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Del. 1.2 - SWOT analysis and **SME** profiling of West Midlands (UK)

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1 Executive Summary

1.1 Objective of the deliverable

The objective of this deliverable is to report on the regional economic fabric of the 7 regions. The report uses a common template for the 7 regions so each partner can develop regional reports with the same structure and information, including a detailed SWOT analysis. This first report on the targeted regions will provide a baseline to support the development of the following reports on the regions later on:

- A contextual analysis of regional innovation policies and strategies in terms of Innovation-led growth paths (Deliverable 1.5).
- List of selected measures for good practice case studies (Deliverable 1.6)
- An inventory of R&D&I support measures and an impact analysis on regional SMEs, using primary and secondary data (Deliverable 1.7).
- Innovation pathways of SMEs in traditional sectors (Deliverable 1.8)

These reports will be complemented by a global analysis at EU level of R&D&I support measures and their impact on the transition of regions from traditional to knowledge based economies on WP2.

Resulting from this research study, a set of recommendations regarding more efficient R&D&I measures will be produced and validated at European level, while the participating regions will serve as a test bed for their implementation by including them in the Local Action Plans to be developed and implemented by the UNIC project.

1.2 Identifying a "traditional sector"

Our concern is with "traditional manufacturing sectors". We do not define "traditional" only - or even mainly - according to the standard OECD classification of industries as "high", "medium" or "low-tech".1 This approach does not capture the complexities of traditional industries nor does it show the dynamic nature of the firms. For instance, some traditional industries may be low-tech but others are not (e.g., automotive). Indeed, once we define industry at a level meaningful to practitioners - say, at the SIC 4-digit level - characterization of whole industrial sectors as "high", "medium" or "low-tech" may be misleading.

For example, pottery/ceramic products in SIC 262 includes sectors that may operate at different levels of R&D intensity (e.g., SIC 2621 – manufacture of ceramic household and ornamental articles - and SIC 2624 – manufacture of technical ceramics).2 Moreover, even

¹ These categories are defined by research and development 'intensities' – that is, OECD average shares of research and development expenditure in sales revenue – of, respectively, more than 10 per cent, between 0.9 and 10 per cent, and less than 0.9 per cent.

² In the British Standard Industrial Classification (SIC), which follows the same classification principles as the EU NACE classification, the principal pottery/ceramic products in SIC 262 comprise SIC 2621 – manufacture of ceramic household and ornamental articles, including table ware, kitchen ware, ornamental articles and toilet articles (excluding large sanitary fixtures); SIC 2622 – manufacture of ceramic sanitary fixtures; SIC 2623 and 2624 – manufacture of technical ceramics; and SIC 2626 –

the same 4-digit industry may include substantially different intensities with respect to R&D and other types of innovation activity (e.g., commodity earthenware producers and specialists in hotel ware).

Our preferred approach to defining "traditional industry" is multi-dimensional, reflecting not only measurable characteristics but also a range of concerns or anxieties.

We define as "traditional" those manufacturing industries with at least the majority of the following characteristics.

Long established. Traditional implies history. One interpretation would be that the industry should have been established at least during the inter-war years (1918-1939) if not before. This is sufficiently broad to include, say, the motor industry but to exclude, say, computing. Most of the industries in which we are interested have been established for much longer, such as leather.

Strictly speaking, age is both a necessary and sufficient condition for an industry to be classed as "traditional", which suggests the major theme of longstanding processes or products. However, we are also interested in industries with at least some of the following characteristics:

Once a - even the - main source of employment at the sub-regional level (possibly even the regional level in certain cases).

In the mature or declining phase of the industry life-cycle, with recent decline typically associated with globalisation. Because these industries are long established, knowledge has diffused and enabled production to develop in and/or be relocated to new locations with lower costs. This applies to at least some of our industries (e.g., ceramics) although not necessarily to all (maybe food processing?).

Labour intensive, so that relocation of production to low-wage economies has particularly serious consequences for manual employment in the (sub) regional context. Of course not all aspects of production may be out-sourced to low-wage economies such as design and marketing. However, a key element of the traditional nature of the industries is that some or most of the repetitive, low-skilled, manual work is indeed out-sourced from EU countries.

Major sources of wealth creation and employment in regional (or, at least, subregional) economies. In spite of recent decline, the traditional industries in which we are interested continue to be important to regional or, at least, sub-regional economies.

Retain capacity for innovation, hence the potential to continue as important sources of wealth creation and employment. This issue can be linked to the core competencies where firms will retain what can add value (make strategy) and outsource what the market can produce more cheaply and/or efficiently (buy strategy). Conversely, traditional industries may be ones in which "conditions of low

manufacture of refractory ceramic products (CSO, 1993). Related industries, but outside SIC 262, include the manufacture of ceramic tiles and flags (SIC 2630) as well as bricks, tiles, and construction products (SIC 2640).

technological opportunities limit innovative entry and restrict the innovative growth of successful established firms" (Breschi et al., 2000, p.393).

Recent and often dramatic decline is why we are especially concerned with traditional industries because traditional industries often remain important sources of wealth creation and employment in regional (or, at least, sub-regional) economies they are of concern to public policy; and capacity for innovation is likely to be both a feature of any industry that survives long enough to be classified as traditional and a necessary condition for a positive return on public sector support for these industries.

This potential for innovation may be more associated with particular industry groups (at the NACE/SIC 3-digit and/or 4-digit levels) firms than with the industry as a whole and, possibly, with SMEs rather than with larger and established industry leaders. Accordingly, we should also be careful to distinguish high-tech and dynamic industries or even firms within broadly defined traditional sectors.

Evidence of significant capacity to diversify from within a traditional industry towards new, high-growth activities: i.e., the possibility of high-tech and dynamic industry groups emerging within broadly defined traditional sectors. Sectors defined at the NACE/SIC 2-, 3- or even 4-digit level may be sufficiently heterogeneous to give rise to industry groups able to diversify into new technologies and products.

An example is the textile industry that as well as the "rag trade" has also witnessed the growth of technical textiles. The general point is to note significant diversification from within traditional industries towards new, high-growth activities.

Additional characteristics, although not necessary conditions, of traditional manufacturing industries might also be:

Substantial contribution to regional (or, at least, sub-regional) **exports**, even if the industry has recorded a deteriorating trade balance as part of overall decline associated with growing competition from imports.

Geographically concentrated; traditional industries may or may not be geographically concentrated and so constitute a "cluster". This characteristic can vary between industries where economies of agglomeration are useful for some industries, such as ceramics, but not others.

2 WEST MIDLANDS

2.1 ECONOMIC CONTEXT OF THE REGION

The West Midlands Regional Economy

The West Midlands has a population of 5.4 million (mid 2008) which was an increase of 1.9% over the previous five years (a lower rate of growth than the national average 3.1%). Historically the region has been a centre for manufacturing and proportionally has more manufacturing than any other region in the UK. The region has a polycentric development pattern (Bryson and Taylor 2009)³.

The West Midlands matches the UK in terms of applications of innovation (see D1.5), covering aspects such as sales of new products and employment in high-technology businesses, yet it lags behind in other important respects such as investment levels, collaboration and human capital. Rates of new firm formation are particularly low, especially in the major urban areas which also suffer from stagnant or declining levels of population, higher unemployment, poorer skill levels and unattractive environments.

Bryson and Taylor (2009) identify a new innovation belt, which lies outside the major Birmingham and Black Country conurbation and which is the aggregate effect of spatial locational drivers acting independently across several sectors. Here is found higher levels of innovative manufacturing, high rates of new firm formation, high skills and education levels, over representation of business and professional skills. The geography of innovation is facilitated by the motorway network as it provides ready access to corporate markets in London and the South East. However across all industries there is a shortage of skilled labour able to support high value added niche manufacturing. Even amongst those who do have higher qualifications, too few are employed by private sector businesses – 90,000 fewer graduates than would be expected if we matched the national figure.

The West Midlands contributes over 7% of the UK's gross value added (GVA). The region's headline GVA was £94.5 billion in 2008, however, it has been suggested that there is a £10 billion gap as to what the regions GVA should be if it was at the level of the national average (WMRO 2008). It was identified that lower productivity accounted for over 70% of the difference and that lower levels of economic activity accounting for a further 20% of this GVA gap.

Productivity, as measured by GVA per hour worked, was 90% of the UK rate in 2008, similar to the preceding two years, after several years of gradual decline (ONS 2010). In 2007, manufacturing generated 16% of the region's total GVA, ahead of the UK average of 13%, but a significant decline from the sector's 33% share in 1989. GVA per head, at £17,500, was ranked seventh among the nine English regions in 2008, 15% below the UK figure. Gross disposable household income (GDHI) for West Midlands' residents was also seventh, at £13,300 per head.

³ Bryson J R and Taylor M J (2009). The Functioning Economic Geography of the West Midlands Region

[–] Summary Report.

17% of residents are classified as non-white ethnically, which is the second largest figure after London. However these groups have not contributed proportionally to new firm foundation in manufacturing. Members of most minority ethnic groups are less likely to be in employment, are more likely to lack qualifications and are more likely to live in deprived areas than their White-British counterparts, although many minority groups also have higher levels of self-employment and more people with high-level qualifications (WMRO 2009).

The employment rate for the region's working-age residents was 70.6% in January 2010 and the unemployment rate stood at around 10%. As a region, the West Midlands has fared the worst of all regions through the recent recession.

The Region

The West Midlands "Government Office for the Region" (GOR)⁴ is divided into eight subregions, which constitute an amalgam of administrative (see Table 1) and geographical areas (see Figure 1).



Figure 1. The West Midlands Region

1. Herefordshire UA	6. Warwickshire County
2. Stoke-on-Trent UA	North Warwickshire
3. Telford and Wrekin UA	Nuneaton and Bedworth
	Rugby
4. Shropshire County	Stratford-on-Avon
Bridgnorth	Warwick
North Shropshire	7. West Midlands Metropolitan County
Oswestry	Birmingham
Shrewsbury and Atcham	Coventry
South Shropshire	Dudley
5. Staffordshire County	Sandwell
Cannock Chase	Solihull
East Staffordshire	Walsall
Lichfield	Wolverhampton
Newcastle-under-Lyme	8. Worcestershire County
South Staffordshire	Bromsgrove
Stafford	Malvern Hills
Staffordshire Moorlands	Redditch
Tamworth	Worcester
	Wychavon
	Wyre Forest

Table 1. West Midlands administrative regions and sub-regions

The West Midlands contains one of the largest conurbations in England (Birmingham is home to one million people); by contrast, two of the five most sparsely populated counties in England are also found in the region – Herefordshire Unitary Authority and Shropshire.

2.2 SME PROFILING IN THE REGION

2.2.1 SME situation in the region

West Midlands Businesses

In 2008 there were over 365,000 private sector enterprises in the West Midlands region⁵ (7.6% of the UK total), employing approximately 1.9 million people (8.2% of UK total). Of the above total figure of businesses, 258,000 have no employees (c.70%) and only 500 (c.0.14%) employ 250 people or more (255 employ between 250 – 499, and 245 employ 500 or more people) totalling approximately 770,000 employees. This leaves about 106,000 companies (c.29%) employing a minimum of 1 to a maximum of 249 workers (micro-to-medium sized enterprises). Of this latter group, excluding micro-businesses, that employ less than 10 people, the following statistics (Table 2) depicts specific data of West Midlands' 17,395 small-to-medium sized enterprises (c.4.8% of all private sector enterprises):

Nace	Sectors	Companies	Employees
А	Agriculture and fishing	600	4,500
С	Manufacturing	18,000	350,700
D&E	Energy and water	300	11,200
F	Construction	19,500	118,800
G	Distribution, hotels, restaurants	59,300	564,600
H&J	Transport and communication	9,700	132,800
K	Banking, finance and insurance	59,200	424,100
O&P	Public admin and education	18,100	632,300
Q	Other services	14,900	121,900

Table 2. SIC-NACE West Midlands businesses and employee size

 Table 3. West Midlands SMEs by employee size & turnover

Employee bands	Number of businesses	Employees	Turnover £Ms
10 - 19	10,170	140,000	14,230
20 - 49	4,965	154,000	16,949
50 - 99	1,465	102,000	12,606
100 - 199	660	92,000	16,022
200 - 249	135	30,000	3,955

Therefore as depicted in Table 3, small businesses (10 to 49 employees) constitute 15,135 enterprises, employ 294,000 people and have a collective annual turnover of over £31,000 million. There are 2,260 medium sized enterprises (50 to 249 employees) in the West Midlands, employing 224,000 people and having a turnover of over £32,500 million.

There are approximately 4,130 small-to-medium sized manufacturing firms in the West Midlands – about 24% of all SMEs in the region.

⁵ http://stats.bis.gov.uk/ed/sme/smestats2008.xls#'West Midlands'!A1

Employee bands	Number of manufacturing firms	Employees	Turnover £Ms
10 - 19	1,960	27,000	2,459
20 - 49	1,390	44,000	4,305
50 - 99	485	34,000	3,925
100 - 199	245	34,000	4,834
200 - 249	50	11,000	1,500

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As depicted in Table 4, small manufacturing businesses (10 to 49 employees) constitute 3,350 enterprises within the West Midlands, employing 71,000 people and having a collective annual turnover of around £6,764 million. There are 780 medium sized manufacturing enterprises (50 to 249 employees) in the region, employing 79,000 people and having a total turnover of about £10,259 million.

2.2.2 SMEs in traditional sectors

The sector reports (below) provided in this template are derived from longer reports on each industry, which are still works in progress.

The five traditional sectors profiled in this report are an important part of the West Midlands economy, together accounting for nearly 6,500 firms, nearly 140,000 employees and more than \pounds 20 billion of turnover (almost \pounds 25 billion).

Table 5 shows that these five sectors are heterogeneous with respect to size: by number of firms, number of employees and total turnover these sectors differ by orders of magnitude.

Table 5. Number of enterprises, Number of employees, Turnover a	nd GVA per employee by
industry/sector in the West Midlands (2008)	

Sector SIC (2007) Divisions(s)	Leather 15	Ceramics* Part of 23	Textiles 17 & 18	Metal Manufacturing 27 & 28	Automotive 29	Total
Number of enterprises	91	191	648	4,906	580	6,416
Number of employees (annual average)	1,018	4,846	5,526	84,115	42,447	137,951
Turnover (£ million)	£86	£534	£416	£9,610	£9,952	£20,599
GVA per employee (£1.000s)	£40	£31	£25	£39	£33	

* The ceramics industry is defined at the SIC/NACE 3-digit level, for which the data in Table 5 is not publicly available. To approximate the ceramics industry data, we take the 2007 3-digit data for the West Midlands on turnover (which is publicly available) to calculate that ceramics industry turnover was 27% of the total turnover of the Manufacture of other non-metallic mineral products (NMMP) sector. We then apply this percentage to the 2008 2-digit data for the NMMP sector.

Source: Source: Disaggregated regional data at the 2-digit level provided by special request to the Office of National Statistics (Ultimate source: *Annual Business Enquiry*, 2009).

However, in many other respects these industries display sufficiently similar characteristics for "traditional sector" to be a coherent unit of analysis. This is demonstrated by Table 6, which summarises the evidence base on nine sector characteristics, which are investigated in the sector reports presented below.

		Sector and SIC (2003) ^{\dagger}					
Ma	in traditional sector	Ceramics	Textiles	Leather	Metal Man.	Automotive	
cha	aracteristics	262	DB: 17&18	DC: 19	DJ:27&28	34	
1.	Long established	Yes	Yes	Yes	Yes	Yes	
2.	Main source of employment (at least in certain sub-regions) [‡]	Yes	Yes	Yes	Yes	Yes	
3.	Mature and declining	Yes	Yes	Yes	Yes	Yes	
4.	Labour intensive (relative to the average for manufacturing industry in the region)	Yes	Yes	Yes	Yes	No	
5.	Main source of wealth creation (at least in certain sub-regions)	Yes	Yes	Yes	Yes	Yes	
6.	Innovation capacity (see also Table 7 below)	Yes	Yes	Yes	Yes	Yes	
7.	Capacity to diversify into new, high-growth activities	Yes	Yes	?	Yes	Yes	
8.	Export-led contribution	Yes	Yes	Yes	Yes	Yes	
9.	Cluster location (relevant for at least significant industries within the sector)	Yes	No	Yes	No (?)	Yes	

Table 6. Traditional manufacturing sectors in the West Midlands: traditional characteristics matrix *

* Indicative only: some cells are based on informed guesses rather than research.

[†] Classification codes based on SIC 2003. There are some small differences from the revised SIC/NACE codes: for example, in SIC 2003, leather manufacturing includes "manufacture of articles of fur", which is not included in the categories for the revised 2007 NACE/SIC classification

[†] The West Midlands is too big a region for any one industry to be a dominant employer. However, traditional manufacturing industries can be dominant or at least very important sources of employment at the sub-regional level (e.g., ceramics in North Staffordshire; leather in Walsall; metal working in the Black Country; and automotive in Birmingham and Coventry). Loosely speaking, dominant may be interpreted as "important". Source: sector analyses (see below).

These five sectors in the West Midlands correspond well with the traditional industry concept embodied in the GPrix definition. We note that "traditional" is also a term typically used by practitioners when discussing these sectors or their component divisions and industry groups.

Row 6 in Table 6 – Innovation capacity – is a qualitative assessment of capability to innovate and diversify within each of the five sectors. The following section summarises the underpinning evidence in each case. More detail is to be found in each of the sector reports that make up most of this document.

Innovation in traditional sectors

<u>Note</u> that we will be able to flesh out this section when we gain access to Community Innovation Survey data for the West Midlands at the 2-digit level.

This section summarises innovation in the five traditional West Midlands manufacturing sectors: Ceramics, Textiles, Leather, Metal manufacturing, and Automotive. First, we give an outline of innovation in each sector. Table 7 summarises this. Overall, there is clear evidence of innovation potential in these five traditional manufacturing sectors in the West Midlands.

Ceramics

The industry has a strong legacy of innovation embracing both processes and products: finebone China, sanitary ware; spark plugs; kiln and firing technology; surface pattern design, colours and glazes; and, most recently, diversification into hotel and catering ware. Stoke-on-Trent now has a cluster of medium and small firms, many of which are world class innovators in technology and/or design. However, although a strong exporter to traditional markets, the industry has been less successful in diversifying into new export markets.

Sector institutions promote innovation in various ways: the British Ceramic Confederation, the Ceramic Industry Forum (e.g., Master Class and Design to Sell Programmes have promoted, respectively, process and product innovation) and CERAM (which has been particularly instrumental in promoting research-led technical innovation and product development).

<u>Textiles</u>

Both product and process innovation characterise technical textiles. Products include textiles for defence, protection and safety; for vehicles; for medical purposes; and for a variety of industrial applications (means of filtration, etc.). The production of technical textiles such as carbon fibre fabrics, or fibres that respond in a 'smart' way to external influences, are part of the textile industry: if the processes of spinning, knitting or weaving are used, then production belongs to the textile industry. Other, more traditional textile activities have thrived on quality, niche markets and exporting.

Sector-specific initiatives over the last decade have tried to revive the textile and clothing sector in the West Midlands.

- The Midlands Fashion Showcase was funded by RDA Advantage West Midlands to assist with cluster activities, networking events and fashion stimulation and promotion.
- The Coventry Clothing Centre is now defunct but the Creative Hubb is providing cad/cam facilities to the apparel and textile industry.
- AWM's Cluster Action Programme identified "New Pathways", including new export markets, as a way forward and there is a small "Make to order" clothing sub group.

Leather

Innovation within the footwear industry has focused on developing automated and computer-based manufacturing systems. For the tanning, saddlery and leather goods industries, innovation is related to the construction of machinery used for the leather industry, although much of saddlery and light leather goods manufacture is bespoke and hand-made and these industries are therefore classed as 'low-technology'. There has been

some innovation in leather processing and the time required to process the raw material to finished leather is now a matter of days rather than months. The leather industry itself is quite conservative and low tech., with low innovation. Main innovations within the saddlery industry have been in saddle tree technology (e.g., ply bond saddle trees, carbon fibre saddles trees, and more recently, polypropylene saddle trees). Arguably, product innovation in the saddlery and luxury accessories markets is not the key to competitiveness: it was the capability to produce fine and traditional products that allowed the few remaining firms to respond to increasing global demand, increase exports and maintain Walsall's reputation as the "leather town". Walsall saddlery, in particular, is exported all over the world.

Sector-specific initiatives aimed at trying to revive the West Midlands leather sector over the last decade have been non-existent. There are sector-specific institutions that promote the saddlery industry in the West Midlands (the *Walsall Equestrian Society*) and across the UK (*The Society of Master Saddlers*; and the group of trade associations known as the *Worshipful Companies of Cordwainers, Curriers, Loriners and Saddlers*), although none of these actively promote innovation in the industry. There is no trade association in the UK to support innovation in the leather manufacturing industry. There used to be the British Leatherwear Manufacturers Association but due to the reduction in British leather manufacturers, it got combined with the British Jewellery and Giftware Federation. There is a British Leather Federation but this provides support for the leather production and finishing sector, not the manufacturing sector.

Metal manufacturing

Firms in the West Midlands metal manufacturing sector have responded to the changing business environment with innovation along all the standard dimensions: process; product; organisational; and marketing.

Often at the insistence of customers, the "new" and, especially, Japanese management practices and attitudes have brought substantial organisational innovation in the way factories are run in West Midlands metal manufacturing. Accordingly, the firms that have survived, and especially those that have prospered, have undergone cultural change to make innovation built into normal operations. Similarly, customers have played a major role in driving a huge amount of *process innovation*. In particular, although there might appear to be continuity with traditional processes, the control of processes has been transformed. In the main, process innovation in the metal manufacturing sector is also customer led and supported. Typically, West Midlands metal manufacturing firms are not so strong in *product* innovation. However, there is evidence that some firms are working with designers to design products that are easier to manufacture and/or moving towards manufacturing-related services (such as offering advice on choice of alloys) as part of a strategy of moving towards higher valued-added activities. Moreover, a particular strength of the sector is the flexibility of its firms in being able to collaborate with customers to deliver niche or bespoke products. In addition, the sector is export focussed. However, marketing innovation, especially with respect to exporting, remains a common self-reported source of weakness for SMEs in this sector (The GPrix Case Studies provide evidence for this.)

Sector-specific institutions including industry federations – for example, for activities such as Metal Processing, Steel, and Forging – can be an important source of ideas and practical assistance for innovation. Likewise, more generic business organisation such as the Chamber of Commerce and the Engineering Employers' Federation (EEF) are important. For example, the EEF has facilitated organisation innovation with respect to the reduction – even elimination – of dedicated HR personnel by providing firms with best-practice procedures

(for example, on Health and Safety) and documentation (such as staff handbooks). The EEF also organises consortia of SMEs to gain economies in purchasing of, for example, insurance and energy.

<u>Automotive</u>

The automotive sector is identified nationally as a priority sector with innovative capacity. The Technology Strategy Board (TSB)⁶, at the request of the New Automotive Innovation and Growth Team (NAIGT), has identified the areas of automotive technology capability, focussing in particular on the industry's ability to take advantage of the transition to low carbon technologies. In turn, this is a structured evidence base for the prioritisation of UK support.

Sector-specific institutions include the Automotive Council, which in 2009 set up the Supply Chain Council (SCC). The SCC has been tasked with building a consensus on the challenges facing the UK supply chain and to develop the conditions to improve the core competitiveness of the UK supply chain and protect the interests of the UK automotive manufacturing sector, specifically covering R&D, design engineering, power train and component assembly. In addition, the Society of Motor Manufacturers and Traders (SMMT), together with the industry, has carried out several projects to facilitate meeting the Automotive Council's objectives.

Table 7 summarises, giving an overview of the state of innovation in each of the five sectors. Qualifying notes indicate that these judgements do not necessarily generalise across the entire range of activities in each sector. However, each sector contains at least some subsectors and firms that provide evidence of innovation capacity in two or more of product, process, organisational, and marketing innovation. Question marks indicate that more research is necessary in order to make a judgement.

Type of			Sector (SIC 2	003)	
innovation	Leather	Ceramics	Textiles	Metal	Automotive
	DC: 19	262	DB: 17 & 18	Manufacturing	34
				DJ:27&28	
Product	No	Yes	Yes	Yes	Yes
		(notably hotel	(notably technical		
		and catering	textiles)		
		ware)			
Process	Yes	Yes	Yes	Yes	Yes
			(notably technical		
			textiles)		
Organisational	?	?	?	Yes	Yes
Marketing	Yes	Yes	Yes	?	Yes
	(notably new	(but lack of		(successful	(successful exporter;
	export	new export		exporter; but new	but new export
	markets)	markets)		export markets?)	markets?)

Table 7: Innovation in five traditional sectors in the West Midlands

Source: Sector reports (see below)

Detailed sector reports follow for:

- 1. Ceramics
- 2. Textiles

⁶ Technology strategy board. *Automotive technologies: The UK's current capability.* <u>www.innovateuk.org/ssets/pdf/Automotive</u>

- 3. Leather
- Metal manufacturing, and
 Automotive.

1. Ceramics Sector

The content of this template is derived from a longer report, which is still a work in progress: *The UK Ceramics Industry: Sector Report.*

The Ceramics Sector is an example of a traditional industry located mainly in the North Staffordshire area of the West Midlands and identified by the Standard Industry Classification (SIC) code of 262 (at the three digit level). A significant proportion the UK ceramics industry is located in Stoke-on-Trent, which is a sub-region and this has been the case for past 250 years.

1. What is the industry?

In the British Standard Industrial Classification (SIC 2003), the principal pottery/ceramic products correspond to SIC code 262. This corresponds to code 23.4 under the SIC 2007 revised classification (which has been harmonised with the NACE Revision 2 international classification). SIC 262 comprises SIC 2621 (NACE 23.41) – manufacture of ceramic household and ornamental articles, including table ware, kitchen ware, ornamental articles and toilet articles (excluding large sanitary fixtures); SIC 2622 (NACE 23.42) – manufacture of ceramic sanitary fixtures; SIC 2623 and 2624 (NACE 23.43 and 23.44) – manufacture of technical ceramics; and SIC 2626 (NACE 2320) – manufacture of refractory ceramic products. Related industries, but outside SIC 262, include the manufacture of ceramic tiles and flags (SIC 2630/NACE 23.31) as well as bricks, tiles, and construction products (SIC 2640/NACE 23.32).

2. Long established

Ceramics/pottery production has been concentrated in the County of Staffordshire and, in particular, North Staffordshire (in and around Stoke-on-Trent) since at least the mid-18th Century. It has been a global industry since, at least, the early 19th Century. It has not declined steadily since some "golden age" but has undergone various peaks and troughs. For example, the 1950s and 1960s were a period of substantial growth, with the UK industry gaining ground at the expense of the it's French and German counterparts. The industry has a strong legacy of innovation embracing both processes and products: fine-bone China, sanitary ware; spark plugs; kiln and firing technology; surface pattern design, colours and glazes; and, most recently, hotel and catering ware.

3. Once dominant

The ceramics industry was established over 250 years ago in the region. The main dominant force behind the rise of the pottery industry was Josiah Wedgwood who established works at Burslem and Etruria. He established a transport system of canals to the main port of Liverpool as well as experimented with the chemistry of pottery to create a world-famous brand through creative designs and process innovation. In the mid-19th Century up to 50% of the entire population of Stoke-on-Trent worked in the ceramics industry. Employment was 60,000 in 1948 and well under 10,000 by 2010 (excluding the local supply chain). So dominant is the industry to the local economy that the entire area has become known as the Potteries and even the local FA Premiership football club (Stoke City) has the nickname of the Potters.

4. Recent decline

The most recent annual data refers to the period 1995 to 2007 for UK national data (*Annual Business Enquiry*, Subsection D1, 2009) and to the period 1998 to 2007 for regional West

Midlands data (*Annual Business Enquiry*, 2009: Country and Government Office Region by SIC – 1998-2007). This data is nominal (not adjusted for inflation) but does indicate the general direction of change over the decade 1998-2007 (i.e., excluding the effects of the financial crisis and recession).

- Number of enterprises:
 - o National: from 886 to 579
 - o West Midlands: not available
- Total turnover:
 - National: from £1,967 to £1,199 million
 - o West Midlands: from £942 to £519 million
- GVA (at basic prices):
 - National: from £990 to £524 million
 - West Midlands: from £473 to £232 million
- Total purchase of goods, materials and services:
 - National: from £994 to £683 million
 - West Midlands: from £479 to £289
- Total employment
 - o National: from 37,000 in 1998 to 15,000 in 2007
 - West Midlands: not available

5. Relatively labour intensive industry

The key date for the ceramics industry is the 1957 Clean Air Act which forced the iconic coalfired bottle-shaped kilns to be replaced by gas-fired horizontal kilns. Over 2,000 bottleshaped kilns were lost and during this period the industry generally took the opportunity to move away from a labour intensive production to more efficient capital-intensive means of production. The showcase factory became the Wedgwood factory at Barlaston which was regarded for many years as one the most efficient ceramics tableware production facilities in the world.

However, compared to West Midlands manufacturing as a whole, North Staffordshire's ceramics industry remains relatively labour intensive: respectively, in 2007, total employment costs as a percentage of turnover were 18% and 33% (*Annual Business Enquiry*, 2009: Country and Government Office Region by SIC – 1998-2007). The respective factors by which total employment costs exceed total net capital expenditure as a percentage of turnover are 8 in West Midlands manufacturing and 17 in the ceramics sector.

6. Major source of wealth creation and employment in regional (or sub-regional) economies.

In round terms, UK ceramics is still a £1.2 billion industry directly employing 15,000 and indirectly creating employment for many more. The industry in the West Midlands accounts for around half of this. Moreover, the West Midlands industry is still at the centre of a ceramic supply industry, which is also an important traditional industry in the sub-regional economy of North Staffordshire.

7. Retain capacity for innovation

The ceramics industry is not a "dying industry"; an industry in terminal decline, as is sometimes claimed. For example, in the tableware and giftware sub-industry (SIC 2621), 80% of the decline in turnover over the past decade or so has been accounted for by the decline and eventual bankruptcy of two major firms: Doulton and Wedgwood. Stoke now has a

cluster of medium and small firms, many of which are world class innovators in technology and/or design. Technical innovation characterises a range of technical ceramics; technical and non-technological innovation are displayed by world-leading firms in hotel and catering ware; and design-intensive products characterise many SMEs and studio potters.

8. Diversification from within traditional industries towards new, high-growth activities

There are several examples of best practice in the way the industry has innovated. Firstly, the rapid prototyping and design facility at the Hothouse. Secondly, CERAM Research including the Powder-Matrix exchange of materials information, which is hosted at this world-class research and development laboratory. Finally, energy-saving materials being developed by ENDEKA that will fire ceramics at lower temperatures and thus save money and fuel.

The most notable example of diversification into new, high-growth activities is the development of several of the now largest producers as global leaders in the supply of hotel and catering ware.

9. Substantial contribution to regional (or sub-regional) exports

Export and import data from >UK Trade Information< for SITC 666 (roughly equivalent to SIC 262) is as follows for 2008: Imports: £264 million; Exports: £190 million. Ten years ago, the industry was in surplus. Even so, this is an important contribution to UK, regional and, especially, sub-regional exports. (Note: this trade data is national, i.e., not adjusted for inflation)

10. Traditional industries may or may not be geographically concentrated and so constitute a "cluster"

Much of the UK ceramics industry is concentrated in North Staffordshire and is typically analysed as an industrial "cluster". This applies in particular to the tableware and sanitary ware industries, although not to refractory products and technical ceramics.

Notably, much of the institutional infrastructure of the ceramics industry is concentrated in North Staffordshire (Stoke-on-Trent). For example:

- **Trade associations**: e.g., British Ceramics federation; Ceramic Industry Forum.
- **Research and knowledge transfer bodies**: CERAM; Hothouse.
- **Employment and training**: Association of Ceramic Training and Development (ACTD); CATU.
- HEI links: Staffordshire University (AMD).
- **Partnerships**: North Staffordshire Regeneration Partnership, Ceramic Industry Development Committee; Biennial; Urban Network in Ceramics (UNIC).
- **Other**: Chamber of Commerce.

11. Summary

Table 8 summarises the main features of the ceramics industry.

Table 8. Ceramics manufacture in the West Midlands: Sector divisions and traditional characteristics matrix*

Main feature	2621 household (23.41)	2622 sanitary (23.42)	2623 insulators (23.43)	2624 technical (23.44)	2625 other (23.49)	2626 refractory (23.20)
Long established	Yes	Yes	No	No	Yes	No
Main employment	Yes	No	No	No	No	No
Mature and declining	Yes	Yes	Yes	No	Yes	Yes
Labour intensive	Yes	Yes	Yes	No	Yes	Yes
Main wealth creation	Yes	No	No	No	No	No
Innovation capacity	No	No	Yes	Yes	No	Yes
Export-led contribution	Yes	No	Yes	Yes	Yes	Yes
Cluster location	Yes	Yes	Yes	Yes	Yes	Yes

Classification codes based on SIC 2003. NACE Revision 2 codes in parentheses.

2. Textiles Sector

The content of this template is derived from a longer report, which is still a work in progress: *The UK textiles industry: The industry defined.*

The textile industry is defined by Division 13 and 14 in the NACE/UK 2007 SIC structure. According to SIC 2003, Sector DB, the textile industry is defined by "Manufacture of textiles and textile", which includes both Division 17 (Manufacture of textiles) and Division 18 (Manufacture of wearing apparel).

1. What is the industry?

The Business Voice *West Midlands Textile & Clothing Sector Profile* (TCSP) of 2009 summarises the industry into 3 categories:

- 1. Materials production, processing and finishing, which includes preparing and spinning raw textile fibres, weaving textiles like cotton, wool and silk, and the manufacture of other textiles, such as carpets, rope, and textiles using man-made fibres;
- 2. Textiles and clothing design; and
- 3. Manufacturing of made-up articles.

However, according to a European Foundation for the Improvement of Living and Working Conditions Report, *Trends and drivers of change in the EU textiles and leather sector* (2008), the textiles part of the industry is composed of five major subsectors: clothing textiles; interior textiles; technical textiles; textile services; and distribution/retail. This report focuses on the first two, which are the more 'traditional' sectors, but also notes the innovation opportunities in the third subsector.

Interior textiles

Includes carpets (woven squares, bathroom rugs, tufted, needle felt, etc.); furnishing fabrics (flat weaves, pile fabrics, plain, jacquard, printed, etc.); upholstery fabrics (curtain fabrics, wall coverings, etc.); household linen (kitchen linen, table linen, bed linen, bath linen); and mattress ticking. According to the TCSG (Textile & Clothing Strategy Group) 2000 *National Strategy for the UK Textile and Clothing Industry*, the UK has a "significant" carpet industry and a "strong" interior textiles industry, while the linen sector has a "healthy" trade balance. The UK carpet industry used to have 3 main geographical foci – the West Midlands, Scotland and West Yorkshire & Lancashire. Today the industry is fragmented.

Clothing textiles

Includes woven and knitted fabrics for sportswear, leisure wear, rainwear, nightwear, workwear, underwear, and fashion articles, as well as for ready wear or knitted wear, such as babies' and children's wear, sweaters and other outerwear, tights, stockings, socks, gloves, berets, etc. The UK market for clothing alone is worth around £42.45 billion, accounting for about 6% of total consumer spending. Over time, prices have declined (even more so, once adjusted for inflation). Most items of clothing and footwear now cost less than they did at the turn of the century, not only relative to earnings but also in absolute terms. Underpinning the dramatic decline in prices has been the sourcing of clothing and footwear from countries that offer low labour costs. More than 90% of most apparel lines are now imported. The People's Republic of China and Hong Kong are the leading exporters, but UK imports as a whole are spread across a range of countries, from Italy and Turkey to Vietnam and Bangladesh.

Technical textiles

Includes the following textile products: geotextiles and textiles for building; textiles for agriculture, gardening and fisheries; textiles for defence, protection and safety; textiles for vehicles; textiles for medical purposes; for transport and packing; and for industrial applications (means of filtration, etc.). There seems to be some ambiguity over whether the production of technical textiles such as carbon fibre fabrics are part of the textile industry but the majority perspective seems to be that if the processes of spinning, knitting or weaving are used, then production belongs to the textile industry.

2. Long established

The textile industry in the UK has its present day roots in the early days of the Industrial Revolution. Sir Richard Arkwright, for example, established a spinning and weaving factory in Derbyshire in 1771. Some strong regional associations were developed, for example, cotton textiles with Lancashire in the North West, woollens and worsteds with Yorkshire, knitwear with Scotland, and carpets with Kidderminster in the West Midlands. Aside from this last, textiles & clothing are not generally regarded as a traditional industry in the West Midlands. Clothing production generally is more widely dispersed but with some concentration in North and East London and in the East and West Midlands.

3. The industry in the West Midlands

The WM clothing industry is believed to consist of 500-700 "manufacturers". Of these, probably only about 15% manufacture in the original sense. A further 20% are involved in "short run design and manufacture" where volume manufacture is imported. Some 65% are purely import and distribution businesses. Most of these firms are located in the Birmingham and Coventry conurbations and the industry is not so much traditional in these areas as being the result of the concentration of Asian immigrants since the 1950s and 1960s. Further stimulus was given to Asian clothing SMEs as a response to several recessions and the ability to exploit supply connections in India, Pakistan and Bangladesh. The willingness to accept low wages, in many cases compensated by family involvement in entrepreneurial businesses, has contributed to survival if not prosperity.

AWM (prior to its demise) has estimated the number of "specialist" clothes manufacturers (e.g., corporate, workwear and safety clothing) as being 40% of the total, though this figure should be treated with great caution. There are a small number of niche businesses in the region – whether defined in terms of business model, positioning concept, markets or materials. An example of "exotic" locally designed and made underwear and swimwear, and innovative marketing channels is provided by Kiniki, established in 1976. Their original direct catalogue marketing model was supplemented in 1996 with a transactional website for safe online ordering. Kiniki has supplied over 700,000 customers worldwide and has just patented worldwide its range of Tan Through swimwear.

Another example of a specialist firm with an innovative marketing channel strategy is Alpaca Wool Knitwear and Clothing which is the largest UK based wholesale business specialising exclusively in pure Alpaca knitwear. Alpaca has customers in North America, Europe, Japan and Africa but with the majority in the United Kingdom. A third example is Keep and Share which produces high quality knitwear with an ethical emphasis on "slow fashion" where production and usage are geared to minimising harmful environmental impacts and customers are encouraged to keep items for a long time rather than submit to the "fast fashion" philosophy.

In its heyday, the West Midlands was regarded as the carpet capital of the UK, and with some justification, the carpet capital of the world. Today there is only one manufacturer which is not an SME (Brintons). According to The Carpet Foundation, other main manufacturers in the West Midlands are SMEs i.e., Victoria Carpets, Adam carpets, Brockway carpets, Carpets of Kidderminster and The Grosvenor Wilton Company Ltd. A brief profile of one of the above is provided:

Grosvenor Wilton is one of the country's oldest and most prestigious independent carpet manufacturers with a heritage spanning over 200 years. The ethos of quality and innovation lives on in a legacy of authenticity, classical English design and craftsmanship sustained by continuous investment in the latest design and production technology.

4. Recent decline

The whole UK industry has been in sharp decline in recent years. Large UK retailers and large UK brand owners have sourced a growing proportion of their clothing from a wide variety of foreign suppliers. As widely quoted, retailer Marks and Spencer famously used to trumpet its "buy British" strategy, but recently has been procuring as little as 5% of clothing only from UK suppliers (Marks and Spencer is currently claiming that it seeks to increase this proportion as Chinese prices increase and with the demand for ever reducing delivery times). British clothing manufacturing brand Jaeger has reduced its UK manufacture from almost 100% to nothing and Burberry has also closed most of its UK factories.

A more local and smaller example is the story of Belstaff. It is a tale of product innovation but also of high local manufacturing costs and the failure to capitalise on a celebrated brand. Belstaff was founded in 1924 by Harry Grosberg in Stoke-on-Trent in Staffordshire. The original Belstaff product line consisted of waterproof garments for men and women – it was from this range that Belstaff created the first ever waterproof and breathable fabric, the now famous "wax cotton". This was a very fine Egyptian cotton treated with natural oils, making it waterproof while leaving the cotton's excellent breathability characteristics unimpaired. With this waxed cotton Belstaff specialised in the creation of high technology wear for the motorcyclist, making garments that were windproof, rainproof and resistant to heavy friction.

The famous Trialmaster jacket has been worn by generations of motorcycle enthusiasts from the trials champion Sammy Miller, and Phil Read who always wore his when competing in Grand Prix races in wet weather, through to the legendary Ernesto "Che" Guevara who used his during his motorcycle journey across Latin America. The company continued to be at the forefront of technology when it came to producing motorcycle jackets in the 1970's and 1980's, introducing the XL500 jacket in "Belflex" nylon – a totally waterproof and hardwearing nylon specifically developed for Belstaff. During the textiles crisis of the early 1990's the Stoke-on-Trent factory closed. Belstaff was purchased by a fanatical biker named Franco Malenotti who transferred production to Italy where this cult brand is still made to this day⁷.

It is believed that the Asian SMEs in the West Midlands have also suffered but the extent of this is not clear. It is apparent that even value retailers such as Primark, New Look and BHS are buying from UK manufacturers although much of this appears to be sourced from the Leicester area in the East Midlands. It appears from recent research that some of the firms which procure the orders from retailers are then sub-contracting to Asian firms, some of

⁷ http://www.philipbrownemenswear.co.uk/Brand/Belstaff.aspx

which are operating as "sweatshops" using illegal workers and sometimes paying as little as half the UK's minimum wage. The extent of this problem is not known and it is not known whether this behaviour exists in the West Midlands as well.

Some aggregate data for the West Midlands confirms the impression of overall decline (*Annual Business Enquiry*, 2009: Country and Government Office Region by SIC - 1998-2007). This data is nominal (not adjusted for inflation) but does indicate the general direction of change over the decade 1998-2007 (i.e., excluding the effects of the financial crisis and recession).

- Total turnover: from £1,359 to £639 million
- GVA (at basic prices): from £539 to £244 million
- Total purchase of goods, materials and services: from £824 to £400

5. Relatively labour intensive industry

Clothing manufacture is relatively labour intensive and this has been a major cause of the decline in overall UK manufacture. Outsourcing and offshoring have been a general response. One West Midlands example of this response is shown by the LS Group, which is probably the largest clothing SME in the region with a turnover in excess of £10 million per annum and over 100 staff. Products include fleeces, jeans and jackets as well as work and corporate wear. The business offers flexible UK manufacturing facilities and has joint venture activities based in Portugal and the Far East. The company slogan is "Manufacturing the same product in the UK, Portugal and the Far East". The Group has exports that contribute some 20% to the business turnover and is expanding mainly within the EU.

From the figures shown earlier it can be seen that most Asian SMEs are already engaged in importing rather than manufacturing in the UK, though, also as noted earlier, some retailers are showing signs of wanting to source more clothes in the UK.

Compared to West Midlands manufacturing as a whole, the West Midlands textiles industry remains relatively labour intensive: respectively, total employment costs as a percentage of turnover are 20% and 33% (*Annual Business Enquiry*, 2009: Country and Government Office Region by SIC - 1998-2007). Having said that, the respective factors by which total employment costs exceed total net capital expenditure as a percentage of turnover are very close: around 8 in both West Midlands manufacturing and in the ceramics sector.

6. Major source of wealth creation and employment in regional (or sub-regional) economies.

The overwhelming majority of companies are Asian-owned with a predominantly Asian female workforce. The industry thus provides an important source of employment for traditionally marginalised workers and generates wealth in inner city areas.

7. Retain capacity for innovation

As noted elsewhere, there has been a modicum of product and process innovation generally and particularly in technical textiles. For example, fibres that respond in a 'smart' way to external influences like temperature changes, humidity, chemicals and bacteria, light and radiation, fire, electric discharge or mechanical use will enable the production of functional or smart clothing for sports and leisure wear as well as work wear and protective clothing.

8. Diversification from within traditional industries towards new, high-growth activities

Good examples can be found of SMEs which have diversified from their original core offerings. Selectus is a firm which has developed from a basic ribbon manufacturer into "worldwide innovation in technical narrow fabrics". For example, it produces narrow fabrics which incorporate a brand protection system which enables the identification of counterfeit clothing. Another product is PANiQmode interactive textile touchpads for fitting into interactive apparel or sold as an accessory.

NP Aerospace is a company which is engaged in technical textiles, in the design, manufacture and supply of composite moulded materials to the aerospace, medical imaging, automotive and defence industries. Products include ballistic resistant helmets, body armour, low x-ray absorbent medical supplies and light armoured vehicle structures.

9. Industry survival initiatives

During the 1980s the Government considered clothing to be a "sunset" industry requiring a policy of managed decline. Views changed in the 1990s and the TCSG 2000 *National Strategy for the UK Textile and Clothing Industry* called for, amongst others, enhanced innovation through collaboration, better marketing skills and better exploitation of technical expertise in Higher Education and the UK's design talent.

Over the last decade a number of initiatives have tried to revive the textile and clothing sector specifically in the West Midlands. The Midlands Fashion Showcase was funded by RDA Advantage West Midlands to assist with cluster activities, networking events and fashion stimulation and promotion. The Coventry Clothing Centre is now defunct but the Creative Hubb is providing cad/cam facilities to the apparel and textile industry. A sector profile (TCIWM, 2009)⁸ led to an "Action Plan" covering a number of issues and linking to the activities of AWM's Interior and Lifestyles Cluster which includes textiles and clothing. The Cluster Action Programme in the Plan has identified "New Pathways" including new export markets as a way forward and there is a small "Make to order" clothing sub group. It is envisaged that groups would be multi-sectoral in their membership, consisting of approximately 10-12 businesses and operating for approximately six months.

10. Substantial contribution to regional (or sub-regional) exports

It has not proved possible to provide quantitative data covering textile and clothing exports from the West Midlands. Evidence from discussions with representatives of the industry suggest that imports, rather than exports, characterise most of the small Asian firms in the clothing sector but that firms within technical textiles, interior textiles and carpets export a significant proportion of their output. Our three textiles case studies reveal export percentages from 20% to 80% which are, in two cases (Kinicki and Party Shop Supplies), increasing. What these two firms have in common is differentiated offerings with a clear added value for the customer, an internet based business model, and a recognition that home markets are limited but export markets represent huge and exploitable potential. With the exception of the particular internet business model, other exporting firms in the sector also seem to have clear superior customer value and see the necessity to leverage that over international markets. Technical innovation seems to underpin competitive advantage but marketing innovation seems also to be key, and is perhaps the area which requires most support.

⁸ TCIWM (Nov, 2009). *Textile and clothing industries in the West Midlands: Sector Profile*. A report prepared for Business Voice West Midlands.

11. Traditional industries may or may not be geographically concentrated and so constitute a "cluster"

Please refer to earlier sections for discussion of the geographical concentrations associated with the textile sector.

3. Leather Sector

The content of this template is derived from a longer report, which is still a work in progress: *Leather manufacturing in the UK and the West Midlands*.

The Leather Sector in the UK covers the footwear and leather supply chain. This ranges from the processing of raw materials through to wholesale distribution of finished products, with the inclusion of after-sales servicing and repair activities. Under the SIC 2007 revised classification (which has been harmonised with the NACE Rev. 2 international classification) the leather sector corresponds to SIC Codes 14 and 15.

1. What is the industry?

The four main sub-categories are "Manufacture of leather clothes" (SIC 1411); "Tanning and dressing of leather; dressing and dyeing of fur" (SIC 1511); "Manufacture of luggage, handbags and the like, saddlery and harness" (SIC 1512); and "Manufacture of footwear" (SIC 152). A number of business activities reside within these sub-categories. Additional sub-categories relate to the wholesale of hides, skins and leather (SIC 4624); and repair of footwear and leather goods (SIC 9523), although these are not typically classed as manufacturing aspects of the leather industry.

2. Long established

Long established, the leather industry is currently widely and unevenly distributed across the UK and based around traditional industrial specialisms at county and regional level. The East Midlands, North West, and London account for around half the total employment in the country. Four county/unitary authorities (Northhamptonshire, Lancashire, the West Midlands, and Somerset) account for around 30%. In terms of the distribution of activities/specialisms at the regional level most of the remaining leather production is found in South West England and Scotland; the majority of footwear manufacturing is concentrated in the East Midlands, with some in North West England; repair activity is spread evenly across the UK; and leather goods manufacturing is mainly focused on South West England and the West Midlands (which is concentrated in the Walsall area). Specific to the West Midlands is also the manufacture of saddlery and equestrian supplies; this is also concentrated in Walsall (Skillfast-UK, 2007⁹).

3. Once dominant

The leather industry in the West Midlands dates back to the 14th Century when leather was used in the making of bottles and flasks. In the 16th and 17th Centuries leather was favoured as a material for protective coats and jackets. Almost 2,000 people are currently employed within the leather industry in the West Midlands. These are mainly located in Walsall. The Walsall leather industry was once one of the main sources of employment at this sub-regional level. The introduction of the railways and the sewing machine gave a boost to the industry leading to a golden age of production during 1870-1900 when Walsall had the greatest concentration of leatherworkers in Northern Europe. In 1900, Walsall leather trades were at their peak, employing around 10,000 people¹⁰. However, most of the industries that

⁹ Skillfast-UK (July, 2007). *A Sector Skills Agreement Action Plan for footwear and leather*. Report from the Sector Skills Council for Fashion and Textiles.

¹⁰ Background information sourced from Walsall Leather Museum (2009; *A leather encyclopaedia: Leather glossary of terms.* <u>www.walsall.gov.uk/leather_glossary_terms-3.pdf</u>) personal communication with Walsall Leather Museum curator (2010); and Walsall Council (2009; *A Walsall timeline.* <u>www.walsall.gov.uk/a_walsall_timeline.pdf</u>).

once dominated the town have now disappeared (glove-making, travel goods manufacture, handbags, for example). These have been victims of cheap imports from other countries. The currying industry (stretching and finishing of tanned leather) has also disappeared, having been replaced by the import of cheaper, ready prepared, hides. The industry is now split into two 'sub-industries'; a saddler and equestrian supplies industry, and a light leather goods industry.

Saddlery and equestrian supplies: Walsall has been the world centre for the saddler trade since the 19th Century where it is thought to have grown from the craft of lorinery (saddler's ironmongery) which was established in the town in the 15th Century. Throughout the first half of the 20th Century saddle making was seen as a dying trade with an aging workforce, and by the mid-1950s only a dozen or so makers remained. The increasing popularity of riding from the 1960s on led to an increased demand for saddlery. Today there are around 40 saddlery and bridle manufacturers in Walsall; including one Royal Warrant holder¹¹. Most saddlery businesses tend to be small/medium size, employing between one and 100 employees.

Light leather goods: This industry has seen severe contraction since the 1970s, although the number of manufacturers has recently stabilised and currently includes two Royal Warrant holders. Today there are only around ten manufacturers in Walsall¹². Walsall manufacturers have experienced difficulties competing with the low labour costs of many overseas manufacturers (from Argentina, China and India, for example).

4. Recent decline

The Industry Tables of the 1951 Census records 72,604 people as being employed in the leather sector (including fur goods) in England and Wales (Mounfield, 2004¹³). Recent reports (Skillfast-UK, 2007¹⁴; Skillset, 2010¹⁵) indicate that the manufacturing output of the UK leather industry has declined, but that productivity has risen. Clothing and footwear prices have fallen, but suppliers of niche and luxury leather goods are reportedly doing well. *Annual Business Enquiry* data for 1995-2007 shows that the leather sector once contributed around £300-£900 million to the UK economy each year, and employed between 9,000 and 35,000 people. There were between 700-1800 businesses¹⁶. There has recently been a decline in the industry which is expected to continue into the medium term. Output and employment in the UK leather sector was harder hit during 1998-2004 than the textiles and apparel sectors. During this period GVA fell by 53%; employees fell by 63%; and the number of enterprises fell by 36%. Figures for 2008 indicate a further decline in the industry (see Table 9). A decline in UK output of 57% between 2006 and 2014 has been forecast, although the wholesale

¹³ Mounfield, P. R. (2004). *The Northamptonshire leather tanning, leather dressing and allied trades.* Mounfield Publications.

http://mounfieldpublications.com/northamptonshire/tanning_leather_dressing. html

¹⁴ Skillfast-UK (July, 2007). A Sector Skills Agreement Action Plan for footwear and leather. Report from the Sector Skills Council for Fashion and Textiles.

¹⁵ Skillset (2010). Finding out about footwear and leather manufacturing (a summary of the Skillfast UKAACSLMIreport).http://readingroom.lsc.gov.uk/sfa/cas/cas-skillsetfootwearandleatherv2may2010.pdf

 $^{^{\}rm 11}$ An estimate provided through personal communication with the Curator of Walsall Leather Museum.

¹² An estimate provided through personal communication with the Curator of Walsall Leather Museum.

skillsetfootwearandleatherv2may2010.pdf ¹⁶ Note that these figures are based on pre 2007 SIC codes and include "manufacture of articles of fur". This is not included in the leather manufacturing categories for the revised 2007 NACE/SIC classification.

component of the footwear and leather industry is expected to see modest growth in employment.

NACE Code ^a	Description	Number of enterprises	GVA (£million)	Employment
14.11	Manufacture of leather clothes	71	7	not available
15.11	Tanning and dressing of leather; dressing and dyeing of fur	82	22	1,000
15.12	Manufacture of luggage, handbags and the like, saddlery and harness	246	100	2,000
15.2	Manufacture of footwear	204	154	4,000
	Total	603	283	7,000

Table 9. Profile of the leather industry across the UK, broken down by activity

Source of information: ONS Annual Business Enquiry Release 2010 (2008 data). ^a Classification codes taken from SIC/NACE 2007 Rev. 2.

Some aggregate data for the West Midlands confirms the impression of overall decline (*Annual Business Enquiry*, 2009: Country and Government Office Region by SIC – 1998-2007). This data is nominal (not adjusted for inflation) but does indicate the general direction of change over the decade 1998-2007 (i.e., excluding the effects of the financial crisis and recession).

- Total turnover: from £139 to £91 million
- GVA (at basic prices): from £57 to £40 million
- Total purchase of goods, materials and services: from £84 to £51

One of the key issues facing the Walsall leather sector is the shortage of skilled workers and those that have the required design and technology training. This is partly a consequence of the low availability and take-up of vocational education and training, including apprenticeships, although Skillfast-UK (2007) reports that take-up of publicly funded saddlery vocational qualifications and registration of leather goods apprenticeships in England is proportionally higher than for the textiles sector. A lack of provision for apprenticeships is a concern, however; only a small number of providers offering apprenticeships are active, and none in the West Midlands area (2007 figures). The provision of educational programmes is also geographically limited. The age structure of the leather sector is heavily weighted towards older age groups and therefore one of the key challenges is to attract new recruits to offset age-related decline in the workforce.

5. Relatively labour intensive industry

The labour intensiveness of the leather sector is dependent on the extent to which companies depend on mass production and tends to be sub-sector specific. The leather goods and saddlery industries are more labour intensive than some of the other leather sub-sectors (footwear, for example). Saddlery is particularly so, being heavily reliant on hand-

produced and bespoke manufacture. The need to make use of new technologies if leather sector industries are to remain competitive has been emphasised (EMCC, 2004¹⁷).

However, compared to West Midlands manufacturing as a whole and the regional leather sector, the leather industries remain relatively labour intensive: respectively, in 2007, total employment costs as a percentage of turnover were 18% and 22% (*Annual Business Enquiry*, 2009: Country and Government Office Region by SIC – 1998-2007). The respective factors by which total employment costs exceed total net capital expenditure as a percentage of turnover are 8 in West Midlands manufacturing and 10 in the leather sector.

6. Major source of wealth creation and employment in regional (or sub-regional) economies.

Current estimates suggest that the West Midlands leather industry will require an estimated 4,000 recruits between now and 2017, as a consequence of a rise in demand for leather manufacturing (Skillset, 2010).

7. Retain capacity for innovation

Although the leather industry in Walsall has declined over recent years, the increased demand for saddlery means that the town has retained its pre-eminent role and Walsall is still known as the "leather town". Evidence of this pre-eminent role is seen in the nature of country-wide terminology used to define saddlery makers: "Town Saddlers" are those employed in Walsall; "Country Saddlers" are those that work anywhere outside Walsall. The development of leather-related industries has been significant in defining the importance of the town and indirect employment has developed as a consequence of the leather industry, e.g., equestrian equipment such as jackets, and metal fittings for saddlery. The legacy of the leather industry is Walsall is therefore still visible in current industries and makes a major contribution to the local identity. This is evident in the development of the Leather Heritage area in Walsall which is contributing to regeneration in the area. The town also has a dedicated leather museum (*The Walsall Leather Museum*, which opened in 1988 on the site of a disused leather factory) that tells the story of the Walsall leather trades.

Innovation within the footwear industry has focused on developing automated and computer-based manufacturing systems (see Sector Futures: Leather and Textiles¹⁸). For the tanning, saddlery and leather goods industries, innovation is related to the construction of machinery used for the leather industry, although much of saddlery and light leather goods manufacture is bespoke and hand-made and these industries are therefore classed as 'low-technology' (Lee 2003). There has been some innovation in leather processing and the time required to process the raw material to finished leather is now a matter of days rather than months. The leather industry is quite conservative and low tech., with low innovation. Main innovations within the saddlery industry have been in saddle tree technology (e.g., ply bond saddle trees, carbon fibre saddles trees, and more recently, polypropylene saddle trees). There has been some computerisation in leather goods manufacture but there is still a lot of hand-work involved.

8. Diversification from within traditional industries towards new, high-growth activities

¹⁷ EMCC (2004). *Textiles and leather in Europe: The end of an era or a new beginning.* Report for the European Monitoring Centre on Change (EMCC).

www.eurofound.europa.eu/emcc/publications/2004/sf_lt_1.pdf

¹⁸ www.eurofound.europa.eu/emcc/content/source/tn04004a.htm

The bespoke nature of saddlery and light leather goods manufacture does not lend itself towards new, high-growth activities and SMEs in these sub-sectors have not tended to diversify from their original core offerings. The leather manufacturing sector in the West Midlands and across the UK is limited by its lack of trade associations, especially those that advise on innovation. This limits the support available that might help encourage SMEs to move towards new, high-growth activities.

9. Substantial contribution to regional (or sub-regional) exports

Both of the West Midlands sub-industries make a major contribution to regional exports. Walsall saddlery is exported all over the world. The remaining manufacturers in the light leather goods sector are mostly producing for the luxury accessories market. Japan and the USA are key export markets.

10. Traditional industries may or may not be geographically concentrated and so constitute a "cluster"

Most of the UK saddlery industry is concentrated in Walsall and there is an institutional infrastructure based around this. For example, the *Walsall Leather Museum* and the *Walsall Equestrian Society*. The remainder of the institutional infrastructure of the leather industry is more widely spread across the UK. Some trade associations; research and knowledge transfer bodies; and employment and training organisations associated with the sector are listed below:

Trade Associations

- Walsall Equestrian Society.
- The <u>Society of Master Saddlers</u>.
- The Worshipful Companies of Cordwainers, Curriers, Loriners and Saddlers.
- International Textile, Garment and Leather Workers' Federation (ITGLWF).
- The Confederation of National Associations of Tanners and Dressers of the European Community (<u>www.euroleather.com</u>).
- The Textile Institute: covers the footwear industry.

Research and development

- Society of Leather Technologists and Chemists.
- British Leather Confederation Leather Technology Centre: offers technical advice and training to companies in the leather supply chain.
- SATRA Technology Centre: offers a range of testing, research, training and consultancy services to the footwear industry.
- The UK Leather Federation (<u>www.ukleather.org/about.aspx</u>).

Employment and training

- British School of Leather Technology.
- Capel Manor College, London (Advanced Certificate in Saddlery; Cordwainers' Saddlery Diploma).

11. Summary

Table 10. Leather manufacture in the West Midlands: Sector divisions and traditional characteristics matrix

Main feature	14.11	15.11	15.12	15.2
	leather clothes	tanning &	luggage,	footwear
		dressing	saddlery, etc	

FP7-SME-2009-1-245459 – GPRIX

Long established	Yes	Yes	Yes	Yes
Main employment	No	No	Yes	No
Mature and declining	Yes	Yes	Yes	Yes
Labour intensive	No	Yes	Yes	No
Main wealth creation	No	No	Yes	No
Innovation capacity	Yes	Yes	Yes	Yes
Export-led contribution	No	No	Yes	Yes
Cluster location	No	No	Yes	No

*Indicative only: at present based on informed guesses rather than research. Classification codes based on SIC/NACE 2007 Revision. 2.

4. Metal Manufacturing Sector

The content of this template is derived from a longer report, which is still a work in progress: *The metal manufacturing sector in the West Midlands: A preliminary enquiry.*

1. What is the industry?

SIC (2003), which was harmonised with NACE 1.1, defined Section DJ, "Manufacture of basic metals and fabricated metal products". In SIC (2007), harmonised with NACE 2 to the four-digit level, this corresponds to Section C, Manufacturing, Divisions

- 1. 24 Manufacture of basic metals and
- 2. 25 Manufacture of fabricated metal products, except machinery and equipment.

These are more or less equivalent to divisions with the same name in SIC (2003)/NACE 1.1 (respectively, 27 and 28).

Interview evidence suggests that these SIC categories are recognisable to practitioners who, more succinctly, refer to divisions 24(27) and 25(28) as, respectively, "metal processing" and "metal bashing". Metal processing encompasses the conversion of metal from one state to another (e.g., transforming ore or scrap into some usable form such as bars, wire, tubes or castings, which are usually inputs for other manufacturers' products. Metal bashing or metal fabrication refers to forming metal into either finished products or components for other manufacturers' products. Together, we refer to the two SIC/NACE Divisions within Sector DJ as the "metal manufacturing sector".

Much of the West Midlands metal manufacturing sector is located in the Black Country subregion.

Both in Division 27, outside of basic processing (27.1) and particularly in Division 28 the typical firm is an SME.

Interview evidence suggests that margins in West Midlands' metal manufacturing are mainly low and volatile. In turn, low margins help to explain why the rate of investment is low relative to manufacturing industry as a whole.

2. Long established

The metal manufacturing sector can be traced back to the pre-industrial era. By the 18th Century, there was established manufacture in the West Midlands of products such as wood screws, locks, hinges, shackles, bridles, bits, stirrups and a range of marine products. By the end of the 19th Century in the West Midlands, the recognisably modern industry had begun to emerge. This may be exemplified by two large, multi-national companies that became major players in the 20th Century: Guest, Keen and Nettlefolds (GKN); and Imperial Metals Industries (IMI).

The histories of these firms suggest:

- 1. The deep historical roots of the metal manufacturing sector in the West Midlands;
- 2. World-class capacity to innovate; and
- 3. An environment in which small companies can grow both organically and through merger and acquisition into large firms with global reach based on unique technology and know-how.

Moreover, these suggestions are not merely of historical interest. The sector has also benefitted from some notable successes in more recent times. For example, the UK-based multi-national group Caparo began in 1968 with a £5,000 loan and first year sales of £14,000.¹⁹ Caparo now manufactures on 70 sites in the UK and elsewhere (notably in India) with its main interests in the design, manufacture and marketing of steel, automotive and general engineering products. In 2007 Caparo recorded turnover of around €1 billion (subsequently declining by 40% during the recession but then recovering to around €800 million). Caparo Engineering is based in the West Midlands, mainly in the Black Country sub-region. This Caparo Division was formed from small and medium companies as well as from niche manufacturing assets acquired from larger companies (often divested as no longer having "strategic fit").

3. Once dominant

The metal manufacturing sector in the West Midlands is an important but in no sense dominant source of employment and wealth creation. This can be seen both relative to the UK as a whole and within the region itself.

Nationally in the UK, the metal manufacturing sector is an important source of employment and wealth creation.

Nationally, the metal manufacturing sector remains a significant source of employment (continuously accounting for around one-eight or so of total manufacturing employment in the UK). However, over the decade 1998-2007, the sector experienced a steady decline in employment (from 560,000 to 395,000), of which:

- a. Division 27, 133,000 to 70,000 (from 3.0% to 2.3% of total manufacturing employment)
- b. Division 28, 437,000 to 324,000 (from 9.7% to 10.5% of total manufacturing employment).

In 2007, the UK metal manufacturing sector accounted for 11% of the gross GVA produced by UK manufacturing industry.

By region, the West Midlands accounts for the largest share of UK output in the metal manufacturing sector, but his share is declining (and, by implication the employment share, although we lack the data to be more precise).

- 1. The metal manufacturing sector is an important manufacturing sector both nationally and in the West Midlands region: in 2007, its contribution to GVA in the UK exceeded £17 billion, of which £3.14 billion was accounted for by production in the West Midlands.
- 2. The West Midlands had and retains the largest UK regional concentration of production in metal manufacturing (see Figure 2 [Figure 7 in the underlying report]). Yet the metal manufacturing sector in the West Midlands has been losing ground relative to the metal manufacturing sector in all other UK regions except London and Wales.
- 3. The corollary of slower growth of the sector is that the share of UK metal manufacturing accounted for by the West Midlands is declining. The decline in the percentage of total UK GVA in the metal manufacturing sector produced in the West Midlands from a recent high of 24%to a low of 18% in 2007 *might suggest some structural disadvantage in the WM industry compared to the industry elsewhere in the UK*.

¹⁹ <u>http://www.caparo.com/en-gb/index.aspx</u>





The West Midlands is too big a region for one sector to have ever been dominant in either output or employment, although it may have been dominant in some sub-regions (we lack data at the sub-regional level, so we cannot be precise about this). Moreover, in the West Midlands, over the period 1989 to 2007 – encompassing two complete business cycles – the metal manufacturing sector has accounted for a continuously *diminishing share of total GVA* (from about 8% to less than 3.5%).

Figure 3 (Figure 9 in the underlying report) shows that in the West Midlands, over the period 1989 to 2007 – encompassing two complete business cycles – output in the metal manufacturing sector

- 1. Has more or less kept pace with total manufacturing (falling from 24% to 21% of total manufacturing GVA) but
- 2. Has accounted for a continuously diminishing share of total regional GVA (from about 8% to less than 3.5%).

Source: ONS (2009): UK Standard Industrial Classification of Economic Activities for Gross Value Added by Region, 1989 – 2007.





4. Recent decline

Metal manufacturing in the West Midlands is undergoing both absolute and relative decline.

- Comparison across the 19 years 1989-2007 reveals a real decline in gross GVA contributed by the metal manufacturing sector over this period of 8% for the UK and 31% for the West Midlands.
- The decline of the metal manufacturing sector in the West Midlands is almost four times as great as in the UK as a whole.

Both manufacturing in general and metal manufacturing in particular continue to be important sources of wealth creation in the regional economy: the constant price (i.e., inflation adjusted) data plotted in Figure 4 (Figure 6 in the underlying report) tells a story of persistence rather than dramatic decline: from 1989 to 2007, in constant 2005 prices GVA declined from somewhat more than £4 billion to a little under £3 billion.

Source: ONS (2009); own calculations.





Source: ONS (2009) and own calculations: UK Standard Industrial Classification of Economic Activities for Gross Value Added by Region, 1989 – 2007. The UK data is net of the contribution from the West Midlands. Deflator: PLLUPPI: 7209200000 (Output of manufactured products).

Most strikingly, the constant price (i.e., adjusted for inflation) data underlying Figure 4 suggests that although the national and regional evolution of the sector has been broadly similar, the sector in the West Midlands has fallen behind the sector in the rest of the UK. In turn, this might suggest some structural disadvantage in the WM sector compared to the sector elsewhere in the UK.

However, both manufacturing in general and metal manufacturing in particular continue to be important sources of wealth creation in the regional economy. Interview data suggests that this absolute and relative decline in West Midlands' metal manufacturing may reflect its traditional nature. Historically founded on energy (coal and coke), transport (central location) and manual skills, the West Midlands has had a high concentration of foundries, forges, other processing and metal manufacturing activities (although not steel mills). However, this may have left the West Midlands with relatively lower value added basic processing - "old-fashioned simple stuff with low margins", in the words of one respondent - and correspondingly less of the higher value added activities with newer materials. This development may have been exacerbated by two developments:

- 1. The exit of many customers has reduced demand for inputs into traditional products (e.g., hand tools); while
- 2. Rising demand e.g., the use of titanium in aerospace has occurred more in the South than in the Midlands.

Moreover, SME suppliers in the West Midlands have found it difficult to break into supply chains developing elsewhere: for example, to enter the aerospace supply chain, high quality

standards typically require new investment and up to two years preparatory work; and the automotive sector is tending to require fewer and bigger suppliers. This may well have implications for business support policy in the metal manufacturing sector.

This may help to explain why only a little less than 15% of total employment in the UK metal manufacturing sector is in industry groups exceeding the threshold of the average GVA per employee in UK manufacturing.

Some aggregate data for the West Midlands confirms the impression of some overall decline (*Annual Business Enquiry*, 2009: Country and Government Office Region by SIC - 1998-2007). This data is nominal (not adjusted for inflation) but does indicate the general direction of change over the decade 1998-2007 (i.e., excluding the effects of the financial crisis and recession).

- Total turnover: from £49,892 to £49,058 million
- GVA (at basic prices): from £16,658 to £14,920 million
- Total purchase of goods, materials and services: from £33,196 to £33,919

5. Relatively labour intensive industry

This is hard to document directly in the absence of data on capital-labour ratios. However, it may be inferred from evidence on GVA per employee, turnover per employee and capital spending per employee (all of which may be expected to be lower than the average for manufacturing industry in a labour intensive industry).

Figure 5 (Figure 4 in the report informing this template) compares capital spending (investment) per employee in UK manufacturing and in UK metal manufacturing. The relationship and pattern over time is similar to that displayed for GVA per employee and turnover per employee: in 1998, capital spending per employee in the UK metal manufacturing sector was 78% of that in UK manufacturing; in 2007 67% (however, 1998 was something of an outlier; 1999 was more representative at 64%).

Figure 5 Capital spending per employee in UK manufacturing and UK metal manufacturing, 1998-2007 (current values)



Source: ABI Archive - Section D – Manufacturing. And own calculations.

Together, the data on the lagging productivity, turnover per employee and investment per employee suggest that relative to UK manufacturing as a whole UK metal manufacturing is a labour rather than a capital intensive sector. However, it should be noted that Industry Group 27.1 (the manufacture of basic iron and steel and of ferro-alloys) is a clear exception, being populated by large, capital intensive firms (see Table 2 in the underlying report).

Lack of investment in both equipment and people are among the acknowledged problems of the metal manufacturing sector in the West Midlands.

Industry groups 27.1, 27.4 and 28.2 are outstanding with respect to capital spending per employee (respectively, £7,000, £6,400 and £5,300). All other industry groups in this sector fall below the 2007 average capital spending per employee in UK manufacturing of £3,900. The data are consistent with interview evidence suggesting that some metal processing industries can be capital intensive (so that energy costs at, say, 10-15% of total costs can outweigh labour as a share of total costs) while other metal processing and most metal bashing industry groups are relatively labour intensive. (These calculations cannot be replicated at regional level, because capital spending data at regional level is not regarded as reliable by the ONS; however, interview evidence suggests similarity.)

Compared to West Midlands manufacturing as a whole, metal manufacturing remains relatively labour intensive: respectively, in 2007, total employment costs as a percentage of turnover were 18% and 20% (*Annual Business Enquiry*, 2009: Country and Government Office Region by SIC - 1998-2007). The respective factors by which total employment costs exceed total net capital expenditure as a percentage of turnover are 8 in West Midlands manufacturing and 8.5 in metal manufacturing.

6. Major source of wealth creation and employment in regional (or sub-regional) economies.

Please refer to Section 3 (Sub-heading: Once dominant) and Section 4 (sub-heading: Recent decline), above.

Figure 6 shows a small rise in real (i.e., constant price) turnover over the decade 1998 to 2007 for the West Midlands metal manufacturing sector, supported by a very small rise in Division 27 and a somewhat larger rise in Division 28. By 2007, *metal manufacturing contributed around £10 billion to the output of the West Midlands regional economy*.

Over the decade 1998 to 2007, the constant price data for turnover displayed in Figure 6 again tells a story of a persistent and large contribution of the metal manufacturing sector to the regional economy of the West Midlands.



Figure 6: Constant price turnover (West Midlands) (1998-2007)

─■ Manufacture of basic metals (SIC 27)

Source: ONS (2009); own calculations. Deflator: PLLUPPI: 7209200000 (Output of manufactured products).

7. Retain capacity for innovation

<u>Note</u> that we will be able to flesh out this section when we gain access to Community Innovation Survey data and, of course, to the GPrix survey database.

Firms in the West Midlands metal manufacturing sector have responded to the changing business environment with innovation along all the standard dimensions: process; product; organisational; and marketing.

The influence of Japanese management practices and attitudes with respect to, for example, lean manufacturing processes, TQM and just-in-time practices and quality standards, first in the automotive sector and then filtering through to component suppliers, have brought substantial *organisational innovation* in the way factories are run in West Midlands' metal manufacturing. Accordingly, the firms that have survived, and especially those that have prospered, have undergone cultural change to make innovation built into normal operations. For example, in 1990, according to one respondent, most firms would have "looked blank" at concepts such as "lean manufacturing". Yet now, often at the insistence of their customers, firms in the sector have learned these approaches and typically adhere to the guidelines of – or something similar to – the Manufacturing Advisory Service (MAS) *Lean Tool Box*. Other types of organisational innovation are more "home grown". For example, in the recession, firms were keen to avoid shedding labour. Consequently, firms in the sector, helped by a constructive attitude from the trade unions (a difference from the past), have been innovative with respect to avoiding redundancy, making unprecedented use of measures such as flexitime, annualised hours and short-time working.

Across firms in the industry, there is a huge amount of *process innovation* that is not immediately apparent. This has also been driven and assisted to a great extent by the industry's customers. The plant and equipment can appear much as it might have 50 years ago, perhaps benefitting from some incremental change. Yet, although there might appear to be continuity with traditional processes, the control of processes has been transformed. Moreover, innovations in basic processes that enable continuous technical monitoring also provide continuous cost data, measured by the hour, as the platform for tight financial control. Process innovation extends also to non-technological innovation (or "business innovation", in the words of one respondent), for example by reducing work-in-progress and stocks, which has been of particular importance, and by addressing waste management and environmental agendas. In turn, all of these are driven by the imperative to bear down on costs.

On the whole, West Midlands metal manufacturing firms are not so strong in *product innovation*. However, there is evidence that some firms are working with designers to design products that are easier to manufacture and/or moving towards manufacturing-related services (such as offering advice on choice of alloys) as part of a strategy of moving towards higher valued-added activities. Moreover, a particular strength of the sector is the flexibility of its firms in being able to collaborate with customers to deliver niche or bespoke products. In the main, process innovation in the metal manufacturing sector is customer led and supported (often by key staff). Typically, end-users are not making their own equipment inputs but, instead, approach suppliers in the metal manufacturing sector; then, if the desired product is within the capability of the supplier, the customers works closely with the supplier to ensure its development and production.

8. Diversification from within traditional industries towards new, high-growth activities

This strategy of diversification towards new higher growth and, hence, higher-value added activities, is exemplified by large firms that have been successful in the metal engineering sector: for example, Guest, Keen and Nettlefolds (GKN) and Imperial Metals Industries (IMI) (see above).

- IMI became notable for the development of specialist metals (e.g. resistant to chemical corrosion), nickel-based alloys and, in particular, in the 1950s perfecting the process for producing titanium on a commercial basis. More recently, as the Wikipedia entry notes: "Initially ICI retained a majority holding, but in 1978 IMI became fully independent. In the 1990s the Company disposed of its more basic businesses such as metal smelting and metal founding."²⁰
- 2. GKN became a major supplier to the growing automotive sector and have established themselves as a world leader in producing drive shafts (by 2002 commanding 43% of the world market for constant velocity joints) as well as in "clever" nuts and bolts (e.g., for aero engines) and in powder metallurgy. Since the 1990s, as the Wikipedia entry notes: "... the company finally withdrew from the manufacture of fasteners and from steel production. Changing its name to GKN plc, it diversified into military vehicles, aerospace and industrial services."²¹

More recently, Caparo has until recently grown by diversification within the metal engineering sector within the UK, especially in the West Midlands, and overseas. However, it now proclaims: "Growth in greater value added products and services is key to Caparo's future (Caparo, *Corporate Information*, n.d.)." This is apparent in the range of first Caparo's traditional activities and then its more recently added activities publicised on its corporate website: "With interests predominantly in the design, manufacture and marketing of steel, automotive and general engineering products, Caparo's wider activities encompass also new product development, materials testing services, hotels, media, furniture and interior design, financial services, energy, medical products and private equity investment."²²

The extent to which this strategy of diversification towards new higher-value added and higher growth activities is characteristic of SMEs within the sector remains to be investigated. In this respect, the sector may illustrate a concern voiced by a recent EEF Report (2010), *The Shape of British Industry* (see also Section 4, above):²³

The report paints a picture of a sophisticated, successful sector which is currently growing at the fastest rate since 1994 and whose growth strategies are centred on innovation and investment. Some 76% of companies state that their growth strategies will be achieved by increasing innovation in the UK and 69% by increasing capital investment. It is also highly export driven, with exports accounting for more than half of turnover in 40% of companies and one third having production facilities outside the UK ... In particular, the report shows large companies are at the heart of collaboration up and down the supply chain and driving new product development. They also make wider investments in areas such as skills that benefit the economy as whole. However, new analysis shows the UK has fewer numbers than its competitors which puts the UK economy at risk of missing out on the wide benefits they bring ... Germany has more than twice as many manufacturers with 250 or more employees. The proportion of companies with more than 250 employees is also significantly lower in the UK than in Germany – 1.2% compared to 2.1%. The disparity with the USA is even greater with firms employing 500 or more people accounting for 0.6% of manufacturing companies in the UK compared with 2.9% in the USA.

In the course of our research for the GPrix Project, we found that many manufacturing SMEs are now part of business groups, accounting for a little over 20% of the responses to the GPrix questionnaire in both the total sample and in the West Midlands sub-sample. The typical relationship between the group and its component enterprises is essentially two-fold,

²⁰ <u>http://en.wikipedia.org/wiki/IMI_plc</u>

²¹ <u>http://en.wikipedia.org/wiki/Guest,_Keen_and_Nettlefolds</u>

²² http://www.caparo.com/en-gb/about/group-values.aspx

²³ <u>http://www.eef.org.uk/policy-media/releases/uk/2010/Manufacturing-sector-poised-to-fill-growth-gap-%E2%80%93-EEF-Report.htm</u>

combining strict financial controls with operational autonomy. This group structure has a number of advantages. Integrating firms strongly related in terms of their productive activities within a group, yet without losing the focus of individual companies, enables operational autonomy to be complemented by sources of competitive advantage not available to independent SMEs:

- By strategic management and financial control at the group level;
- By greater ability via group management to absorb information from outside the firm and its immediate environment;
- By cross-fertilisation and spread of best practice within the group;
- By efficiencies in resource use (e.g., central purchasing and sharing of resources); and
- By employee transfer, facilitated by staff training, which disseminates knowledge, and thus the spread of best practice, as well as facilitating flexibility.

These advantages may make incorporation into a group an alternative to three types of business failure: enterprises within larger firms with which there is no longer a strategic fit, typically suffering from lack of investment and strategic direction; independent SMEs – as so often in the West Midlands – characterised by weak management and an inability to invest; and independent SMEs with a succession problem. To some extent, group structure may promote strategic orientation and investment towards, for example, new markets, manufacturing-related services, and engagement in demanding supply chains (such as aerospace). In this case, groups may be hypothesised to promote diversification towards new higher value-added and higher growth activities. (The GPrix Case Study evidence provides examples.²⁴). However, the extent, if any, to which group structure can compensate for lack of large end-user companies is still to be researched (and is beyond the scope of the GPrix Project).

9. Substantial contribution to regional (or sub-regional) exports

Due to difficulties in matching regional trade data (published according to the categories of the Standard Industrial Trade Classification) to regional output data (organised according to the SIC/NACE system – see Section 1 above), the export data presented in Figure 7 is not strictly comparable to the output data presented in Figure 6 (and elsewhere). Nonetheless, in 2007 metal manufacturing contributed around £10 billion to the output of the regional economy (Figure 6) and in 2008 almost £2.5 billion of exports (Figure 7).

Figure 7 Metal manufacturing sector exports, 1998-2010 (deflated – constant 2008 prices)

²⁴ See: Introduction to Case Studies 1.8 to 1.10: SMEs in groups



Source: *Regional Trade Statistics (RTS)*; accessed from <u>www.uktradeinfo.com</u>; three data sets within the RTS were used to gain the longest possible time series: Regional Trade in Goods – Incorporating EU15; Regional Trade in Goods – Incorporating EU25 [Up to 2006 Q4]; and Regional Trade in Goods – Incorporating EU27 [2007 Q1 Onwards]. Series names (and SITC id in brackets): Iron and Steel (67), Non-Ferrous Metals (68) and Manufacture of Metals N.E.S (69) which makes up the raw data used. The "Total Metals Industry" series is a composite calculated of the sum of all three series (67+68+69). Deflator: Total Trade in Goods (NSA); BQKR; 2008=100.

Given that the export data in Figure 7 pertain to a narrower set of sectors than do the output data in Figure 6 (and elsewhere) (excluding, for example, exports of arms and ammunition), we conclude that *metal manufacturing in the West Midlands is export oriented, exporting around a quarter of output, and continues to make an important contribution to regional exports.*

10. Traditional industries may or may not be geographically concentrated and so constitute a "cluster"

The metal manufacturing sector does not feature in the cluster development strategy of Advantage West Midlands (the Regional Development Association until its abolition in

2010).²⁵ Nonetheless, the sector does have some of the features of a cluster. For example, industry federations – for example, for activities such as Metal Processing, Steel, and Forging – can also be an important source of ideas and practical assistance for innovation. Likewise, more generic business organisation such as the Chamber of Commerce and the Engineering Employers' Federation (EEF) are important. For example, the EEF has facilitated organisation innovation with respect to the reduction – even elimination – of dedicated HR personnel by providing firms with best-practice procedures (for example, on Health and Safety) and documentation (such as staff handbooks). The EEF also organises consortia of SMEs to gain economies in purchasing of, for example, insurance and energy.

In other respects, however, the sector lacks some of the characteristic features of a dynamic cluster. Notably, firms' links with universities are weak and the sector lacks dedicated sources of knowledge transfer (the Caparo Innovation Centre, a joint venture by Caparo plc and the University of Wolverhampton may be a step in this direction, although it is not dedicated only to the metal engineering sector).

It is possible that it lacks geographic concentration in the manner of, say, smaller but concentrated industries in the region such as ceramics and leather. In turn, this may be the reason why metal engineering lacks further ingredients of a cluster: political champions and a media profile commensurate with its economic importance (in contrast, say, to the automotive sector with which it overlaps). This and the other aspects of cluster (non)development require further investigation but are beyond the remit of the GPrix Project.

11. Summary

 Table 11. Metal manufacture in the West Midlands: Sector divisions and traditional characteristics

 matrix

Main feature	SIC 27(24) Manufacture of basic metals	SIC 28(25) Manufacture of fabricated metal
		products, except machinery and equipment

²⁵ The list of these is as follows: Aerospace; Automotive; Building Technologies; Environmental Technologies; Food and Drink; ICT; Interiors and Lifestyle; Medical Technologies; Rail; Screen Image and Sound; Specialist Business and Professional Services; Tourism and Leisure. <u>http://www.advantagewm.co.uk/working-with-us/business-clusters/default.aspx</u>

Long established	Yes	Yes	
Main employment	Possibly in the past of certain sub-regions *	Possibly in the past of certain sub- regions *	
Mature and declining	Yes	Yes	
Labour intensive	Yes (but not 27.1)	Yes	
Main wealth creation	Possibly in the past of certain sub-regions *	Possibly in the past of certain sub- regions *	
Innovation capacity	Yes	Yes	
Export-led contribution	Yes	Yes	
Cluster location	No	No	

*Indicative only: at present based on informed guesses rather than research.

We conclude that the metal manufacturing sector in the West Midlands corresponds reasonably well with the traditional industry concept embodied in this template. We note that "traditional" is also a term used by practitioners when discussing this sector or its component divisions and industry groups.

5. Automotive Sector

The content of this template is derived from a longer report, which is still a work in progress: *A short presentation of the UK and Regional Automotive Profile.*

UK

Based on ONS data, United Kingdom manufacturers of motor vehicles and parts, (NACE-SIC Section 'C' Division 29), account for about 3,300 businesses, with a total direct workforce of over 210,000 employees. According to 'Eurostat' figures, this is approximately 11% of the total EU workforce in the sector. The UK economy has a long history of motor manufacture. Ford, for example, established a site at Dagenham in 1929. An early example of overseas takeover was the 1920 acquisition of Vauxhall by the US Group, General Motors. The trend has continued in recent years with the acquisition of the former Rootes Group in Coventry by PSA (Peugeot-Citroën), the takeover of Jaguar, and later of Land Rover, by Ford and the purchase, and subsequent sale, of MG-Rover by BMW who still retain the Mini factory near Oxford. Some of the small specialist manufacturers such as Aston Martin (Ford), Bentley (VW) and Lotus (General Motors) have lost their independent status. Inward investment has seen the up-scaling of manufacturing capacity by Toyota, Nissan, Honda and BMW. The Renault-Nissan plant at Washington in the North East has consistently had the highest productivity of all European car plants. However Ford has ended manufacture of cars 'badged' as Ford - and moved production to other parts of Europe. The UK has also become a major engine producer, for example, Ford (Bridgend in Wales, Dagenham), Toyota (Deeside in NW England) and BMW (Hams Hall nr. Birmingham).

In summary, the UK produced over 1.6 million vehicles in 2008, which placed it 12th in global output and representing about 2.5% of global output in terms of numbers of vehicles. Within Europe, UK has remained in 4th position since 2000, achieving a little under 9% of European output in 2007, which has been down from 9.6% in 2000. It is only Germany, France and Italy that have indigenous volume vehicle makers, with all other nations reliant on inward investment for their volume vehicle production plants, which are supplemented in some cases with niche product ranges for local markets, for example motorsports vehicles and taxis.

Despite high profile closures over recent years the West Midlands region is still at the heart of the UK automotive industry, with around 15% of car production, 28% of market value, and 28% of the UK jobs in the sector (ONS, 2008). The West Midlands automotive cluster can thus be described as 'mature' and, in common with other 'older industrial clusters', undergoing change (Rosenfield, 2002²⁶). The remaining companies comprise:

- Vehicle makers in the premium and upper premium sector.
- The 'usual complement' of first tier suppliers adjacent to these remaining car makers.
- Sports car manufacturers.
- Niche vehicle manufacturers.
- Engineering and engineering design consultancies (KIBS).
- Specialist suppliers to the motor sport industry.
- An extensive supply matrix largely geared to the region's former high volume sector.

The NACE – SIC Classifications and Descriptions for Automotive is a sub-group of Section C (Manufacturing) and Division 29 'Manufacture of Motor Vehicles, trailers and semi-trailers' (at the 2 digit level).

²⁶ Rosenfield, S. (2002). *Creating Smart Systems. A guide to Cluster Strategies in Less Favoured Regions,* European Commission, Brussels.

This sub-divisional 'group' includes the manufacture of motor vehicles for transporting passengers or freight, the manufacture of various parts and accessories, as well as the manufacture of trailers and semi-trailers.

West Midlands Region

The Automotive Sector is a large complex sector with still much of its history retaining examples of a traditional industry. It is located across much of the region, but mainly in the central belt of the West Midlands. A significant proportion the regional automotive industry is located around the regional capital of Birmingham.

The West Midlands is the main location for the UK automotive industry, and accounts for just under 30% of total UK car production. There are many successful West Midlands vehicle manufacturers producing premium, commercial and niche vehicles for the world market. The region has suffered from divestment and closure of volume vehicle manufacturers, but the supply chain to global volume manufacturers has remained. In addition to the vehicle manufacturers the region has many of the most significant Tier 1 global component suppliers. This high number of regional automotive companies does mean that nearly all major emerging technologies are being researched and developed here.

The West Midlands region has major internationally renowned automotive manufacturing companies. These being:

- Aston Martin
- BMW (Engines)
- JCB
- Jaguar Cars
- Land Rover
- Morgan Motors

However, there are a number of smaller less well known vehicle manufactures within the region, for example:

- Westfield Sports Cars Ltd (Lotus Replicas and other sports cars) Birmingham
- Perkins Engines Ltd (Diesel Engines) Stafford
- LTI Ltd (London Taxis Black Cabs) Coventry
- Lea Francis Cars Ltd (Classic Cars) Warwickshire
- J C Payne Ltd (Truck Bodies) Walsall
- Dennis Eagle Ltd (Waste Collection Vehicles) Walsall

The supply chain to the major manufactures within the area and to worldwide customers that are based within the region is considerable. The number of 1st and 2nd tier suppliers situated within the West Midlands and registered with the "auto-industry" database is approximately 268. Some signify themselves as being either a first or a second tier supplier, whilst some regard themselves as both.

1. What is the industry?

Of the manufacturing 'Section C' (as at August 2010) this discrete 'Division' (29) (at the two digit level) has three Groups at the three digit level (see below). Within this are a multitude of classes at the four digit level.

Division 29 – Manufacture of motor vehicles, trailers and semi-trailers. This is divided into the following three Groups at the 3 digit level:

- Group 29.1 Manufacture of Motor Vehicles
- Group 29.2 Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
- Group 29.3 Manufacture of parts and accessories for Motor Vehicles. This is divided into two classes at the 4 digit level

2. Long established

1896 to 1939

The British motor industry started life when Frederick Simms became friends with Gottlieb Daimler, who had, in 1885, patented a design for an internal combustion engine. Simms bought the patent rights for the engine and in 1893 he founded a company, The Daimler Motor Syndicate Ltd, to build boats using the engine. In 1895 Harry J. Lawson bought-out Simms' interests in the engine, after realising its potential for road vehicle use. Lawson bought a site in Coventry for car engine and chassis manufacture, and on 14 January 1896 founded the Daimler Motor Company which made Britain's first serial production car. By 1913 Henry Ford had built a factory in Manchester and was the leading UK producer, building 7310 cars that year, followed by Wolseley at 3000, Humber (making cars since 1898 in Coventry) at 2500, Rover (Coventry car maker since 1904) at 1800 and Sunbeam (producing cars since 1901) at 1700, with the plethora of smaller producers bringing the 1913 total up to about 16,000 vehicles. Car production virtually came to an end during the war years 1914–1918, but the pressure of war production encouraged the development of mass-production techniques in the motor industry. By 1922 there were 183 motor companies in the UK, and by 1929, following the slump years, there were 58 companies remaining. In 1929 production was dominated by Morris (founded by William Morris in 1910 in Oxford) and Austin (founded by Herbert Austin in Longbridge in 1905) who between them produced 60% of the UK output. Singer (Coventry motorcycle manufacturer started building cars in 1905) occupied third place with 15% of production.

1940s-1960s

During World War II car production gave way to commercial and military vehicle production, and many motor vehicle plants were used for aircraft and aero engine production. By 1950, when 75% of British car production and 60% of its commercial vehicle production was exported, Britain provided 52% of the world's exported vehicles. This situation remained until the mid-1950s, by which time the American industry production had caught up with American demand, and European production was recovering. By 1952 the American owned producers in the UK (Ford and GM's Vauxhall) had between them a 29% share of the British market, which exceeded the share of either of Britain's top two manufacturers. By 1955 five companies produced 90% of Britain's motor vehicles: BMC, Ford, Rootes, Standard-Triumph and Vauxhall. Of the dozen or so small producers Rover and Jaguar were strong niche producers. During 1960 Britain dropped from being the world's second largest motor vehicle producer into third place. Labour-intensive methods, and wide model ranges hindered opportunities to reduce manufacturing costs - Britain's unit costs were higher than those of their major Japanese, European and American competitors. By 1966 Britain had slipped to become the world's fourth largest motor vehicle producer.

1960s - 80s

By 1968 UK motor vehicle production was dominated by four companies: BLMC, Chrysler (UK), Ford, and Vauxhall (GM). The national champion, BLMC, was handicapped in its attempts to modernise. Unattractive new products, retention of legacy marques and models, labour disputes, quality issues, supplier problems and inefficient use of new equipment thwarted the

dream of efficient high volume production. Increased overseas competition, arising from lowered tariffs and membership of the European Union, and high unit costs, led to low profits, which in turn jeopardised investment plans. By the end of the 1970s Ford, Peugeot-Talbot and Vauxhall (GM) were well integrated with their parent companies' other European operations. British Leyland stood alone in the UK as an increasingly reduced manufacturer. In July 1986 BL was renamed the Rover Group.

1980s - 2000

In July 1986, Nissan became the first Japanese carmaker to set up a production facility in Europe, when it opened a new plant in Sunderland. Peugeot started production at Ryton in January 1986. 1994 saw Rover Group ownership transferred from British Aerospace to German carmaker BMW. For the first time in some 90 years, Britain was without an independent mass production carmaker. BMW revived the MG brand in 1995 as well as strengthening Land Rover's position in the off-roader market. BMW controversially sold off the Rover Group in May 2000. The MG and Rover marques were sold to the Phoenix Consortium, who branded the remains of the group as MG Rover and concentrated all production at Longbridge. For the first time in six years, Britain had an independent mass production carmaker again. Ford took over Jaguar in October 1989, and production of the new small Jaguar, the X type, started at Halewood in late 2000. By the end of the century, Ford had also acquired Land Rover and Aston Martin.

2000 - to-date

The closure of Vauxhall's Luton car building plant in March 2003 left the Ellesmere Port site as the only Vauxhall car plant remaining in Britain. General Motors also retained the former Bedford works in Luton for producing vans. Ford passenger car production in the UK finished in 2002 after 90 years although production of commercial vehicles continued at Southampton. The Dagenham site was switched from producing complete cars to producing diesel engines. Losses at Jaguar led to closure of the company's plant at Browns Lane Coventry in 2004. MG Rover spent the early part of the 2000s investigating possible ventures with other carmakers in order to develop a new range of cars. The firm went into receivership in April 2005 with the loss of more than 6,000 jobs. Three months later, the firm's assets were purchased by a Chinese carmaker and Longbridge (West Midlands) partially re-opened over the summer of 2007 with an initial workforce of around 250 preparing to restart production of the MG TF which was relaunched in August 2008. Peugeot reduced output of the Ryton (West Midlands) plant in the spring of 2001 and in April 2006 closed its Ryton plant and moved production to Slovakia. In 2007, Ford announced its intention to sell Aston Martin, and the company was bought by a British led Consortium backed by Middle East investors. Ford retains a small stake in the company and supplies components including engines. Ford also, in 2008, sold its Jaguar/Land Rover operation to Tata Motors of India. In 2010, Dutch carmaker Spyker announced that they intended to move production from Holland to Coventry.

3. Once dominant

In the 1950s, the United Kingdom had the world's second biggest automotive manufacturing base and was the world's top car exporting nation. That position has subsequently diminished with the UK now twelfth in the World car manufacturing league and fourth in Europe (after France, Germany and Italy).

It is envisaged that there will be a continual although slowing reduction in employment levels for the foreseeable future. On average the UK is suffering a 5% decline in automotive jobs year on year. GVA will be increased by the application of technology into existing and emerging markets to gain value added and overall market share. Japanese vehicle manufacturers and tier 1 companies have declared a desire to procure locally (a normal

strategy for these companies) dependent on whether the supply chain can rise to the challenge. They have stated that the supply chain needs to improve in all aspects including design, development and research and in the skills needed to exploit the opportunities.

These dynamics are reshaping the industry at a rapid rate. In the short term the supply chain must remain viable under global competitive pressure in order to survive. Pricing premiums are continually being challenged and eroded with increasing emphasis on reduced cost, zero defects and on time delivery. In the long term the supply chain from being Original Equipment Manufacturers (OEM) to the lowest tier must develop and supply new and innovative product that can fulfil both customer and legislative demands.

The key technological issues from these demand signals are Low Emission Vehicles (including low carbon) and the need for Intelligent Transportation Systems (ITS - addressing such issues as congestion and safety). The West Midlands has expertise in Low Emissions and through world class lightweight material technologies (exploited by companies such as Jaguar Land Rover and its supply chain).

Manufacturing competitiveness and technological innovation throughout the whole industry is dependent on growing the quality of people and skills. With companies needing to capitalise on new technologies, to allow development of products, and opportunities for business growth or just the maintenance of market share. Thus a continued requirement is a high level of strategic management skills and a relevant base level of workforce skill. Graduate retention is an issue and appears crucial in maintaining innovation. Productivity and the value added may be on the increase but still lag behind those of the German and Japanese industries. In addition to this, business still finds it extremely difficult to recruit a suitable workforce with relevant skills (general, graduate and beyond) and believe that a poor image and recent divestments are compounding these difficulties.

One market that has great growth potential is the niche vehicle cluster. The region has world class niche vehicle manufacturers who have a well defined UK market place. Many do find it hard to expand into overseas markets due to different requirements. This makes export and expansion cost prohibitive. Much innovation comes from these companies but the risks attached to up-scaling R&D for a single company is high and inhibitive.

Very recent news (2010): The University of Warwick – home of Warwick Manufacturing Group (WMG) – has won research supremacy in the region with Jaguar Land Rover announcing it would be the new home for its advanced research group. The luxury carmaker – owned by Indian conglomerate Tata – plans to spend £100million on research at the International Digital Laboratory, which is part of WMG. The company already has 30 engineers and designers at the lab and will place another 140 personnel.

In 2006 (ONS – 2009 data), the UK produced 1.4 million cars and around 208,000 commercial vehicles. Of these, 77% of the cars and 66% of the commercial vehicles were exported to a number of markets. Europe is the main destination, with sales also to North America and Asia, with specialist luxury marques being sold worldwide.

4. Recent decline

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Cars - home	729	649	578	599	582	514	467	411	336
Cars - export	1031	1150	1063	894	1047	1144	1180	1185	1106
Cars - total	1761	1786	1641	1493	1630	1658	1647	1596	1442
CV - home	123	110	96	97	77	86	81	76	71
CV - export	92	64	76	96	114	103	128	130	136
CV - total	215	190	172	193	191	189	209	207	208
Grand Total – home market	852	759	675	696	659	600	548	488	407
Grand Total – export market	1124	1213	1139	990	1162	1247	1308	1315	1242
Grand Total - production	1976	1976	1813	1686	1821	1847	1856	1803	1650

Table 12. UK Vehicle Production (in '000s)

Source: Adapted from Office of National Statistics; Annual Business Inquiry (2009)

As can be seen from Table 12, the total production of vehicles has been in steady decline over the last few years. Whilst the export of cars has shown marginal increases, the home market has more than halved. Again, commercial vehicles have seen a healthy export of its products, but once again have seen a marked decrease in its home market. Overall over the time period, exports of manufactured vehicles have seen marginal increases, but the home market for vehicles has seen over 50% decreased in the period (1998 – 2006).

Some aggregate data for the West Midlands confirms the impression of some overall decline (*Annual Business Enquiry*, 2009: Country and Government Office Region by SIC – 1998-2007). This data is nominal (not adjusted for inflation) but does indicate the general direction of change over the decade 1998-2007 (i.e., excluding the effects of the financial crisis and recession).

- Total turnover: from £11,963 to £11,086 million
- GVA (at basic prices): from £2,349 (1999) to £ 1,830 million
- Total purchase of goods, materials and services: from £9,668 to £ 9,261

5. Relatively labour intensive industry

Overall, United Kingdom manufacturers of motor vehicles and parts, account for about 3,300 businesses, with a total workforce of over 210,000. According to Eurostat data, this is approximately 11% of the total EU workforce within the sector. Over 800,000 jobs are directly or associated to the industry in the UK, however, due to the changing fortunes of the industry the figure is declining steadily over time.

In contrast to our other four traditional sectors, compared to West Midlands manufacturing as a whole, automotive is not labour intensive: respectively, in 2007, total employment costs as a percentage of turnover were 18% and 12% (*Annual Business Enquiry*, 2009: Country and Government Office Region by SIC – 1998-2007). However, the respective factors by which

total employment costs exceed total net capital expenditure as a percentage of turnover are 8 in West Midlands manufacturing and 11 in automotive.

6. Major source of wealth creation and employment in regional (or sub-regional) economies.

Latest data from the Society of Motor Manufacturers and Traders (SMMT) for 2009 indicate further downturns in key indicators, for example: industry turnover, production of cars and commercial vehicles, new registrations and employee numbers (see Table 13). This data is based on some 16-18 signatories of the c.40 vehicle manufacturers in the UK. This data does not include first and second tier suppliers outside of these signatories.

Table 13.	2009 UK Vehicle Manufacturers Performance
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Economic Indicators	Performance	2008	2009	% Change
Automotive manufacturing sector turnover	(£ billion)	52.5	39.8	-24.2
Total number of cars and CVs produced	(million) (UK)	1.65	1.09	-33.9
Total new car and CV registrations	(million) (UK)	2.48	2.22	-10.5
Number of jobs dependent on the sector	('000)	807	729	-9.7
Total number of vehicles produced	(million)	1.18	1.02	-13.5
Combined number of employees	Signatories	63,749	65,003	+2.0

Source – Adapted from: The Society of Motor Manufacturers and Traders (SMMT, 2010)²⁷.

Datasets do appear to vary from, for example, the above SMMT data (Table 13) to that supplied by, for example, ABI data as set out below (Table 14). However, some data gathering sources, such as SMMT concentrate their sources on major manufacturers, whilst that set out below attempts to draw from the broad industry sectors. However, current datasets will confirm that the industry as a whole has, and continues to, experience downturns in its overall production of cars and commercial vehicles, and subsequently its employment base.

Table 14. Automotive manufacturing performance: Annual Business Inquiry 2010.Class 'C' Manufacturing – Section 29 Automotive Manufacturing. Data 2080 (Collected under SIC Code 2007)

SIC (Revised 2007) Section Division Group Class	Description	Number of enterprises (number)	Total turnover (£ million)	Approx gross value added at basic prices (£ million)	Total purchases of goods, materials and services (£ million)	Total employment average during year (thousand)
C	Manufacturing					
29	Manufacture of motor vehicles, trailers and semi- trailers	3,319	50,817	10,366	40,534	177
29.1	Manufacture of motor vehicles	751	36,613	6,375	30,340	77
29.2	Manufacture of bodies (coachwork) for motor vehicles: manufacture of trailers and semitrailers	895	3,264	797	2,472	24
29.3	Manufacture of parts and	1,673	10,941	3,194	7,722	76

27 Skillset (2010). Finding out about footwear and leather manufacturing (a summary of the Skillfast UKAACSLMIreport).http://readingroom.lsc.gov.uk/sfa/cas/cas-skillsetfootwearandleatherv2may2010.pdf

	accessories for motor vehicles					
29.31	Manufacture of electrical and electronic equipment for motor vehicles	201	883	244	627	6
29.32	Manufacture of other parts and accessories for motor vehicles	1,472	10,058	2,950	7,095	70

7. Retain capacity for innovation

The Technology Strategy Board, at the request of the New Automotive Innovation and Growth Team (NAIGT), has published a report outlining the areas of automotive technology capability. The report looks at where the automotive industry thrives in the UK, and where capability could be developed, giving government and businesses a detailed view of the current state of the industry and its ability to take advantage of the transition to low carbon technologies. Designed to be used as a basis by which business can make future decisions about the development of the automotive industry, it is envisaged that the report will help the UK to take advantage of the market opportunities that the development of low carbon vehicles brings. It forms part of a three-phase plan to introduce an automotive technology strategy to the UK

Phase 1's aims were to identify high level technology requirements to deliver a product roadmap and the associated research activities. Phase 2, funded by the Technology Strategy Board, sought to broaden consensus, identify specific areas of UK capability and opportunity and develop a structured evidence base for the prioritisation of UK support. During Phase 3, the Automotive Council set up the Supply Chain Council which has been tasked with building a consensus on the challenges facing the UK supply chain and to develop the conditions to encourage further investment in the UK automotive industry. The primary focus of the group is to improve the core competitiveness of the UK supply chain and protect the interests of the UK automotive manufacturing sector, specifically covering R&D, design engineering, power train and component assembly. Since its first meeting in December 2009, the Council has been working to enhance the dialogue between original equipment manufacturers (OEMs) and Tier 1 suppliers on future business opportunities.

SMMT, together with the industry, has carried out several projects to facilitate meeting the Automotive Council's objectives, some of which include:

- 1. Supply chain mapping and an economic survey of the West Midlands automotive community.
- 2. Production of The UK automotive supply chain report aiming to identify supply gaps in the UK automotive industry, both for current and future technology to be used in electric vehicles (EVs) and hybrids. The report also looks into ways vehicle manufacturers and Tier1 suppliers can increase their levels of UK sourcing.
- 3. The automotive components trade event organised by SMMT, a networking event between VMs and suppliers, was set up to promote and encourage sourcing from more locally-based suppliers. The day was supported by major OEMs including Aston Martin, BMW Group, Ford, General Motors UK, Jaguar Land Rover, JCB, Leyland Trucks and Nissan.
- 4. SMMT's Automotive Supplier Finder (ASF) database, a tool designed specifically to match buyers to suppliers.
- 5. A lowering Carbon and CO2 emissions strategy.

As a footnote to the above, it is recognised that the UK and especially the West Midlands has a strong supplier base to the industry and not only to that of the UK but to a worldwide automotive industry.

8. Diversification from within traditional industries towards new, high-growth activities

The UK automotive industry faces tough competition with challenges such as further globalisation, consolidation and value chain restructuring, cost pressures and innovation. A key issue is the continued development of the successful 'innovation based' industries, for example in design, development and motor sport, and the ability of the other supporting industries to meet the demands of the 'lean' manufacturing model. Both depend on factor conditions such as knowledge and human resources. On the European Innovation Scoreboard (European Commission, 2003)²⁸, the West Midlands region returns a score of 0.45 on the Regional Summary Innovation Index of the combined innovation indicators, and is returned as a region with "an above average GDP per capita, strong educational performance but below average R&D and patent performance". The average UK score is higher, at 0.52.

9. Substantial contribution to regional (or sub-regional) exports

Also located in the region are producers in each of the main component groups: the driveline; chassis and under-body; engine components; body panels; interior trim; electrical components and design and engineering. The major firms include: GKN (drive shafts, universal joints, chassis manufacture and other products); TRW (research, engine management and injection systems, steering); Bosch (Automotive Lighting); Denso (starters and alternators); Delphi (engine management and injection systems; Valeo (suspension systems); Lear Corporation (seats and interiors); Johnson Controls (seating); Unipart Group (exhaust systems and fuel tanks); Wagon (aluminium bodies, doors/door systems); Mayflower Vehicle Systems (car bodies); NSK (steering systems); Rockwell (body/chassis systems and brakes); Dana (axles); VDO Instruments (electronics); and SP Tyres, Goodyear and Pirelli (all tyres). Many are multinationals and in non-UK ownership.

The two companies with the most important presence are GKN and TRW. These are global companies but both have their origins in the region. The former, GKN, has remained in British ownership having evolved from early primary metal and general engineering interests. Today the largest part of the business is in manufacturing driveline components and systems, (including sophisticated torque management devices), for both front and rear wheel drive vehicles. The company has some 43% of the global driveline business and supplies all the major car-makers - with sales of approximately €3 billion in 2003. GKN has its HQ in the region plus manufacturing capacity. However, its purchasing policy reflects both the changing nature of the industry and the decline of UK manufacturing. At the beginning of the 1980s some 80% of purchasing was in the UK but the figure is now 25% - with no significant amount from the West Midlands. TRW is a US owned business that specializes in safety systems. It took over much of the former Lucas Company - a foundation of the British automotive industry, started by Joseph Lucas in Birmingham, and which started making automotive parts in 1897. Within the region TRW manufactures electric steering systems, braking systems, electronic control units and engine valves. The region also hosts one of TRW's two European research centres – an important part of the industry's technology base in the region. However some research capacity has been moved to the German based research centre – nearer to the 'centre of gravity' of the industry.

²⁸ ²⁸ European Commission (2003). 2003 European Innovation Scoreboard. Commission Staff Working Paper SEC (2003) 1255 from 09.12.2002. Brussels: European Commission. <u>http://trendchart.cordis.lu/</u> <u>scoreboard2003/html/scoreboard_papers.html</u>

Several other significant suppliers include Bosch (Germany - automotive lighting), Denso (Japan – starters and alternators) and Delphi (USA – diesel engine fuel systems). Other big suppliers, like Lear, Johnson Controls and Dana are present, as they are in most automotive regions, to supply bulky components to the local car factories. They are not particularly embedded in the West Midlands. Well-known firms in the second tier include Sarginsons Precision Components, Premier Stampings, Radshape, Zeus, Cosworth and Triplex – all in the 'traditional' materials processing for which the region is well known. The size breakdown of the companies classified as automotive suppliers (SIC 29) is shown in Table 15:

Employees	UK	West Midlands	West Midlands Share of UK
1-10	907	139	15.3%
11-49	376	117	31.1%
50-199	245	92	37.6%
200 or more	137	50	36.5%
Total	1665	398	23.9%

Source: Adapted from NOMIS

As observed some 87% of firms are small or medium sized enterprises employing less than 250 workers. In addition, there are a large number of material processing companies that are classified under different SIC/NACE codes, for example for casting of forging, but still supply the sector. It is estimated that there is a total of around 2000 firms in the regional supply-base. The region also has a thriving sector for high value services. Businesses offering engineering design and technical development include, Pro-Drive (chassis dynamics, engine and powertrain development, design/styling of niche sports saloons), Zytek (automotive control systems, powertrain management and hybrid-electric vehicles), Mayflower Vehicle Systems (engineering, design, vehicle styling, body manufacture), Ricardo (transmission systems) and Cosworth (specialist castings) plus MIRA, the Motor Industry Research Association (major research and testing facilities). This concentration of companies and skills-base is regarded within the region and by major international players in the global industry.

10. Traditional industries may or may not be geographically concentrated and so constitute a "cluster"

As stated earlier, the West Midlands remains at the heart of the UK automotive industry and is regarded as a geographically concentrated industrial cluster. Much of the industry is concentrated around the Birmingham area (historically) and spreading out across the region. There are near 400 first and second tier supplier companies to the automotive industry within the West Midlands region. Their "traditional" antecedents within the history of the industry are somewhat problematic to determine. This would require concentrated specific firm level research. Some sources useful in further may be found within the following institutional components of the wider automotive cluster:

- Trade associations: e.g., Society of Motor Manufacturers and Traders (SMMT), International Federation of Automotive Engineering Societies (FISITA), Automotive Distribution Federation.
- **Research and knowledge transfer bodies**: The Auto Industry, Foresight Vehicle, Department for Transport, Motor Industry Research Association (MIRA).

- **Employment and training**: Automotive Training Association, Institute of Operations Management, Chartered Institute of Management.
- HEI links: Warwick University, et al.
- **Partnerships**: European Automotive Manufacturers Association.
- Other: Chamber of Commerce. Dept for Business Innovation and Skills.

The automotive sector was recognised as a cluster in the cluster development strategy of Advantage West Midlands (the Regional Development Association until its abolition in 2010).

2.3 SWOT Analysis

2.3.1 Strengths, Weaknesses, Opportunities and Threats

The SWOT reports presented below are aggregated from the Textile Sector Action Plan (TCIWM, 2009; textiles sector), Skillfast-UK (2007; leather sector) and various sources related to the ceramics, metal manufacture and automotive industries.

Strengths

Ceramics

- Long established international reputation as a ceramics cluster.
- Co-located within research institutions and design centres.
- Vertical-integrated manufacturing facilities and supply-chain production.

Textiles

- A wealth of exemplar, market leading brands and companies.
- Existing international reputation of products for design, style and quality.
- Internationally recognised design schools at universities, and colleges with sector specialisms.
- Industry focused innovation centres with sector specialisations (e.g., JIIC).
- Entrepreneurial culture within graduate community.
- Innovation and design competence in the cluster.

Leather

- Good technical skills/knowledge and wealth of experience.
- Product quality.
- Design creativity.
- Many family businesses in industry.
- Established reputation and strong brand image of leading companies particularly at top-end of market.
- Flexibility and customer service able to produce short runs quickly.
- Workforce stability, long serving staff.
- Environmentally friendly e.g., chrome-free leather.
- Ethical dealings with overseas manufacturers.

Metallurgy

- The West Midlands retains the largest UK regional concentration of production in metal manufacturing.
- Important sources of wealth creation in the regional economy.
- Important contribution to regional exports.
- Environment in which small companies can grow both organically and through merger and acquisition into large firms with global reach based on unique technology and know-how.
- Long history and corresponding accumulation of tacit knowledge (depth of "knowhow").
- World-class capacity to innovate, at least incrementally: particular strengths in product innovation; product innovation (in particular, flexibility of firms to collaborate with customers to deliver bespoke products); process innovation (e.g.,

control systems); and organisation innovation (e.g., adoption of lean manufacturing techniques).

Automotive

- A significant presence of Original Equipment Manufacturers (OEMs).
- A strong presence in the growing segments of the market super minis and premium vehicles.
- A very large number of suppliers representing considerable depth and diversity.
- In theory, at least, "the region" is capable of meeting most supply needs.
- A strong tradition and culture of manufacturing and, therefore, much tacit as well as formal knowledge/skill.
- A high quality engineering services sector well integrated with the major global players.
- Good development and R and D facilities, e.g., Jaguar, Land Rover, MIRA, RAPRA.
- Flexible labour markets.

Weaknesses

Ceramics

- A continued loss of employment in areas of key skills.
- Closure of historically important companies such as Royal Doulton.
- Absence of a clear strategic vision for the whole industry moving forward.

Textiles

- Not enough companies with the ability to access market intelligence, and identify and penetrate new markets.
- Difficulty in accessing information re: new materials, technologies, and how to use them to best effect.
- Consequential reliance on traditional products, insufficient investment in new products, and failure to use design as a key business driver.
- Lack of understanding of the opportunities arising from cultural and ethnic diversity.

Leather

- Shortage of skilled staff to meet production requirements ageing workforce.
- Ageing machinery.
- Reliance on small base of suppliers and customers.
- UK manufacturers reliant on small, niche market.
- Mainly small companies lack of buying power, lack of economies of scale.
- Problem of trying to do too much in a slimmed-down organisation.
- Lack of management skills and of marketing capacity in some companies.
- Conservative industry lack of product development.

Metallurgy

- Few large firms, especially relative to Germany and the US; reduction in the number of large firms since the 1980s has reduced opportunities to be embedded in supply chains.
- Not visible to policy makers and in the media (compared to, say, the automotive sector); e.g., omitted from the (now defunct) RDA's cluster-development priorities.
- Margins are mainly low and volatile.

- The rate of investment is low relative to manufacturing industry as a whole; this applies to both investments in equipment and in people.
- Relatively labour intense.
- Lack of radical innovation.
- Lack of innovation in marketing.
- Persistent absolute and relative decline. Losing ground relative to the metal manufacturing sector in all other UK regions, except London and Wales, which might suggest some structural disadvantage in the West Midlands industry compared to the industry elsewhere in the UK (e.g., relatively over-represented in lower valueadded basic processing and under-represented in higher value-added activities with newer materials).

Automotive

- Too much concentration on low value components many firms struggle in competing on costs by utilizing "old technologies" with too few having invested in newer high value areas.
- Lack of UK electronics or communications industry to support developments in high value vehicle technologies.
- Lack of investment over several decades and continued utilization of out-date equipment and methods.
- Concerns about quality and costs relatively high labour costs.
- Significant skills shortages particularly for skilled blue-collar trades.
- An ageing workforce.
- Non-UK ownership of most of the OEMs and major suppliers.
- Lack of local design or purchasing authority in most major companies.
- Lack of high quality automotive research facilities in any of the local universities.
- Lack of high-level management and engineering skills.
- Difficulties in communication with the education sector especially universities.
- Little evidence that small or medium sized supply companies are gearing-up to meet global trends e.g., e-commerce and on-line trading and design.

Opportunities

Ceramics

- To build upon traditional areas of key competence such as surface pattern design.
- To link the industry to wider initiatives such as tourism and urban renewal.
- To co-operate closer ties with key stakeholders such as local universities

Textiles

- Expansion of premium product markets, particularly in rapidly developing countries.
- Ambitious companies within the cluster with the capability to achieve profitable and sustainable development.
- Desire within knowledge base to expand linkages to businesses and availability of funds and resources, e.g., HEIF to enable collaboration.
- International networks arising from the region's cultural diversity.

Leather

- Grow export sales, including to non-traditional markets e.g., China, Korea, Russia, Australia.
- Differentiate products from cheap, low quality imports, move upmarket.

- Improve margins through offshore sourcing.
- Build brand awareness.
- Develop links with niche retailers.
- Direct sales via internet.
- New product development.
- Enter new product markets (e.g., leathers for transport sector).
- Short runs of premium leathers wide variety of colours, innovative products.
- New leather processing technology (increased mechanical handling) raised productivity and improved consistency of product.
- Form closer relationships with individual customers to understand their needs.
- Use of additional materials (e.g., elk, deer) for high fashion market.
- Further exploit overseas markets.

Metallurgy

- Entering supply chains of inward investors, especially from emerging market manufacturing groups.
- Mergence of engineering groups a possible solution to the "succession problem" and/or to lack of viability as an independent producer.
- Diversification towards new higher growth and, hence, higher-value added activities.
- Manufacturing-related service provision.
- Exporting.

Automotive

- Investment by major suppliers in manufacturing or assembly facilities, providing vehicle builders remain in the region.
- New markets for the premium vehicles manufactured in the region e.g., China.
- Standardisation of components provides opportunity to supply at higher volumes.
- Exploit technological change to provide niche opportunities in current developments.
- Develop the engineering services sector, given by the outsourcing of key design and development activities by OEMs and the major suppliers.
- Exploit the region's engineering, innovation and production capacity, by the expanding market for niche vehicles.
- Develop the area as a centre of excellence for the industry.
- Develop engineering solutions to meet increasing environmental, safety and legislation.
- Low Emission Vehicles (including carbon reduction and lightweight vehicles).
- Intelligent Transportation Systems (communication to and between vehicles).
- Niche Vehicle Cluster Growth (companies access to overseas markets).
- Vehicle engineering and development services.

Threats

Ceramics

- The continued loss of jobs below the critical mass for a viable industry.
- The downward spiral of relative decline to undermine future confidence.
- The relentless competition from overseas manufacturers.

Textiles

• Competition from technologically developing lower wage economies in the Far East and Eastern Europe.

- Skills gaps and shortages and the impact on the business performance of the cluster.
- The loss of traditional craft skills.
- Failure to attract new and young workers.
- Education and training providers failing to meet cluster needs.

Leather

- Cheap imports from overseas continuing downward pressure on UK manufacturers' margins.
- Rapid shifts in consumer tastes.
- Major retail customers increasingly sourcing direct
- Technical skills in short supply for sourcing companies as manufacturing continues to shrink.
- Difficulty of sourcing quality leather in the UK; demise of supply chain.
- Environmental constraints and regulations for leather processing industry.
- Limited access to raw materials chemical and hides compared with competitors such as China.
- Copying of UK products by overseas manufacturers.
- Adverse exchange rate movements.
- Possible substitute materials.

Metallurgy

- Continued exit of customers, especially large firms.
- Outsourcing to combine West Midlands "know how" with emerging economy cost base and less demanding regulatory regime.
- Costs: energy; raw materials; regulatory.
- Not meeting the increasing demands of entry to supply chains (e.g., automotive and aerospace).

Automotive

- Losing any of the OEMs in the region, that could lead to the loss of 1st Tier and many 2nd Tier suppliers, who depend on contracts with OEMs.
- Movement of production to the USA.
- Movement of R and D out of the area.
- The lack of local design, and/or purchasing authority, which means that the region could be by-passed in future developments.
- Falling proportion of exports to the European Market.
- The movement of the production of vehicles and components to low (wage) cost countries.
- Insufficient engagement with high value technologies.
- The growth of European and global supply matrices that have no boundaries

2.3.2 Final considerations

Our concern is with "traditional manufacturing sectors". We do not define "traditional" only – or even mainly – according to the standard OECD classification of industries as "high", "medium" or "low-tech"²⁹. This approach does not capture the complexities of traditional industries nor does it show the dynamic nature of the firms. For instance, some traditional industries may be low-tech but others are not (e.g., automotive). Indeed, once we define industry at a level meaningful to practitioners – say, at the SIC 4-digit level – characterization of whole industrial sectors as "high", "medium" or "low-tech" may be misleading. For example, pottery/ceramic products in SIC 262 includes sectors that may operate at different levels of R&D intensity (e.g., SIC 2621 – manufacture of ceramic household and ornamental articles, and SIC 2624 – manufacture of technical ceramics)³⁰. Moreover, even the same 4-digit industry may include substantially different intensities with respect to R&D and other types of innovation activity (e.g., commodity earthenware producers and specialists in hotel ware).

Our preferred approach to defining "traditional industry" is multi-dimensional, reflecting not only measurable characteristics but also a range of concerns or anxieties. We define as "traditional" those manufacturing industries with at least the majority of the following characteristics.

1. Long established. Traditional implies history. One interpretation would be that the industry should have been established at least during the inter-war years (1918-1939) if not before. This is sufficiently broad to include, say, the motor industry but to exclude, say, computing. Most of the industries in which we are interested have been established for much longer, such as leather.

Strictly speaking, age is both a necessary and sufficient condition for an industry to be classed as "traditional", which suggests the major theme of longstanding processes or products. However, we are also interested in industries with at least some of the following characteristics.

- 2. Once a even the main source of employment at the sub-regional level (possibly even the regional level in certain cases).
- 3. In the mature or declining phase of the industry life-cycle, with recent decline typically associated with globalisation. Because these industries are long established, knowledge has diffused and enabled production to develop in and/or be relocated to new locations with lower costs. This applies to at least some of our industries (e.g., ceramics) although not necessarily to all.

²⁹ These categories are defined by research and development 'intensities' – that is, OECD average shares of research and development expenditure in sales revenue – of, respectively, more than 10%, between 0.9 and 10%, and less than 0.9%.

³⁰ In the British Standard Industrial Classification (SIC), which follows the same classification principles as the EU NACE classification, the principal pottery/ceramic products in SIC 262 comprise SIC 2621 – manufacture of ceramic household and ornamental articles, including table ware, kitchen ware, ornamental articles and toilet articles (excluding large sanitary fixtures); SIC 2622 – manufacture of ceramic sanitary fixtures; SIC 2623 and 2624 – manufacture of technical ceramics; and SIC 2626 – manufacture of refractory ceramic products (CSO, 1993). Related industries, but outside SIC 262, include the manufacture of ceramic tiles and flags (SIC 2630) as well as bricks, tiles, and construction products (SIC 2640).

- 4. **Labour intensive**, so that relocation of production to low-wage economies has particularly serious consequences for manual employment in the (sub) regional context. Of course not all aspects of production may be out-sourced to low-wage economies such as design and marketing. However, a key element of the traditional nature of the industries is that some or most of the repetitive, low-skilled, manual work is indeed out-sourced from EU countries.
- 5. Major sources of wealth creation and employment in regional (or, at least, subregional) economies. In spite of recent decline, the traditional industries in which we are interested continue to be important to regional or, at least, sub-regional economies.
- 6. Retain capacity for innovation, hence the potential to continue as important sources of wealth creation and employment. This issue can be linked to the core competencies where firms will retain what can add value (make strategy) and out-source what the market can produce more cheaply and/or efficiently (buy strategy). Conversely, traditional industries may be ones in which "conditions of low technological opportunities limit innovative entry and restrict the innovative growth of successful established firms" (Breschi et al., 2000, p.393³¹).

Recent and often dramatic decline is why we are especially concerned with traditional industries; because: traditional industries often remain important sources of wealth creation and employment in regional (or, at least, sub-regional) economies they are of concern to public policy; and capacity for innovation is likely to be both a feature of any industry that survives long enough to be classified as traditional and a necessary condition for a positive return on public sector support for these industries.

This potential for innovation may be more associated with particular industry groups (at the NACE/SIC 3-digit and/or 4-digit levels) firms than with the industry as a whole and, possibly, with SMEs rather than with larger and established industry leaders. Accordingly, we should also be careful to distinguish high-tech and dynamic industries or even firms within broadly defined traditional sectors.

7. Evidence of significant capacity to diversify from within a traditional industry towards new, high-growth activities: i.e., the possibility of high-tech and dynamic industry groups emerging within broadly defined traditional sectors. Sectors defined at the NACE/SIC 2-, 3- or even 4-digit level may be sufficiently heterogeneous to give rise to industry groups able to diversify into new technologies and products. An example is the textile industry that as well as the "rag trade" has also witnessed the growth of technical textiles. The general point is to note significant diversification from within traditional industries towards new, high-growth activities.

Additional characteristics, although not necessary conditions, of traditional manufacturing industries might also be:

- 8. Substantial contribution to regional (or, at least, sub-regional) exports, even if the industry has recorded a deteriorating trade balance as part of overall decline associated with growing competition from imports.
- 9. Traditional industries may or may not be geographically concentrated and so constitute a "cluster". This characteristic can vary between industries where

³¹ Breschi, S., Malerba, F. & Orsenigo, L., (2000), "Schumpeterian Patterns of Innovation and Technological Regimes", *The Economic Journal*, Vol. 110, No. 463. pp. 388-410.

economies of agglomeration are useful for some industries, such as ceramics, but not others.