total jobs, Cumbria has the highest proportion at 9.7%, followed by Cheshire & Warrington LEP at 7.0%. This is above the regional share of 5.7%. Lancashire LEP has the third highest figure at 6.7%, which reflects its strength in the aerospace sector. Lancashire's aerospace industry is the largest single concentration of aerospace activity in the UK, accounting for around a fifth of national aerospace production and for nearly 17% of the county's manufacturing workforce.


Advanced manufacturing & nuclear includes SIC 7112: “Engineering and related technical consultancy”, which is not included in the broad manufacturing sector analysed in Figure 3.1.
Table 3.1: Employees in advanced manufacturing & nuclear sub-sectors 2011

<table>
<thead>
<tr>
<th>2007 SIC Codes</th>
<th>Cheshire &amp; Warrington</th>
<th>Cumbria</th>
<th>Greater Manchester</th>
<th>Lancashire</th>
<th>Liverpool City Region</th>
<th>North West</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 : Manufacture of chemicals and chemical products</td>
<td>4,700</td>
<td>1,000</td>
<td>8,600</td>
<td>5,700</td>
<td>6,000</td>
<td>26,000</td>
</tr>
<tr>
<td>21 : Manufacture of basic pharmaceutical products and pharmaceutical preparations</td>
<td>2,300</td>
<td>300</td>
<td>1,300</td>
<td>600</td>
<td>2,300</td>
<td>6,900</td>
</tr>
<tr>
<td>26 : Manufacture of computer, electronic and optical products</td>
<td>1,600</td>
<td>800</td>
<td>6,100</td>
<td>2,000</td>
<td>1,700</td>
<td>12,100</td>
</tr>
<tr>
<td>27 : Manufacture of electrical equipment</td>
<td>800</td>
<td>900</td>
<td>3,700</td>
<td>2,100</td>
<td>2,400</td>
<td>9,800</td>
</tr>
<tr>
<td>28 : Manufacture of machinery and equipment</td>
<td>2,400</td>
<td>600</td>
<td>9,300</td>
<td>4,800</td>
<td>2,200</td>
<td>19,400</td>
</tr>
<tr>
<td>29 : Manufacture of motor vehicles, trailers and semi-trailers</td>
<td>6,600</td>
<td>100</td>
<td>2,000</td>
<td>3,500</td>
<td>3,400</td>
<td>15,600</td>
</tr>
<tr>
<td>30 : Manufacture of other transport equipment</td>
<td>800</td>
<td>5,000</td>
<td>2,600</td>
<td>13,800</td>
<td>2,300</td>
<td>24,500</td>
</tr>
<tr>
<td>33 : Repair and installation of machinery and equipment</td>
<td>1,600</td>
<td>500</td>
<td>3,800</td>
<td>1,200</td>
<td>1,000</td>
<td>8,200</td>
</tr>
<tr>
<td>325 : Manufacture of medical and dental instruments and supplies</td>
<td>300</td>
<td>0</td>
<td>900</td>
<td>700</td>
<td>300</td>
<td>2,200</td>
</tr>
<tr>
<td>2446 : Processing of nuclear fuel</td>
<td>0</td>
<td>8,500</td>
<td>0</td>
<td>1,300</td>
<td>0</td>
<td>9,800</td>
</tr>
<tr>
<td>7112 : Engineering activities and related technical consultancy</td>
<td>9,200</td>
<td>3,000</td>
<td>13,400</td>
<td>4,300</td>
<td>4,600</td>
<td>34,600</td>
</tr>
<tr>
<td>Total advanced manufacturing employees</td>
<td>30,300</td>
<td>20,700</td>
<td>51,700</td>
<td>40,000</td>
<td>26,200</td>
<td>169,100</td>
</tr>
</tbody>
</table>

**Advanced Manufacturing Employees as % of Total Employees**

<table>
<thead>
<tr>
<th></th>
<th>Cheshire &amp; Warrington</th>
<th>Cumbria</th>
<th>Greater Manchester</th>
<th>Lancashire</th>
<th>Liverpool City Region</th>
<th>North West</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0%</td>
<td>9.7%</td>
<td>4.5%</td>
<td>6.7%</td>
<td>4.6%</td>
<td>5.7%</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Business Register & Employment Survey, 2012

3.9 As shown in Figure 3.7, the highest concentration of jobs is found towards the south of the region, in particular Cheshire and Greater Manchester. The map also shows the importance of advanced manufacturing to parts of Cumbria – especially Copeland.
3.10 Figure 3.8 shows location quotients for broad sectors in the North West relative to Great Britain. Location quotients are used to calculate whether or not the local (regional, in this case) economy has a greater share of each industry sector than expected when compared to the economy of Great Britain. A high (greater than 1) location quotient would indicate that regional employment in that sector is larger than that in Great Britain in relative terms.
As illustrated in Figure 3.8, the North West has above average employment in its historically strong manufacturing sector (advanced and other), as well as in food & drink manufacturing – with well-known international brands such as Kellogg’s (Trafford), Typhoo tea (Wirral) and the Heinz baked bean canning plant (Wigan) headquartered in the region.

**Figure 3.8: Concentration of employment in the North West relative to the Great Britain average, 2011**


3.11 Exports data from 2011 (see Figure 3.9) suggest that the most outward-looking sectors where export value is highest in the region is chemicals, machinery & transport, crude materials and various manufacturers.

**Figure 3.9: Value of North West exports in 2011**

Source: HMRC Revenue & Customs – UK Trade Info
3.12 Looking in more detail at the advanced manufacturing and nuclear sector, some sub-sectors appear to have a particularly prominent presence in the region. Table 3.2 shows employee numbers for the ten largest advanced manufacturing and nuclear sub-sectors in the North West in absolute terms, which employ over half (58%) of all advanced manufacturing & nuclear employees in the region.

Table 3.2: Ten largest advanced manufacturing & nuclear sub-sectors in the North West in employment terms, 2011

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Cheshire &amp; Warrington</th>
<th>Cumbria</th>
<th>Greater Manchester</th>
<th>Lancashire</th>
<th>Liverpool City Region</th>
<th>North West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering activities &amp; related technical consultancy</td>
<td>9,200</td>
<td>3,000</td>
<td>13,400</td>
<td>4,300</td>
<td>4,600</td>
<td>34,600</td>
</tr>
<tr>
<td>Manufacture of air, spacecraft &amp; related machinery</td>
<td>400</td>
<td>0</td>
<td>1,800</td>
<td>13,100</td>
<td>900</td>
<td>16,200</td>
</tr>
<tr>
<td>Processing of nuclear fuel</td>
<td>0</td>
<td>8,500</td>
<td>0</td>
<td>1,300</td>
<td>0</td>
<td>9,800</td>
</tr>
<tr>
<td>Manufacture of motor vehicles</td>
<td>5,800</td>
<td>0</td>
<td>300</td>
<td>900</td>
<td>2,500</td>
<td>9,400</td>
</tr>
<tr>
<td>Building of ships &amp; floating structures</td>
<td>0</td>
<td>5,000</td>
<td>200</td>
<td>300</td>
<td>800</td>
<td>6,300</td>
</tr>
<tr>
<td>Manufacture of instruments &amp; appliances for measuring</td>
<td>800</td>
<td>200</td>
<td>2,800</td>
<td>300</td>
<td>900</td>
<td>5,000</td>
</tr>
<tr>
<td>Manufacture of pharmaceutical preparations</td>
<td>400</td>
<td>300</td>
<td>1,300</td>
<td>500</td>
<td>2,100</td>
<td>4,600</td>
</tr>
<tr>
<td>Manufacture of other chemical products</td>
<td>1,100</td>
<td>100</td>
<td>1,300</td>
<td>400</td>
<td>1,100</td>
<td>4,100</td>
</tr>
<tr>
<td>Manufacture of plastics in primary forms</td>
<td>400</td>
<td>300</td>
<td>900</td>
<td>1,700</td>
<td>600</td>
<td>4,000</td>
</tr>
<tr>
<td>Manufacture of paints, varnishes &amp; similar coatings</td>
<td>300</td>
<td>100</td>
<td>1,600</td>
<td>1,400</td>
<td>600</td>
<td>4,000</td>
</tr>
</tbody>
</table>


3.13 Analysing Table 3.2 in further detail, engineering activities & related technical consultancy is the largest sub-sector and a key employer – with 35,000 jobs, with particular concentrations in Greater Manchester and Cheshire & Warrington. As highlighted in a 2012 sector report\(^{11}\), engineering is one of the most important businesses in Cheshire and Warrington. Civil, mechanical, electrical, electronic and chemical engineering skills present across the manufacturing, construction and utilities sectors are matched by a complementary concentration of consulting engineering businesses. These support the manufacturing and energy sectors as well as supporting investment in infrastructure – both domestically and from an exports perspective.

3.14 More than 13,000 people in the Lancashire LEP area are employed in the manufacture of air & spacecraft, and the industry represents the largest single concentration of aerospace employment production in the country. The

sector encompasses all aspects of aerospace activity in engine, airframe, avionics, missiles and ground support equipment; from R&D to wide-ranging design, manufacturing, servicing and testing capability. Key facilities include BAE Systems at Warton and Samlesbury, and the Rolls Royce aero-engine plant at Barnoldswick.

3.15 Employment in the nuclear sector is largely concentrated in Cumbria, where around 8,500 people are involved in the processing of nuclear fuel. A further 1,300 are employed by the sector in Lancashire, which includes Springfields near Preston – the UK’s biggest nuclear fuel manufacturing site. Together, Cumbria and Lancashire account for almost all nuclear fuel processing employment in Great Britain. Within the wider nuclear sector, Greater Manchester is home to the Dalton Nuclear Institute, one of the most significant nuclear research facilities in the UK. The Institute also has a key site at the West Lakes Science & Technology Park in Cumbria, which has a substantial concentration of hi-tech firms located in its premises. In addition, in Cheshire & Warrington the Capenhurst site provides uranium enrichment services for nuclear power plants around the world. It is also important to note that the nuclear industry supports an extensive supply chain of companies, along with leading education and research facilities including Energus, the National Skills Academy for Nuclear and the National Nuclear Laboratory.

3.16 Motor vehicles manufacturing employs 9,400 in the region, and comprises businesses ranging from volume car manufacturing to luxury car production through various components of the supply chain. Activity is concentrated around a number key sites – Bentley Motors (Cheshire), Jaguar Land Rover (Halewood), General Motors (Ellesmere Port), and Leyland Trucks (Lancashire). The four-digit Standard Industrial Classification (SIC) code for this sector, however, is rather restrictive, and evidence provided by the North West Automotive Alliance estimates that over 15,000 individuals are employed by vehicle manufacturers more broadly within the North West.

3.17 Over 6,000 people in the North West are employed in the building of ships & floating structures, with the vast majority concentrated in Cumbria, and Barrow-in-Furness more specifically. Barrow-in-Furness is one of the country’s largest shipbuilding centres and the vast majority of all current and former Royal Navy submarines were constructed in the area. Today, the Devonshire Dock Hall, part of BAE Systems Submarine Solutions, shipyard at Barrow is one of the largest shipyards in Britain, and provides a controlled environment for ship and submarine assembly.

3.18 A further 5,000 people in the North West work in the manufacture of instruments & appliances for measuring, particularly in Greater Manchester, where over half of employees in this sub-sector are concentrated. This includes the likes of Micromass UK Limited, which is part of the Waters Group and designs and manufactures mass spectrometers. Similarly, Greater Manchester and Liverpool City Region have large manufacture of pharmaceutical
preparations sectors, employing more than 1,000 and 2,000 individuals respectively.

3.19 In addition, the region is home to the biggest concentration of chemicals manufacturing in the UK, primarily around Runcorn (Halton) – in Cheshire & Warrington, and a cluster of sites along the M62/M56 motorway corridor. One of the largest sub-sectors is the manufacture of other chemical products, employing over 4,000 people. Most of these are concentrated in Cheshire & Warrington, hosting firms like Borregaard’s biorefinery in Warrington. Other large sub-sectors within the chemical manufacturing industry in the North West are the manufacture of plastic in primary forms (mostly in Lancashire), and the manufacture of paints, varnishes & similar coatings (concentrated in Greater Manchester and Lancashire), both employing around 4,000 people in the region. As Figure 3.10 shows, the North West is the largest regional chemical exporter, achieving exports in excess of £13 billion in 2011.

**Figure 3.10: Value of chemical exports by region, 2011**

<table>
<thead>
<tr>
<th>Region</th>
<th>Value (£ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North West</td>
<td>13,117</td>
</tr>
<tr>
<td>South East</td>
<td>8,834</td>
</tr>
<tr>
<td>East Anglia</td>
<td>4,909</td>
</tr>
<tr>
<td>North East</td>
<td>4,078</td>
</tr>
<tr>
<td>Yorkshire &amp; the Humber</td>
<td>2,646</td>
</tr>
<tr>
<td>London</td>
<td>2,136</td>
</tr>
<tr>
<td>East Midlands</td>
<td>1,279</td>
</tr>
<tr>
<td>West Midlands</td>
<td>1,210</td>
</tr>
<tr>
<td>South West</td>
<td>681</td>
</tr>
</tbody>
</table>

_Source: HMRC Revenue & Customs – UK Trade Info_

3.20 The North West also has a strong pharmaceutical industry, with the sub-sector of manufacture of pharmaceutical preparations alone employing almost 5,000 individuals. The broader pharma/biomedical industry encompasses companies operating across diverse areas including pharmaceuticals specifically (e.g. Bristol Myers Squibb, Eli Lilly, GSK, Novartis, MEdimmune, Redx Pharma, Teva) biotechnology (e.g. Ai2, Conformetrix, Evgen, Epistem, F2G, Intercytex) and contract manufacturing (e.g. Cobra Biomanufacturing, Eden Biodesign, Fujifilm Diosynth, Recipharm, SCM Pharma) among others.

3.21 AstraZeneca also have a presence in the region, however the company announced in March 2013 that it will end R&D activities at its site in Cheshire. Around 1,600 jobs will be relocated from 2016, with the majority transferring to
Cambridge. This will clearly impact on the North West’s strengths in the pharmaceuticals sector as large firms such as AstraZeneca account for a significant proportion of the region’s R&D spend and employment. However, the companies outlined above show that there is still a strong presence which can be used to grow the region’s offer in the future.

Key sub-sectors in relative terms

3.22 Looking beyond absolute size, there are key sub-sectors within advanced manufacturing & nuclear that while not necessarily the largest in employment terms, are particularly concentrated in the North West in relative terms when looking at Great Britain as a whole (see Table 3.3 for relevant data). For example, the engineering sector is one of the largest within the North West, but it is also large within Great Britain as a whole. Processing of nuclear fuel, however, is not just one of the largest nuclear sectors in the North West – employing around 10,000 people; the North West also represents practically all (99%) of national employment in this sub-sector.

3.23 Table 3.3 illustrates the most geographically concentrated Advanced Manufacturing & Nuclear sub-sectors of the North West – as measured by location quotients. All sub-sectors employing over 200 individuals and representing over 20% of national employment in that sub-sector are included.

3.24 The North West is also home to two thirds (62% of national employment in the sector) of the national manufacture of machinery for paper & paperboard production. Particularly concentrated in Bury (Greater Manchester), the area’s undoubted strength is as a centre of international status in the paper industry. Other concentrations of activity in this sub-sector are found in Hyndburn (Lancashire) and Stockport (Greater Manchester).

3.25 The region also represents almost two thirds (60%) of national employment in the manufacture of other inorganic basic chemicals, concentrated in Cheshire & Warrington. Runcorn’s INEOS Chlor, for example, is the sole UK producer of chlorine and Europe’s largest PVC manufacturer.

3.26 The region holds almost half (41%) of national employment in the manufacture of basic pharmaceutical products, also concentrated in Cheshire & Warrington near clusters of chemical manufacturing. Emphasising the importance of the sector, in 2010 Thermo Fisher Scientific, a leader in supplying laboratories worldwide in Runcorn, created a centre of excellence in disease research and in chromatography, a process used to analyse everything from contaminated food to crime scenes.

3.27 Similarly, 38% of national employment in the manufacture of soap and detergent is also hosted in the North West. Household names include PZ Cussons, which began making soap in 1920, and opened a £26 million research and manufacturing facility in Manchester in 2009 to accelerate the growth of its personal care product businesses. In addition, Unilever have bases in Port Sunlight (Liverpool City Region) and Warrington (Cheshire & Warrington LEP).
Table 3.3 - Concentration of key advanced manufacturing & nuclear sub-sector employment in the North West relative to the Great Britain average, 2011

<table>
<thead>
<tr>
<th>Product</th>
<th>LQ</th>
<th>NW % of emp.</th>
<th>Employees in NW</th>
<th>Local geographic concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing of nuclear fuel</td>
<td>8.83</td>
<td>98.8%</td>
<td>9,800</td>
<td>• 86.8% in Copeland (Cumbria)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 13.0% in Fylde (Lancashire)</td>
</tr>
<tr>
<td>Manuf. of machinery for paper and</td>
<td>5.55</td>
<td>62.1%</td>
<td>740</td>
<td>• 37.3% in Bury (Greater Manchester)</td>
</tr>
<tr>
<td>paperboard production</td>
<td></td>
<td></td>
<td></td>
<td>• 19.1% in Stockport (Greater Manchester)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 15.8% in Wyndburn (Lancashire)</td>
</tr>
<tr>
<td>Manuf. of other inorganic basic</td>
<td>5.32</td>
<td>59.5%</td>
<td>2,800</td>
<td>• 37.0% in Halton (Liverpool City Region)</td>
</tr>
<tr>
<td>chemicals</td>
<td></td>
<td></td>
<td></td>
<td>• 32.5% in Cheshire West &amp; Chester (Cheshire &amp; Warrington)</td>
</tr>
<tr>
<td>Manuf. of basic pharmaceutical products</td>
<td>3.64</td>
<td>40.7%</td>
<td>2,300</td>
<td>• 85.8% in Cheshire East (Cheshire &amp; Warrington)</td>
</tr>
<tr>
<td>Manuf. of soap and detergents,</td>
<td>3.42</td>
<td>38.3%</td>
<td>3,900</td>
<td>• 13.4% in Rochdale (Greater Manchester)</td>
</tr>
<tr>
<td>cleaning and polishing preparations</td>
<td></td>
<td></td>
<td></td>
<td>• 12.7% in Bury (Greater Manchester)</td>
</tr>
<tr>
<td>Manuf. of plastics in primary forms</td>
<td>3.05</td>
<td>34.1%</td>
<td>4,000</td>
<td>• 14.9% in Wyre (Lancashire)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 10.6% in Halton (Liverpool City Region)</td>
</tr>
<tr>
<td>Manuf. of machinery for textile,</td>
<td>3.01</td>
<td>33.7%</td>
<td>460</td>
<td>• 32.5% in Blackburn with Darwen (Lancashire)</td>
</tr>
<tr>
<td>apparel &amp; leather production</td>
<td></td>
<td></td>
<td></td>
<td>• 16.5% in Rochdale (Greater Manchester)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 14.1% in South Lakeland (Cumbria)</td>
</tr>
<tr>
<td>Building of ships &amp; floating</td>
<td>2.65</td>
<td>29.6%</td>
<td>6,300</td>
<td>• 79.1% in Barrow-in-Furness (Cumbria)</td>
</tr>
<tr>
<td>structures</td>
<td></td>
<td></td>
<td></td>
<td>• 11.5% in Wirral (Liverpool City Region)</td>
</tr>
<tr>
<td>Manuf. of non-electric domestic</td>
<td>2.55</td>
<td>28.6%</td>
<td>1,200</td>
<td>• 73.8% in Knowsley (Liverpool City Region)</td>
</tr>
<tr>
<td>appliances</td>
<td></td>
<td></td>
<td></td>
<td>• 81.1% in Barrow-in-Furness (Cumbria)</td>
</tr>
<tr>
<td>Manuf. of other chemical products</td>
<td>2.53</td>
<td>28.4%</td>
<td>4,000</td>
<td>• 86.4% in Salford (Greater Manchester)</td>
</tr>
<tr>
<td>Manuf. of industrial gases</td>
<td>2.44</td>
<td>27.3%</td>
<td>740</td>
<td>• 16.8% in Blackburn with Darwen (Lancashire)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 11.4% in Preston (Lancashire)</td>
</tr>
<tr>
<td>Manuf. of paints, varnishes &amp; similar</td>
<td>2.17</td>
<td>24.3%</td>
<td>4,000</td>
<td>• 70.1% in Cheshire West &amp; Chester (Cheshire &amp; Warrington)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 15.3% in Carlisle (Cumbria)</td>
</tr>
<tr>
<td>Manuf. of fertilisers &amp; nitrogen</td>
<td>2.10</td>
<td>23.5%</td>
<td>500</td>
<td>• 24% in Halton (Liverpool City Region)</td>
</tr>
<tr>
<td>compounds</td>
<td></td>
<td></td>
<td></td>
<td>• 18% in Manchester (Greater Manchester)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 15% in Knowsley (Liverpool City Region)</td>
</tr>
<tr>
<td>Manuf. of other organic basic chemicals</td>
<td>1.82</td>
<td>20.3%</td>
<td>2,300</td>
<td>• 12% in Wirral (Liverpool City Region)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 79% in Stockport (Greater Manchester)</td>
</tr>
<tr>
<td>Manuf. of motorcycles</td>
<td>1.79</td>
<td>20.0%</td>
<td>300</td>
<td>• 52% in Cheshire East (Cheshire &amp; Warrington)</td>
</tr>
<tr>
<td>Repair of electrical equipment</td>
<td>1.78</td>
<td>20.0%</td>
<td>800</td>
<td>• 52% in Cheshire East (Cheshire &amp; Warrington)</td>
</tr>
</tbody>
</table>

3.28 While not in a standard SIC definition of advanced manufacturing, other sub-sectors within the wider manufacturing sector will contain elements of advanced manufacturing processes within them. Taking this into account, Table 3.4 shows the ten largest manufacturing sub-sectors in the North West in employee terms – excluding any previously mentioned in the advanced manufacturing & nuclear analysis section.

**Table 3.4: Ten largest manufacturing sub-sectors in the North West in employment terms (not included in advanced manufacturing & nuclear), 2011**

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Cheshire &amp; Warrington</th>
<th>Cumbria</th>
<th>Greater Manchester</th>
<th>Lancashire</th>
<th>Liverpool City Region</th>
<th>North West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacture of bread, fresh pastry goods &amp; cakes</td>
<td>2,800</td>
<td>800</td>
<td>6,100</td>
<td>2,100</td>
<td>1,500</td>
<td>13,200</td>
</tr>
<tr>
<td>Machining</td>
<td>2,100</td>
<td>1,200</td>
<td>4,400</td>
<td>3,400</td>
<td>1,900</td>
<td>12,900</td>
</tr>
<tr>
<td>Manufacture of metal structures &amp; parts of structures</td>
<td>700</td>
<td>300</td>
<td>2,100</td>
<td>1,700</td>
<td>1,200</td>
<td>6,000</td>
</tr>
<tr>
<td>Manufacture of rusks, biscuits, preserved pastry goods &amp; cakes</td>
<td>0</td>
<td>800</td>
<td>2,700</td>
<td>1,600</td>
<td>400</td>
<td>5,600</td>
</tr>
<tr>
<td>Manufacture of builders’ ware of plastic</td>
<td>500</td>
<td>200</td>
<td>2,500</td>
<td>1,400</td>
<td>900</td>
<td>5,500</td>
</tr>
<tr>
<td>Manufacture of other plastic products</td>
<td>700</td>
<td>100</td>
<td>2,400</td>
<td>1,800</td>
<td>300</td>
<td>5,400</td>
</tr>
<tr>
<td>Manufacture of made-up textile articles, except apparel</td>
<td>200</td>
<td>0</td>
<td>2,500</td>
<td>1,300</td>
<td>500</td>
<td>4,500</td>
</tr>
<tr>
<td>Manufacture of other builders’ carpentry and joinery</td>
<td>300</td>
<td>900</td>
<td>1,400</td>
<td>1,000</td>
<td>700</td>
<td>4,300</td>
</tr>
<tr>
<td>Manufacture of other food products</td>
<td>200</td>
<td>200</td>
<td>2,000</td>
<td>300</td>
<td>1,400</td>
<td>4,100</td>
</tr>
<tr>
<td>Manufacture of other furniture</td>
<td>200</td>
<td>100</td>
<td>1,500</td>
<td>1,800</td>
<td>300</td>
<td>3,900</td>
</tr>
</tbody>
</table>

**Source:** Business Register & Employment Survey, 2012

3.29 The North West boasts one of the largest food and drink sectors in the UK, with some 50,000 people employed in more than 1,000 companies. A number of well-known international brands have their UK headquarters in the region, including Kellogg’s cereals at Manchester’s Trafford Park, Typhoo tea on the Wirral, and the Wigan baked bean canning plant of multinational Heinz – the largest food processing plant in Europe, employing 1,600 personnel and with an annual production volume of 1.34 billion cans of food.\(^\text{12}\)

3.30 The region is also home to Bolton-based Warburton’s, the UK’s second biggest bakery, and other firms such as Frank Roberts & Sons – the Northwich bakers; Nichols – owner of the Vimto soft drinks brand; as well as Daniel Thwaites – the regional brewer.

3.31 Focusing on specific sub-sectors within food and drink manufacturing, three feature strongly in terms of employment when looking at Table 3.4. The

---

\(^{12}\) [Heinz Canning Plant Energy Efficiency Expansion](http://example.com), Food Processing Technology, retrieved January 2012
manufacture of bread, fresh pastry goods & cakes alone employs over 13,000 individuals in the region, about half of which are in Greater Manchester; the manufacture of rusks, biscuits, preserved pastry goods & cakes employs almost 6,000 people – mostly around Greater Manchester and Lancashire; and the manufacture of other food products employs over 4,000 people – again, concentrated in Greater Manchester and Liverpool City Region.

3.32 Other sub-sectors outside of food and drink manufacturing include machining\textsuperscript{13}, with nearly 13,000 employees in the region – largely concentrated around Greater Manchester and Lancashire.

3.33 Similarly, the manufacture of builders' ware of plastic, manufacture of other plastic products, manufacture of made-up textile articles and the manufacture of other builders' carpentry and joinery employ about 5,000 people each in the North West. Lastly, the manufacture of other furniture employs almost 4,000 individuals in the region, most of which are in Lancashire and Greater Manchester.

Key sub-sectors in relative terms

3.34 Table 3.5 shows location quotient analysis of manufacturing sub-sectors in the North West (exc. advanced manufacturing & nuclear already analysed in previous sections). Included in the analysis are those sub-sectors which represent more than 20% of national employment in the North West, and comprise of 200 or more employees based on the most recent data from the 2011 Business Register and Employment Survey.

3.35 The manufacturing sub-sector which the North West has the biggest specialism in is the manufacturing of wallpaper, which employs approximately 700 individuals in the Northwest and accounts for over 70% of national employment, more than half of which is concentrated in Blackburn with Darwen in Lancashire, and a in Cheshire East (Cheshire & Warrington).

3.36 Flat glass manufacturing is another area of manufacturing specialism, particularly in St Helens, home to the headquarters of multinational glass manufacturing company Pilkington. Over 70% of national employment in this sub-sector is located in the region. Manufacturing of glass fibres is another regional specialism located in this local area.

3.37 Other sectors of specialism and significant employers include several food & drink manufacturing sub-sectors. The manufacturing of starches & starch products employs 300 people, the majority (85%) of which is concentrated around Trafford in Greater Manchester. Other sectors of specialism in food & drink include the manufacture of macaroni, noodles, couscous & similar farinaceous products, the manufacture of grain mill products, and the manufacture of rusks, biscuits, preserved pastry goods & cakes (see Table 3.5 for full details).

\textsuperscript{13} This includes the boring, turning, milling, eroding, planning, lapping, broaching, levelling, sawing, grinding, sharpening, polishing, welding, splicing etc. of metalwork pieces and the cutting of and writing on metals by means of laser beams.
Another sector in which the North West comes out very strongly relative to Great Britain is textiles manufacturing more widely, in which it has a number of specialist sub-sectors. The manufacture of non-wovens & articles made from non-wovens employs approximately 300 individuals, half of which are in Bolton. This represents over a third (36%) of employment in this sub-sector nationally. The North West also employs just under 1,000 people in the manufacture of footwear, two thirds (65%) of which is in West Lancashire and a fifth in Allerdale (Cumbria). Other sectors of textiles specialism include the manufacture of other textiles, employing 600 people; the manufacture of work-wear, which employs over 800 people; the manufacture of other knitted and crocheted apparel; and the manufacture of carpets and rugs, each employing 800 and 1,100 people respectively and representing over 20% of national employing in those areas.

Table 3.5 - Geographic concentration of Top 10 manufacturing sectors (not included in advanced manufacturing & nuclear definition), 2011

<table>
<thead>
<tr>
<th>Sector</th>
<th>LQ</th>
<th>NW % of GB employment</th>
<th>Employees in NW</th>
<th>Local geographic concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manuf. of wallpaper</td>
<td>6.50</td>
<td>73.1%</td>
<td>700</td>
<td>• 58% in Blackburn with Darwen (Lancashire)</td>
</tr>
<tr>
<td>Manuf. of flat glass</td>
<td>6.36</td>
<td>71.5%</td>
<td>1,400</td>
<td>• 92% in St. Helens (Liverpool City Region)</td>
</tr>
<tr>
<td>Manuf. of starches &amp; starch products</td>
<td>5.29</td>
<td>59.5%</td>
<td>300</td>
<td>• 85% in Trafford (Greater Manchester)</td>
</tr>
<tr>
<td>Manuf. of glass fibres</td>
<td>4.53</td>
<td>44.2%</td>
<td>900</td>
<td>• 56% in St. Helens (Liverpool City Region)</td>
</tr>
<tr>
<td>Manuf. of non-wovens &amp; articles made from non-wovens (exp. apparel)</td>
<td>4.27</td>
<td>35.8%</td>
<td>300</td>
<td>• 52% in Bolton (Greater Manchester)</td>
</tr>
<tr>
<td>Manuf. of macaroni, noodles, couscous &amp; similar farinaceous products</td>
<td>3.93</td>
<td>28.0%</td>
<td>200</td>
<td>• 100% in Trafford (Greater Manchester)</td>
</tr>
<tr>
<td>Lead, zinc &amp; tin products</td>
<td>3.18</td>
<td>27.9%</td>
<td>200</td>
<td>• 57% in Cheshire West &amp; Chester (Cheshire &amp; Warrington)</td>
</tr>
<tr>
<td>Manuf. of households &amp; sanitary goods</td>
<td>2.96</td>
<td>26.5%</td>
<td>1,600</td>
<td>• 31% in Bolton (Greater Manchester)</td>
</tr>
<tr>
<td>Manuf. of footwear</td>
<td>2.49</td>
<td>26.0%</td>
<td>900</td>
<td>• 65% in West Lancashire (Lancashire)</td>
</tr>
<tr>
<td>Manuf. of other textiles</td>
<td>2.48</td>
<td>25.8%</td>
<td>600</td>
<td>• 20% in Bolton (Greater Manchester)</td>
</tr>
<tr>
<td>Manuf. of work-wear</td>
<td>2.35</td>
<td>24.6%</td>
<td>800</td>
<td>• 21% in Oldham (Greater Manchester)</td>
</tr>
<tr>
<td>Manuf. of grain mill products</td>
<td>2.31</td>
<td>24.5%</td>
<td>2,500</td>
<td>• 37% in Trafford (Greater Manchester)</td>
</tr>
</tbody>
</table>

New Economy 23
<table>
<thead>
<tr>
<th>Industry Description</th>
<th>LQ</th>
<th>NW % of GB employment</th>
<th>Employees in NW</th>
<th>Local geographic concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manuf. of rusks, biscuits, preserved pastry goods &amp; cakes</td>
<td>2.29</td>
<td>23.9%</td>
<td>5,600</td>
<td>• 22% in Bolton (Greater Manchester)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 14% in Carlisle (Cumbria)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 12% in Stockport (Greater Manchester)</td>
</tr>
<tr>
<td>Manuf. of other knitted and crocheted apparel</td>
<td>2.25</td>
<td>23.6%</td>
<td>800</td>
<td>• 77% in Manchester (Greater Manchester)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 17% in Stockport (Greater Manchester)</td>
</tr>
<tr>
<td>Manuf. of wooden containers</td>
<td>2.18</td>
<td>22.7%</td>
<td>1,100</td>
<td>• 20% in Wigan (Greater Manchester)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 12% in Cheshire East (Cheshire &amp; Warrington)</td>
</tr>
<tr>
<td>Manuf. of carpets and rugs</td>
<td>2.18</td>
<td>22.6%</td>
<td>1,100</td>
<td>• 29% in Wigan (Greater Manchester)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 23% in Bury (Greater Manchester)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 15% in Blackburn with Darwen (Lancashire)</td>
</tr>
</tbody>
</table>

**Source:** Business Register & Employment Survey, 2010
4 Company Case Studies

4.1 Supplementing the data analysis, a series of company case studies have been of manufacturing firms across the North West. These outline in further detail what businesses in the region are working on and the issues they are facing. Each case study is structured around four themes.

- **Company background:** Looking at the origins of the businesses and what they do, how they came to be based in the North West, their turnover and size, and whether they are foreign owned or indigenous.

- **Internationalisation:** Analysing which markets they operate in currently, and those which businesses may be looking to target in the future.

- **Skills and links with universities:** Including a look at any relationships that firms have with Further Education and Higher Education institutions, and whether companies are running apprenticeship programmes.

- **Future plans:** Assessing growth plans and business drivers for each company, identifying any constraints that need to be addressed, and looking at what support the public sector can provide in order to support the manufacturing sector in the North West.

4.2 The case studies can found on the next eight pages, appearing in the following order:

- BAE Systems: Military & Air Information
- BCW Engineering Ltd
- Bendalls Engineering
- Precision Technologies Group
- Phonak
- Quinn Glass
- Siemens
- Westlakes Engineering Ltd.
Company Background

Military & Air Information is the air sector arm of BAE Systems, covering the design and build of fixed wing fast jet and training aircraft. It also provides training, support and information services for the UK RAF and other customers worldwide, as well as offering expertise in the development, delivery and support of military air platforms, components and technologies. There are two Military & Air Information sites in the North West – one at Samlesbury which has been operating since 1939, and the other at Warton which began life in 1942. Military Air & Information is located across 24 sites around the UK and in total, the sector arm has an annual turnover of around £3.2 billion (2012). The Samlesbury and Warton sites employ approximately 9,500 people, however this is just the direct jobs associated with BAE’s activities at these locations. Research by Oxford Economics has estimated that for every job directly created by BAE, another two jobs are supported in the supply chain and wider economy. This means that the jobs supported by Samlesbury and Warton could be approaching 20,000.

Significant developments at BAE over the last ten years have included: the development of a lean culture in its factories and support areas; investment in R&D to introduce more automation; investment in plant and machinery to boost efficiency; and the implementation of a Working Practice Change programme, which has helped to embed a culture of continuous improvement and provide a progression scheme for staff.

Internationalisation

The main markets for BAE Systems Military & Air Information are the UK, US, Saudi Arabia, Oman and India, with further customers in over a dozen countries. BAE has ongoing export campaigns and is trying to grow its share in a number of these, and other, markets. In a sign of how the market has changed, in 2008 around 70% of products and services were for the UK market. In 4-5 years time it is expected 70% of these will be for markets outside the UK. Given the upfront costs of developing new systems for the sector, BAE will often collaborate with its international competitors. An example of this can be seen with the Eurofighter project, which has seen companies from the UK, Italy, Germany and Spain working together.

Skills and Links with Universities

On both the engineering and manufacturing side, BAE has been working closely with the further and higher education sectors for a number of years and has relationships with a number of universities – including Loughborough, Nottingham and Sheffield. At Loughborough the firm sponsors graduates and as part of their course, students come to the BAE sites in order to gain experience. BAE also runs an apprenticeship programme and there are currently around 55 recruited in Lancashire each year. In addition, the company is involved in the Employee Ownership Pilot, which will see it train not just BAE employees but also people working in the wider supply chain.

Future Plans

Future drivers for BAE are to invest in the F-35 Joint Strike Fighter project, which is one of the world’s largest defence programmes and has a requirement for more than 3,000 aircraft. There is also a need to invest in new products, such as unmanned air systems, which could have civil as well as military applications. The nature of international engagement is also changing and BAE is working to put the right foundations in place in countries in order to create indigenous capabilities – for both the military and civil sectors.

In order to capitalise on future changes in the sector and new opportunities, there is a need to maintain a pipeline of skills and R&D investment. BAE is therefore working with schools to emphasise the importance of STEM (science, technology, engineering and maths) subjects. Branding is also important and the sector needs to work closely with the Government in order to market North West and UK goods in order to improve how manufacturing and engineering it is currently perceived by people, as well as linking in to the new Enterprise Zones being created in the region. For sectors such as aerospace, it is important to develop a complete end-to-end support system in order for the industry to flourish, which due to the programme length (decades) must be robust and enduring.
Company Background

Founded in 2002 and based at three sites in Burnley, Lancashire, BCW Engineering works primarily in the automotive and aerospace sectors. The company employs 145 people and had an annual turnover of approximately £13million in 2012/13, up from £10.8million 12 months previously. It has made capital investments worth £3million in the last three years as it seeks to innovate and continue making an important contribution to the local area’s economy. On the automotive side, the company produces and delivers machined structural components/assemblies to customers such as Jaguar Land Rover, Aston Martin and Ford. BCW’s aerospace division is focused on the machining and assembly of aerospace engine and airframe components to the aerospace industry. It is a nominated tier 1 supplier (a direct supplier to original equipment manufacturers) on the majority of its contracts.

The company also works in other areas such as power generation, nuclear, trains and medical. This broad expertise has enabled it to adapt to different levels of demand in particular sectors, especially in 2008/09 when the economic downturn began to take hold. In 2011 BCW set up Greener Industrial Solutions Limited, which specialises in machine maintenance in order to reduce failures, breakdowns and stoppages.

Internationalisation

BCW mainly supplies the UK, although the company's end products will go abroad and the majority of firms they engage with are working on a global basis. At the time of producing the case study, BCW were in the final stages of introducing an Indian shareholder into the group. This would open the door for further opportunities in the aerospace and automotive sectors, as well as creating new market opportunities for BCW in China and the United States – where the potential investor is already active.

Skills and Links with Universities

In terms of skills, BCW has five apprentices and several of its employees are on NVQ programmes. It also has close linkages to local colleges and Training 2000, an independent work-based learning provider in Lancashire. Moreover, the company has won a number of awards for its work in the local area, including the 2010 Chamber of Commerce Award for Commitment to Training. It also has a link to the Prince Charles Trust, with the primary aim being to try and engage young people in the manufacturing sector.

Future Plans

The aim for BCW is to continue growing organically and the firm expects to create at least 20 new jobs over the next two years. Over the next three to four years it is also aiming for annual turnover to reach £20million. Growth is expected to come largely from the automotive sector, however the firm also wants to grow its sales in aerospace and is exploring opportunities that are likely to be created in the nuclear market. The main business drivers will be productivity, growth, innovation and job creation, with BCW investing £3million over the next three years in capital equipment for new technology.

In order to help firms like BCW continue to grow, addressing skills shortages is particularly important. Consultation with the firm highlighted that apprenticeship schemes have declined in the wider manufacturing sector and there is now a shortage of them. A further issue is that it is often possible to get people at an operator level, but it can be a struggle to get skilled people. Linked to the skills challenge is how manufacturing is perceived – better promotion of the sector is vital if more people are going to be attracted to work in it and this will require companies and education providers to shout louder about manufacturing as a career choice.
Company Background

Based in Carlisle, Bendalls Engineering was founded in 1894 as a family business specialising in steel fabrication. In the 1950's, the company became one of the first fabricators to supply equipment for the nuclear industry for the Sellafield site in Cumbria. In the 1970's Bendalls became involved in the supply of pressure vessels to the North Sea oil and land based petrochemical industry. It remained a family-owned business until 1996, when it was sold to Carrs Milling Industries plc and became a division of Carrs Engineering Ltd. In 2003 the firm extended its capabilities into marine current turbines and 2005 saw Bendalls manufacture the world's first large scale tidal current turbine which was installed in the Bristol Channel. The company employs just over 75 people and has an annual turnover of approximately £7million-£8million.

Internationalisation

Around 10% of the company's turnover is directly export driven, with the main export markets scattered across South America, Australia, Africa, the Middle East, Europe and North America. Bendall's key market is, however, UK-based construction companies. The company's growth expansion does not include entry into new markets, and relies on the growth of construction companies in existing ones. Other international linkages cover machinery imported from Europe. Due to the focus on the domestic UK market, the supporting infrastructure most important to Bendalls is roads, though proximity to ports is crucial for the shipping of machinery to and from overseas markets.

Skills and Links with Universities

The skills set of Bendalls' employees ranges from sales, marketing, and accounting, to engineering, machining, and quality control. Key growth constraints include the low availability of relevant engineering skills, particularly the lack of university graduates in design and mechanical engineering in the area. To offset this, Bendalls have successfully been using an apprenticeships system for over 7 years. The firm also has a number of established relationships with research institutions such as the Welding Institute in the Midlands, through which they have acquired skills in more advanced welding and manufacturing efficiency, as well as the Manufacturing Advisory Service. Advances in manufacturing have led to the lower labour intensive production and increases in quality from which Bendalls have benefited, as well as the use of advanced software packages.

Future Plans

Future plans for Bendalls are for the company to be involved in the building of the UK's next generation nuclear plants with Areva, which would require considerable investment in equipment and personnel – although plans for the build of the next generation nuclear plants are still to be confirmed by the Government.
Company Background

Holroyd Precision can trace its origins back to 1861, when it began life as a machine tool and textile manufacturing company in Hulme, Manchester. The firm moved to Milnrow in Rochdale in 1896 and has been based there ever since, manufacturing grinding machines for rotor, thread and gear operations, rotor milling machines and lathes producing ultra-precision components to serve a wide range of industries from aerospace, medical and mould tool & die to marine, power generation, oil, gas, steel and high end automotive.

The company is part of the wider Precision Technologies Group (PTG), which was bought by the Chongqing Machinery and Electric (CQME) industrial group in 2010, a £1.2 billion state-owned Chinese organisation. One of the key drivers behind the takeover was the quality of the North West’s manufacturing skills base, which helped to attract CQME’s investment. As well as Holroyd Precision, PTG comprises: Precision Components; Advanced Developments; Heavy Industries; Customer Care; and Deutschland GmbH.

Turnover at PTG has grown for three consecutive years and the company currently employs just over 230 people, 175 of which are based in Rochdale.

Internationalisation

Around 85% of the company’s turnover is export driven, with China being the main market. Over the last five years, the country has accounted for more than 25% of all machine sales by Holroyd. In April 2013 Holroyd became one of the founder members of the Manchester-China Forum, a new business-led initiative that was launched in April 2013 with the aim of providing a focus for organisations looking to increase their connectivity with China. Other key markets include the United States, Germany, Turkey and Taiwan. Given the firm’s global outlook, international trade exhibitions are particularly important as it looks to grow in the future. For example, in 2013 it will attend trade shows in countries such as Germany, Brazil, Russia, China and Singapore.

Skills and Links with Universities

On the skills side, Holroyd runs an apprentice scheme which takes on around four new starts a year and a number of senior members of the current PTG team actually began life at the company as apprentices. The firm also has a number of established relationships with universities around the UK. In particular, it has been working closely with City University London for more than 18 years. The Company is able to use City University’s expertise in compressor technology (for which it is a recognised centre of excellence) as it looks to develop new products, while the University utilises Holroyd’s strengths in rotor development technology. The firm also has relationships with the University of Huddersfield and Brunel University, while at a North West level it works with Manchester and Lancaster University’s.

Future Plans

Reinvestment is vital to a firm such as Holroyd, be it in the form of new equipment or its staff. The apprenticeship scheme will continue to be key as it seeks to continue its recent growth. It was highlighted during consultation with the company that apprenticeships are one area in which the public sector should continue investing. At the same time, more needs to be done to promote the wider manufacturing sector to prospective employees – helping to dispel some of the myths around it being a low-paid/low-skilled sector.
Company Background

Based in Warrington, Phonak manufactures and distributes hearing technology for adults and children to its partner network of hearing healthcare professionals. The company is part the Sonova Group, which has its corporate headquarters in Stäfa, Switzerland, and had an annual turnover of approximately £1.2billion in 2012/13. Phonak can trace its origins back to 1947, when it was founded in Switzerland, before evolving into a company today that has locations and sales partners in more than 90 countries. Its Warrington base currently employs around 200 people in three separate buildings, having begun life 15 years ago employing 10-20 people. Of particular significance is the fact that the company will be moving into larger accommodation in Warrington during 2013.

Internationalisation

From the Warrington base, the company manufactures products for eight countries worldwide, and as well as the UK this includes Denmark, Sweden, Belgium and Ireland. The UK acts as a regional hub and they also have production sites in Switzerland, Canada, the US and China. Warrington is in a good location for the firm, especially for access to motorways and its proximity to Manchester Airport and Liverpool John Lennon Airport. The fact that you can fly to its head office in Switzerland is important, while high speed rail links to London are also good – enabling Phonak to go and see clients in the capital and vice versa at short notice.

Skills and Links with Universities

It can take 6-8 weeks to train people up in the required production techniques. The skills of the existing workforce in Warrington therefore mean there is little sense in relocating. The BBC move to Salford is also attracting more people to the region with higher level qualifications, which is a big positive for firms like Phonak that require a skilled workforce. In terms of links with universities, the firm has close ties with the University of Manchester and University College London in relation to research programmes connected to audiology. The firm is also looking to provide internships for University of Manchester graduates, which is key in terms of succession planning.

Future Plans

Phonak expects its workforce to grow by 20-25% over the next 3-5 years and is very optimistic about the future. It is working in an industry where the world’s ageing population creates numerous opportunities and in order to accommodate its future expansion, the firm is moving to purpose built 40,000 sq. ft premises in 2013, giving them both production facilities and office space.
Based in Elton, Cheshire, Quinn Glass manufactures glass containers for the food and beverage industries. Customers include Diageo, Britvic, Heineken, Pernod Ricard, Beverage Brands, AB Inbev and AB World Foods and Greencore. Furthermore, and uniquely for a Glass Manufacturer, Quinn Glass have a filling factory adjacent to the glass works where they fill beers, wines, ciders, soft drinks and spirits. The firm is part of the wider Quinn Manufacturing Group based in Ireland and along with Quinn Glass this includes three other manufacturing divisions:

- **Construction Industry Supply (CIS)** – Irish-based, producing cement and other concrete products sold in the UK and ROI.
- **Radiators** – Located South Wales, manufacturing domestic heating and design radiators.
- **Plastics** – Supplying extruded plastic products for a variety of uses from manufacturing sites across Europe.

Quinn Glass also has a location in Ireland and employs 1,147 people, 720 of which are based at its Cheshire site. The firm’s turnover is around £250million per year and it manufactures 2.5 billion food and drinks containers annually and has the capability to fill 250 million of these. The glass manufacturing division was established in 1998 and its North West site was opened in 2005, representing the company's first large-scale development outside of Ireland. When deciding on a location, Quinn Glass considered other parts of the UK and northern Europe. However, with support from the North West Development Agency and DTI along with the skills and infrastructure on offer in the area, it chose to construct a new £325million production and distribution facility on the former site of the Ince B power station at Elton in Chester.

The 205-acre Elton site provides Quinn Glass with a comprehensive glass packaging, filling and distribution service for the drinks industry. It is one of only a handful of plants worldwide where bottles can be manufactured and filled at a single location and it features one of the largest automated warehouses in Europe at over 500,000 sq. ft. storing 260,000 pallets. The site also allows Quinn Glass to consolidate loads – for example, if there are three loads of different brands they can be sent straight to the retailer on the same lorry, saving costs and reducing CO2 emissions. Quinn Glass estimate that since they commenced operation at Elton they have taken 7million kilometres off the over-stretched motorways.

**Internationalisation**

Glass manufacturing is UK and Ireland based, however other parts of the Quinn Group have locations in countries such as Belgium, Germany, France, Spain and the Czech Republic. Their customers are operating on a global basis, however and the resulting skills requirements needed by the company mean that it recruits on an international basis for certain roles, an example of which is given below.

**Skills and Links with Universities**

The company has worked previously with local Universities and Colleges and will look to do more with higher education institutions over time. Given that Quinn Glass often requires very specific skills and experience to fill roles, it recruits from around the world. This includes the recent appoint of a Technical Director who was previously based in Australia. In terms of local skills, they are generally good and this is one of the reasons why the firm opted to locate in the region originally. The company runs its own apprenticeship and NVQ programmes, taking on 2-3 people per year as part of a 3-4 year course in glass manufacturing. General trade apprenticeships are also available.

**Future Plans**

Quinn Glass is looking to grow in the future and it typically invests around £15million per year to support initiatives such as lean manufacturing and Enterprise Resource Planning (ERP) systems. Both of these help to improve efficiency, which is an important business driver as the company looks to maximise its outputs. Consultation with the company highlighted the role that the quality of the region’s infrastructure (road, rail, air) can play in attracting people to the North West, however a wider issue to consider is housing – for people moving to the region, this means ensuring there are enough homes built in areas that people want to live.
Company Background

Siemens PLC, founded in the UK over 170 years ago employs over 13,500 people, 8,000 of which work in manufacturing and engineering. The business manufactures many products including industrial gas turbines, traffic systems, superconducting magnets for MRI scanners and high efficiency motor drives at 12 factories in the UK. The business has a turnover of over £3.2 billion as of 2012, contributing significantly to indirect and direct taxes to the UK Exchequer. Siemens annual spend with UK suppliers is approximately £2.3 billion, supporting 25,000 supply chain jobs. Siemens activities as a whole secure a total of 54,000 jobs in the UK. The business employs more than 300 apprentices and has an annual intake of 100 graduates. Siemens is split into four main sectors: Industry; Infrastructure & Cities; Healthcare and Energy.

Siemens Industry has two sites in the North West – one in Congleton which opened in 1971 as a warehouse and switchboard workshop, and one in Manchester which opened in 1990, and is home to the business’s UK and Ireland HQ. Siemens Power and Transmissions also has facilities at the Manchester site, based at the new Renewable Energy Engineering Centre, which opened in 2012. The Manchester and Congleton sites combined employ over 1,200 people.

The work undertaken by Siemens Industry in relation to UK manufacturing includes:

- **Industrial Automation** – developing system solutions for energy and automation technologies used in manufacturing and process industries.
- **Drive technologies** – including standard and large drives applications across the entire drive train.
- **Metal technologies** – developing blast furnaces and aluminium rolling, iron and steel making facilities across the globe.
- **Industry services** – covering everything from planning and construction, to operation and maintenance over a plant’s entire life-cycle.

The Congleton site is a drive technology facility and internationally recognised as one the most efficient and productive facilities of its kind. Variable speed drives controlling the speed of motors, driving production lines and baggage-handling systems around the world come from the Congleton facility.

Internationalisation

More than 98% of the products made by Siemens at Congleton go abroad, with China and Germany key markets. Siemens Industry is global as well as domestic in its outlook and a number of other countries are important markets – including the other BRIC countries of Brazil, India and Russia.

Skills and Links with Universities

On the skills side, Siemens runs a successful apprentice programme each year and it employed 160 apprentices for the most recent scheme, receiving many more applications. The firm also has a relationship with three “ambassador” universities, which includes the University of Manchester. The other two are Cambridge and Sheffield and the aim of the relationships is to work on the commercialisation of research and development and to offer employment opportunities to graduates from each institution.

Future Plans for Siemens Industry in the North West

Looking ahead, the main business drivers focus around improving its productivity and levels of innovation. Helping to improve skills within the manufacturing sector is also a key priority for the company and the ambassadorial relationships with the University of Manchester will remain important in this respect. In line with the main findings from the stakeholder consultations, Siemens also raised the issue of the UK requiring a long-term skills strategy for manufacturing, as well as a specific industrial strategy.
Company Background

Founded in 2004 in Cumbria, Westlakes Engineering Limited has offices in Whitehaven, Manchester and Preston. It is an engineering consultancy providing civil, structural, environmental and renewable energy services. In particular, the company has extensive experience in the design, assessment and decommissioning of structures within the UK defence and civil nuclear industry. It is also ranked in the top ten for UK civil and structural nuclear waste consultants.

Around 50% of Westlakes Engineering’s work is undertaken in the nuclear sector. The majority of this is carried out at the Sellafield site in Cumbria, although the firm also works at other nuclear sites around the UK. A large proportion of their nuclear-related work is with existing assets – maintaining the current infrastructure at Sellafield, for example. The company is wholly UK owned and employs 35 people. Its turnover for the 2012/13 financial year was £2.6million.

Internationalisation

Westlakes works mainly within the UK, although the new build and decommissioning agenda abroad in the nuclear sector presents significant opportunities for the UK to export its skills and capabilities in this respect. Examples on the international side include work for the Federal Authority for Nuclear Regulation in Abu Dhabi in 2012, as well as representing the UK on a recent nuclear trade mission to South Korea and Japan. The UK as a whole should be looking at international opportunities, but this can be hard to do for a small and medium enterprise (SME) when weighing up the benefits and risks of any investment (monetary or human capital).

Skills and Links with Universities

The company has strong links with the Business School at the University of Lancaster and it has also worked with other universities around the North West in the past, as well as the University of Dundee. In terms of skills, it tends to be easier to recruit in Manchester than it is in Cumbria, in part due to the larger talent pool in Manchester. Of particular significance to the nuclear sector is the fact that the industry is faced with how to replace a retiring workforce – skills planning is a crucial issue to address.

Future Plans

Westlakes Engineering is looking at growth of between 20% and 30% over the next year – which is more likely to be organic than through acquisitions. Moreover, the company is aiming to become a UK top 100 civil, structural and architectural consultancy by 2014-15, and to be in the top 50 by 2022-23 with a projected turnover of £10million and 100 staff. Nuclear is a sector with a very long future ahead of it, which gives a degree of certainty around work loads. For example, the clean-up costs for Sellafield alone are estimated at more than £65billion. The public sector has an important role to play in ensuring that local firms are able to capture future opportunities within the sector and the Government’s initiative to place 25% of nuclear spend with SME’s by the end of 2015 is an important step in the process.
5 Consultation Programme

5.1 A consultation programme was undertaken with the following regional stakeholders in order to explore issues such as: strengths/assets of North West manufacturing; strengths/weaknesses of the sector; supply chain impacts; key markets (current and future); barriers to growth; and the potential for the re-shoring of manufacturing from overseas.

- East Lancashire Chamber of Commerce
- Department for Business Innovation & Skills
- The Manufacturing Institute
- PLACE Pennine Lancashire
- North West Aerospace Alliance
- North West Automotive Alliance
- Warrington & Co
- Greater Manchester Local Enterprise Partnership
- Liverpool City Region Local Enterprise Partnership
- Bionow
- Siemens.

5.2 Based on the responses received during the consultations, the main findings have been grouped under seven headings.

North West Manufacturing Strengths

5.3 Stakeholders consistently highlighted that the North West has a formidable capability in manufacturing, with a key strength being its diversity – not just in terms of advanced manufacturing but for manufacturing as a whole. Other regions such as the North East are reliant on very large manufacturers in specific industries, such as Nissan in the automotive sector, whereas the North West has capabilities in a range of sub-sectors. As highlighted by the data analysis in section three, this includes:

- Aerospace
- Automotive
- Pharmaceuticals/biomanufacturing
- Nuclear
- Chemicals
- Food & drink
5.4 In addition to the sectors outlined above, stakeholders highlighted a number of other sectors in which the North West has expertise. This includes paints & wall coverings and printing & publishing. There are also a number of niche manufacturers in the region, including Phonak, which makes precision hearing aids and has its European manufacturing Headquarters in Warrington.

5.5 One of the other key points raised by stakeholders is the fact that employment in the manufacturing sector makes a significant contribution to the regions economic output. For example, gross value added per employee in aerospace is around £70,000 per annum and in the automotive sector it is £40,000 per employee on an annual basis. This compares to an average GVA per head for all sectors in the North West of approximately £35,000 per employee per year.

5.6 Helping to underpin the quality of the North West’s manufacturing sector is the region’s infrastructure. This includes not only Manchester Airport and Liverpool John Lennon Airport, but also the region’s road, rail and ports network. The airports provide international linkages, while freight movements are supported via land and sea.

5.7 Consultation with stakeholders also highlighted a number of initiatives currently being undertaken to try and build on the region’s existing strengths in manufacturing. For example, the Liverpool City Region LEP is working with three other LEPS (The Black Country, Greater Birmingham & Solihull and Coventry & Warwickshire) on the Advanced Manufacturing Supply Chain Initiative (AMSCI). AMSCI is a national support programme helping advanced manufacturing companies improve supply chain management. The joint initiative between Liverpool and its partners has ring-fenced £25 million from AMSCI to directly support automotive and aerospace businesses in the LEP areas.

5.8 The Liverpool City Region LEP is also running the “Making It project, which is being undertaken in conjunction with the City Region’s six local authorities along with Liverpool John Moores University, the University of Liverpool and the University of Cambridge Institute for Manufacturing. As part of the initiative, the organisations will examine the best ways to boost the local manufacturing sector. The project is being carried out during 2013 and its main objectives are:

- To understand global trends
- To identify the best opportunities for growth
- To establish what is required to support growth
- To develop the next steps for the Liverpool City Region.

Supply Chain Impacts

5.9 One of the main areas discussed with consultees was the impact of manufacturing on the wider supply chain. While section three shows that more than 300,000 people in the North West are directly employed in the sector, it is
helping to support significantly more jobs than this through multiplier effects – i.e. further economic activity (jobs, expenditure or income) associated with additional local income and local supplier purchases. A number of stakeholders commented that this impact isn’t fully appreciated, emphasising that manufacturing has a canopy of large organisations, supported by smaller firms below this. The manufacturing supply chain was viewed as being extremely complex and stakeholder felt that there needs to be a better understanding across the North West about what it is and how it can be supported in the future.

5.10 At a sub-sector level, specific examples were provided on programmes that have helped to support the wider supply chain. This includes the Supply Chain Development Programme, the first stage of which ended in 2012 and aimed to create a strategic core for the aerospace supply chain – helping firms to develop their quality, organisation and delivery. Consultation with the North West Aerospace Alliance highlighted that the programme helped to deliver a 75:1 return and to obtain £350 million of business that firms wouldn’t have otherwise secured. This was all based on a £4.2 million investment over an initial four year period. Further funding of £6.5 million has now been secured to build on the programme's success and to develop collaborative working structures within the aerospace sector.

5.11 In addition to aerospace, consultees discussed the importance of the supply chain in other manufacturing sectors – including automotive and nuclear. In terms of automotive, a 2012 survey by the Automotive Council UK\(^\text{14}\) found that not only had UK based vehicle makers increased their spend with UK supplier by at least £1 billion from a figure of £7.4 billion identified in a 2011 survey, but there were also at least £3 billion per annum of new purchasing opportunities for UK-based manufacturing enterprises.

**Labour Market Skills**

5.12 Skills within the manufacturing sector emerged as the most significant issue during the consultations. One of the biggest hindrances was in relation to companies having trouble recruiting skilled people. This means that firms will often end up taking employees from elsewhere within the manufacturing supply chain and competitors.

5.13 The issue of apprentices was also discussed with consultees and specific examples were given of where firms have taken them on. For example, Siemens took on more apprentices (over 150) in 2012 than graduates. However, it was also noted that overall, investment in apprenticeships has gone down significantly over the last 30 years as businesses haven’t invested in them. This means the demographic profile of the manufacturing sector is aging.

\(^{14}\) Growing the UK Automotive Supply Chain. The Road Forward – 2012 Update, Automotive Council UK.
5.14 As well as apprenticeships, stakeholders gave their views on the graduate market in manufacturing. A common theme to emerge was the fact that there is a disconnect between the education sector and what firms actually need. It was felt that many students do not necessarily take the right courses, as well as there being too few of the right courses on offer in the first place. This means that the sector is often unable to recruit enough graduates to fill positions – the example of a large vehicle manufacturer was given in this respect, with the company taking on 350 graduate engineers in 2011. One stakeholder commented that the company would have taken on almost double this figure is the right candidates had been available.

5.15 For SMEs, there is also the issue of how to invest in skills in order to develop their existing workforce. It can often be difficult to access the funding required to do this – in nuclear for example, more than 50% of the workforce are aged 45 and over, and the question was raised as to how younger employees can be upskilled in order to address future levels of attrition in the sector.

Barriers & Challenges

5.16 In addition to the issue of skills identified above, a number of other barriers and challenges were identified by stakeholders. These are summarised below:

- **Promoting the manufacturing sector** – The North West needs to do more to promote the sector to a wider audience. There is often the perception that manufacturing is a low skilled and low paid sector, which is not the case and better promotion could help to address this issue and attract more people into industry. Furthermore, consultees also felt that large firms aren’t always necessarily aware of what happens outside their gates. This is where promotional activities are also important – to encourage businesses to invest in the North West and support them to grow in the region. Work is already ongoing in terms of promoting the sector, in particular through the creation of the North West Manufacturing Forum – a voluntary and advisory group comprising representatives from the private sector, LEPs, the Regional Leaders’ Board, business intermediaries, and BIS North West. The aim of the Forum is to help raise the profile and esteem of the region’s manufacturing sector, both within the North West and externally.

- **Investment timeframes** – It is important to recognise that sectors such as advanced manufacturing have longer investment pipelines than other industries, and the banks, Higher Education (HE) etc. need to understand how long technology programmes are. In the aerospace supply chain, for example, there are three key periods to consider when identifying what type of support is required:
  - **0-5 years** – Over this relatively short timeframe, it is possible to influence a culture change within firms
- **5-10 years** – Over a slightly longer timeframe, it is possible to influence the direction of a company and the technology it invests in.

- **10-15 years** – The longest timeframe is arguably the most important, as this is the period in which real impacts can be made in terms of addressing the skills agenda and ensuring that technology investments start to bear fruit.

  - **HE and public-private sector interaction** – The UK has traditionally been good at invention, but less so at innovation – the latter involves commercialisation and is about better collaboration between industry and academia. The example was also given that engagement with the NHS is very weak and there are issues with clinical trials – often the bureaucracy is very hard and takes up a lot of time. There needs to be better co-ordination in order to take advantage of opportunities.

  - **Quality of premises** – Stakeholders commented that a lot of the premises in the manufacturing sector across the North West are not fit for purpose. This issue was actually highlighted in a previous study focused on advanced manufacturing in Greater Manchester and many of the issues raised are applicable on a regional scale. In particular, as manufacturers become more advanced, they see changing land, premises and infrastructure requirements, with greater need for office and light industrial and less floor space than traditional factory units. This has left many advanced manufacturers with a legacy of ageing premises and large sites, which they often own.

  - **Supporting infrastructure** – As well as having the right quality premises, stakeholders also emphasised the importance of ensuring the quality of the region’s supporting infrastructure. This relates to having good road, rail, sea and air links, as well as developing the North West digital infrastructure. Specific examples include the Lancashire Superfast Broadband project, which aims to bring improved broadband speeds to businesses and communities across Lancashire by 2014, and the reinstatement of the Todmorden Curve – which will provide direct train journeys between Burnley and Manchester. While schemes such as this aren’t manufacturing specific, they fit within the wider aim of shaping the North West as a place to invest and to live.

### Maximising the Region’s Assets

5.17 In order to address some of the barriers and challenges facing the manufacturing sectors, consultees highlighted a number of ways in which the region’s assets can be fully utilised in order to support growth. These include:

- **Maximising HE assets** – The region needs to utilise its HE asset base and increase the level of interaction with the private sector – as per the

---

point above in relation to barriers and challenges. There needs to be increased dialogue between universities and the private sector in order to fully identify the strengths of the North West and build on them – which could include the universities becoming more aligned with the skills needs of firms. Higher Education should play an important role in the North West manufacturing sector, but institutions elsewhere have been more proactive in pursuing new opportunities – for example, the University of Sheffield worked in partnership with Boeing to secure the Advanced Manufacturing Research Centre in Rotherham – a facility which could just as easily have been located in the North West.

- **Utilising existing facilities** – The North West has a number of world class facilities which can help to support growth in the manufacturing sector. This includes Manchester Science Park and Sci-Tech Daresbury in Cheshire, with the latter facility being one of only two National Science and Innovation Campuses in the UK. Facilities on offer include incubation space, which could potentially be used provide shared service facilities to firm who only need accommodation for a short period of time.

- **Utilising existing businesses and the linkages they have**: Many manufacturing firms in the North West are foreign owned, which presents the opportunity to work with the parent companies and exploit overseas markets.

- **Enterprise Zones** – The development of Enterprise Zones (EZ) in Lancashire, at Mersey Waters & Sci-Tech Daresbury (both in Liverpool City Region) and at Airport City in Manchester offer significant opportunities for the North West. In particular, the Lancashire Enterprise Zone based at Samlesbury was highlighted as being the most suitable location for a new national UK Aerospace Supply Chain Centre. The Samlesbury location would provide the best possible site because a large critical mass of manufacturing centres are within a good radius of it. The possibility of developing Birchwood Park in Warrington into an Enterprise Zone focused on the nuclear sector was also highlighted.

- **Exploiting strengths in the digital sector** – The digital sector was identified as presenting a significant opportunity. With continuing advancements being made in new technologies, the North West manufacturing sector should be forging stronger links with major assets like MediaCityUK to identify work cross-working opportunities exist – i.e. improving the interface between digital and manufacturing industries.

**Future Markets**

5.18 Consultees were asked to provide their views on which markets are likely to be key for North West manufacturing sector in the future. A range of
responses were given, however the BRIC countries were commonly highlighted – Brazil, China, India and Russia. The growing prominence of the N11 countries was also highlighted – Bangladesh, Egypt, Indonesia, Iran, South Korea, Mexico, Nigeria, Pakistan, the Philippines, Turkey and Vietnam. Policy changes around the world in certain sub-sectors of manufacturing will also create opportunities in other markets – for example, in the nuclear sector Germany and Japan have made the decision not to proceed with any new build power stations. However, both countries will still have substantial requirements in relation to decommissioning – an area in which the North West has considerable expertise.

5.19 Unsurprisingly, the future markets highlighted by consultees emphasised that manufacturing is a global sector. This raises the issue of how to get the region’s businesses to export more, as well as identifying how North West firms can capture the significant opportunities that are likely to arise in the sector over the long-term.

5.20 As well as global markets, there will be significant opportunities domestically – in particular in the nuclear sector. While the new build programme of nuclear power stations in the UK is still to be confirmed – the level of investment required means that the North West must ensure that it is well placed to secure some of the opportunities. The first two new build power stations would be Hinkley C (Somerset) & Sizewell C (Suffolk), followed by Wylfa (Anglesey) & Oldbury (Gloucestershire) and then Moorside in Sellafield. Each one will cost around £10 billion, so the potential investment for all five would be in excess of £50 billion. Adding to the potential new build programme, the consultation process revealed that the Nuclear Decommissioning Authority spends around £3.5 billion on nuclear procurement per year and this will continue over the next 50+years – creating another opportunity for North West firms.

Opportunities for Re-shoring/Repatriation of Manufacturing Activities

5.21 The final part of the consultation programme explored stakeholders’ views on the extent to which there are opportunities for the North West to capitalise on the re-shoring/repatriation of manufacturing activities. A summary of the main responses given in this respect is provided below:

- Textiles was cited by number of stakeholders as generating potential opportunities for repatriation of manufacturing activities. Countries such as Turkey and Pakistan were mentioned as potential competitors

- The automotive sector could also present an opportunity in relation to re-shoring. For example, Jaguar Land Rover is looking to bring manufacturing back from abroad because volumes are increasing, while for General Motors flexibility during the manufacturing process is key, and this is something which is easier to control closer to home. The fact that climate controls are reducing shipping speeds means it is becoming less cost effective to manufacture abroad
With increasingly short production runs required in many industries, there is scope for the design of these to remain global but for their manufacture to be more localised in order to be close to final demand.

The re-shoring of certain types of activity can help to reduce risk. An example was given by one stakeholder of the 2012 Japanese tsunami, which disrupted the automotive supply chain. The tsunami forced the closure of a factory which was the only manufacturer in the world of a particular pigment of car paint, which ultimately led to delays in people receiving their orders. Dual sourcing activities like this would help to reduce risks during manufacturing, however the North West needs to show why it the best location for activities like this, as opposed to competitor markets such as Poland and the Balkan countries.

The re-shoring/repatriation agenda is gaining momentum within Government and in order for the North West to capture the opportunities this could present, it needs to:

- Better market the strengths that it has, over and above competitors
- Highlight the strengths and power of its universities
- Still have a global outlook on the whole process, even during a time when it is trying to re-shore activities from overseas.