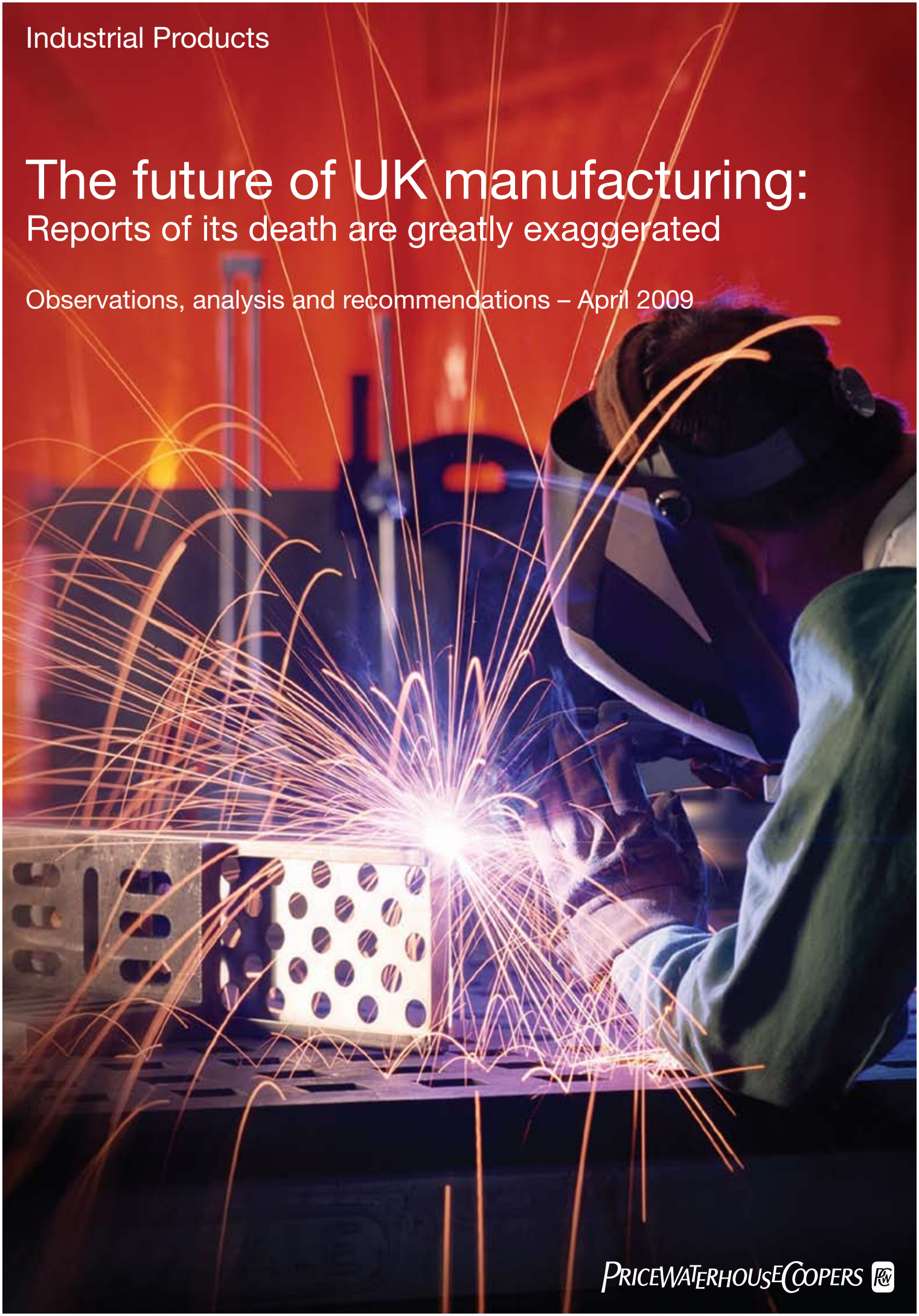
Industrial Products

The future of UK manufacturing:
Reports of its death are greatly exaggerated

Observations, analysis and recommendations – April 2009



PricewaterhouseCoopers

UK manufacturing is not dead, or even in terminal decline. The sector as a whole has grown despite severe recessions in the past, and it will survive the current downturn.

Contents

Detailed analyses of the following industrial sectors are provided in an Appendix, which is available at www.pwc.co.uk or from any of the contacts at the back of this document:

- Automotive
- Aerospace and Defence
- Oil & Gas Refining
- Chemicals
- Construction and Building Products
- Packaging
- Clean Technologies

Executive Summary

There is a widespread assumption that the final demise of manufacturing in the UK is only a matter of time. But this is simply not so. The facts tell a different story:

- Output of British manufacturing reached an all-time high in 2007, even adjusted for inflation
- The UK is the world's 6th largest manufacturer with strong positions in certain key industries, e.g. a 15% global market share in Aerospace
- UK Manufacturing achieved a 50% increase in labour productivity from 1997-2007

While the UK is suffering from the severe cyclical global downturn at the moment, PricewaterhouseCoopers[1] (PwC) believe UK manufacturing will survive this as it survived the crises of 1973, 1982 and 1991.

The question is whether it will be weaker or stronger at the end of that process – we see some significant challenges, but also solid grounds for optimism.

It is undeniably true that in the UK, the manufacturing sector is in *relative* decline. Over the past 30 years manufacturing output has grown more slowly than services, and the number of people employed in manufacturing has dropped steadily as productivity per employee has increased. The sector faces a number of serious challenges, from the long-term threats posed by emerging markets, to the current economic downturn which is affecting manufacturers in high-wage and low-wage countries alike. Perhaps most seriously, Britain has a highly negative balance of trade (total exports minus total imports) that is not sustainable.

Just as individual companies have to identify their particular strengths and areas of focus, we believe the UK manufacturing sector as a whole, with the support and involvement of the UK government, needs to consider what strengths it should build on, and where it wants to specialise. The rate of globalisation means that the pace of specialisation needs to increase if the UK is to hold a meaningful position in the long-term global market. Being a leading player in all sectors is not realistic; but being a leading player in certain chosen segments is.

Through interviews with CEOs and board-level directors of leading manufacturing businesses we have explored the challenges and opportunities facing the sector. Some of our conclusions may be surprising, and the recommendations that flow from them will require bold thinking and resolute action, especially in the face of perhaps the most serious global recession since the 1930s. But our overall message is clear: **UK manufacturing is not dead, or even in terminal decline. The sector as a whole has 'held on' through severe recessions in the past and it will survive the current downturn – but we think it can and must do better than that. In our daily interactions with some of our clients we see efforts and innovations already taking shape today which, if properly leveraged, could move the UK manufacturing sector from 'surviving' mode to 'thriving'.**

1 'PricewaterhouseCoopers' refers to PricewaterhouseCoopers LLP (a limited liability partnership in the United Kingdom) or, as the context requires, the PricewaterhouseCoopers global network or other member firms of the network, each of which is a separate and independent legal entity.

So what are our key findings?

- **The UK manufacturing and engineering sector needs to survive,** not only because it is important in its own right, but because it supports so many businesses in the services sector. Indeed, the distinction between 'manufacturers' and 'service providers' is becoming increasingly blurred, as products and services are increasingly bundled to together to provide differentiated value-added solutions. If manufacturing disappears, we believe a large element of the service sector would also be at risk.
- Most commentators and policymakers now agree that the 'knowledge economy' is essential to the UK's economic future – these days the production of even comparatively simple products like paper and packaging, for example, rely on complex computer software and intellectual capital. **It is the development and exploitation of new technology that will continue to mark out the winners from the losers, both in services and in mainstream manufacturing.**
- Just as in the mid 1970s, the early 1980s and the early 1990s, **the manufacturing sector as a whole will come through the current economic crisis.** One very positive sign is the lengths to which many firms are going in the current downturn to minimise redundancies. In a number of high-profile cases, UK firms and unions have agreed to reduced work weeks to retain the scarce manufacturing expertise that these firms will need when the recovery comes. That shows that they are already thinking beyond the downturn.
- Manufacturing is a long term industry. **Business strategies, investment decisions, analyst reports and government policies all need to realise that sustainable competitive advantage is built up over many years.** If they lose that perspective, short-term decisions can damage long-term competitiveness.

Sustainability is an extraordinary opportunity, but one with a limited time window

- **Sustainability is an extraordinary opportunity, but the UK faces stiff competition from other territories.** The new focus on climate change and greener supply chains opens up a whole range of new prospects for UK manufacturing, for example in the design and production of clean technologies and renewable energy generation. In some areas (e.g. wind power) other countries already have a substantial lead, but this opportunity is by no means completely claimed and in some areas (particularly tidal energy) the UK has a strong position already. It will require focus and co-ordination between government, business, and academia to be properly exploited.
- We may now be entering a prolonged period of sterling weakness. If that proves the case, then **firms should take the opportunity to push for productivity improvements as dramatic as those achieved over the past decade.** The aim should be to take a clear productivity *lead* in their core competencies, and not merely benefit from the lower cost environment generated by a falling currency.

We believe British manufacturing can and must succeed as more of a 'niche player'

- The UK now accounts for 0.9% of the world's population and falling. Economically **Britain has 'punched above its weight' to an astounding degree over the past 200 years,** but as major emerging markets increasingly claim a proportionate share of the world's wealth, Britain's *relative* economic impact must adjust accordingly. We see this as a global economic success story rather than a British failure. Moreover, **we believe British manufacturing can and must succeed as more of a 'niche player'.** Once again, business, government and academia all have critical roles to play to make this happen.

From our discussions with UK manufacturing leaders, our key conclusions and recommendations for business are:

- In seeking to build sustainable competitive advantage, focus first and foremost on your unique knowledge and capabilities, rather than products. A strong focus on R&D, dedication to quality, reliability, and responsiveness, strong partnerships throughout the value chain and concentration on customisation will characterise the most successful businesses.
- Ensure that your 'home' market (i.e. the countries and customers that you know intimately) are of sufficient scale to provide a platform for global success – in most industries that will include more than the UK.
- Take full advantage of government support, and don't hesitate to lobby for a more favourable business environment.
- Be a champion for your business and your industry – talk up your achievements, and make sure the widest possible audience knows what you have done and what you can do.
- Take advantage of the downturn. Market share is easier to take, state-of-the-art capital equipment cheaper and quicker to obtain, and top talent easier to recruit, in times like these.

And our recommendations for Government are:

- Greater clarity & public awareness is needed regarding the support that the government is providing to foster training and innovation.
- The Government has been 'fire-fighting' in the current crisis; efforts in support of the longer-term, strategic development of UK manufacturing need to be broader, more visible and more impactful – for example facilitating investment and development in key industries with exceptional growth potential.
- Active and co-ordinated R&D is critical to the long term health of UK manufacturing, but currently much cutting-edge R&D in British universities lacks commercial sponsorship. This gap needs to be more effectively bridged, and knitted together with R&D activity undertaken in industry.
- The deficit of skilled technical workers in the UK is becoming acute – the government has a role to play to 're-engineer engineering' by demonstrating that we have an industry to be proud of, and attracting more top talent to pursue careers in this sphere.
- The government can encourage the further development of manufacturing 'clusters' analogous to Silicon Valley or Munich.
- The right tax and regulatory frameworks are critical – we explore the key steps to support optimal investment decisions by the private sector.

Detailed reasoning behind each of these conclusions follows in the main body of the report.

Introduction

The goal of this study is to examine **what sources of competitive advantage have sustained British manufacturing and R&D** through the significant challenges of the past 30 years, and to explore **how UK manufacturing is likely to adapt to the current downturn and beyond.**

‘The UK manufacturing sector has become more competitive… it has become more vibrant, more international.’

David Smith, CEO,
Jaguar Land Rover

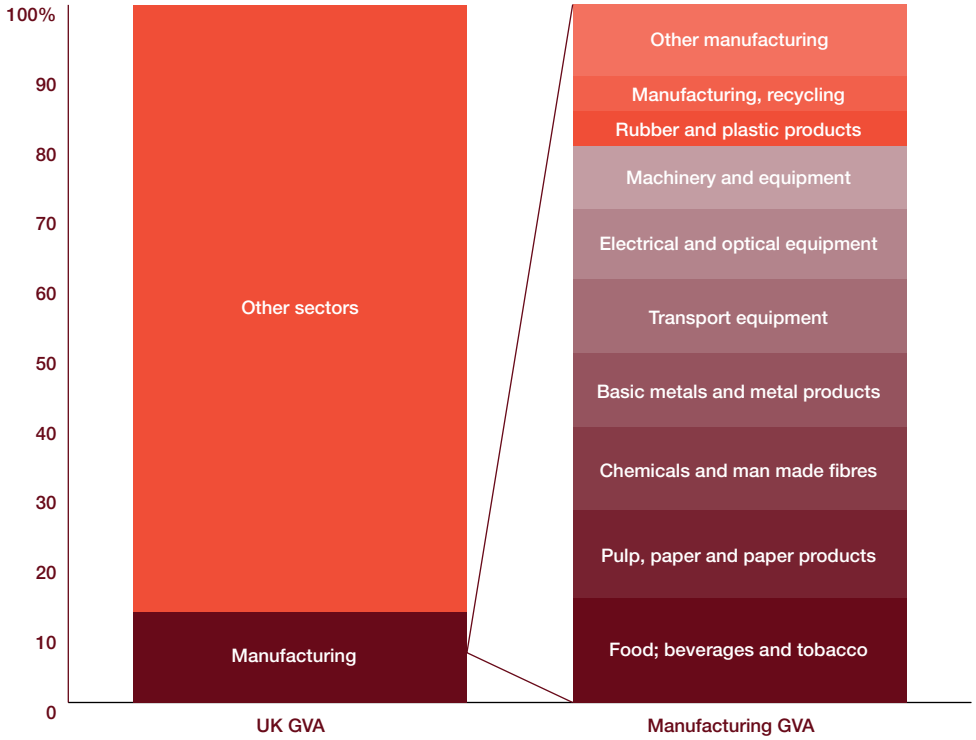
We want to encourage the owners of UK manufacturing assets to think about **how best to position and invest in their UK manufacturing assets for maximum long-term benefit.** Whether these owners are British or foreign firms, we hope to both foster and enrich the ongoing dialogue regarding where British manufacturing has a genuine long-term competitive advantage, so that scarce investment capital can be invested for maximum effect, and the domestic manufacturing base can be positioned positively for the recovery that will follow.

We have spoken in depth to a large number of CEOs and directors of leading manufacturing businesses, from global FTSE 100 industrial conglomerates to national specialists and explored their views of the challenges and opportunities facing the sector. We have assessed the available statistics, analysed recent and longer term trends, and questioned many of the assumptions that continue to portray the sector as in structural, terminal decline. By doing so, we’ve been able to draw new conclusions about where UK manufacturing is now, and whether past performance is really any guide to future viability.

But what do we mean by manufacturing?

We have taken two main approaches. The first uses Office for National Statistics definitions for the key analysis of recent and longer term trends, issues such as output growth, productivity, employment and so on to form a top-down view of the sector:

UK Output (Gross Value Added) – manufacturing and its sub sectors, 2007



Source: UK Office for National Statistics

The second approach is a more detailed sector-by-sector analysis which we summarise on pages 24-25 with the full reports available at www.pwc.co.uk. This is not intended to be exhaustive, but rather compares and contrasts the key issues and likely success factors in a number of industrial manufacturing sub-sectors. These sectors are:

- Automotive
- Aerospace & Defence
- Oil & Gas Refining
- Chemicals
- Construction & Building Products
- Packaging
- Clean Technologies

Manufacturing in the UK today – misconceptions and unacknowledged successes

Manufacturing misconceptions

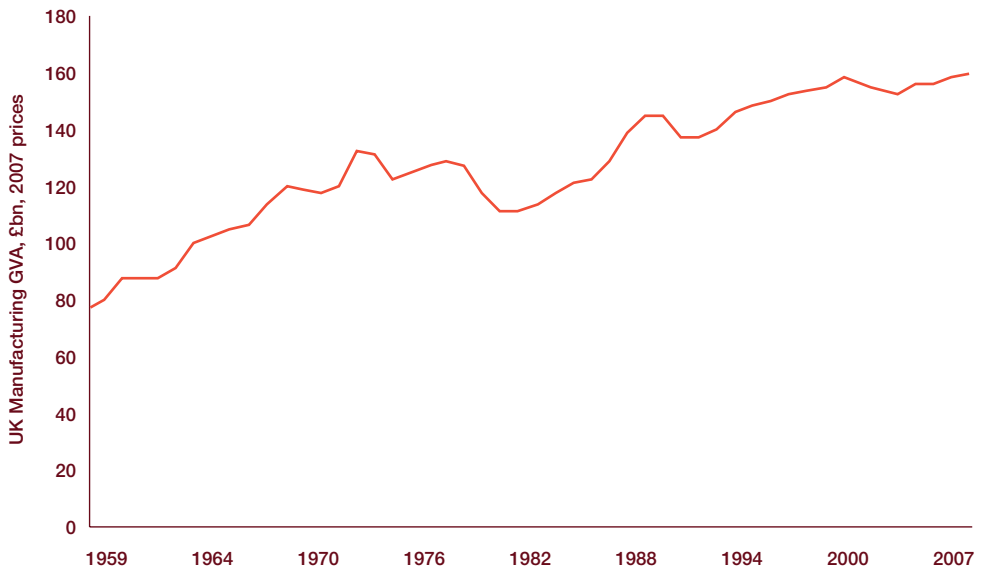
There is a popular belief that UK manufacturing is in terminal decline

Long before the onset of the current downturn, there was a widespread perception that the manufacturing sector in the UK was either already dead, or soon would be. This is not true.

Manufacturing's share of the total economy is certainly in decline, because services have grown more quickly in recent years. Likewise employment in the sector has been shrinking, as a result of significant and essential productivity improvements, which are in fact a 'good news' story for the sector. Another popular misconception arises from a confusion about foreign ownership: a significant number of flagship British brands have indeed been bought by foreign companies, but this doesn't always mean that their UK manufacturing capacity is then shut; in many cases manufacturing activity stays and thrives here.

Strip out the facts from the fallacies, and the truth is that the real value of **UK manufacturing output has increased in 35 out of the past 50 years,** and as the graph below proves, **2007 was a record year for UK manufacturing production:**

UK Manufacturing output (Gross Value Added), 1958-2007



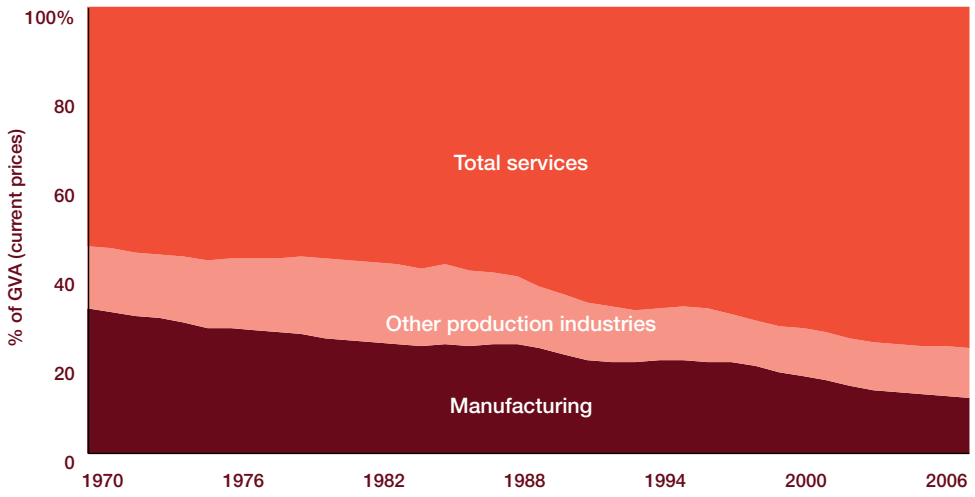
Source: UK Office for National Statistics

A relative but not a real decline….

Services have grown more strongly than manufacturing

On an inflation-adjusted basis, UK GDP has increased roughly four-fold in the past 60 years, but in recent decades this growth has increasingly been concentrated in the service industries. British manufacturing output tends to contract during recessions, and then grow slowly but steadily in expansionary periods, such that the sector continues to achieve a low but apparently sustainable net real growth over the long term. In other words, UK manufacturing is in absolute growth, but relative decline:

Manufacturing as a % of UK GVA



Note: 'Other Production Industries' includes: mining & quarrying; agriculture, forestry & fishing; energy and utilities; and construction.

Source: UK Office for National Statistics

This relative decline is also the case when considering employment – in 1980 manufacturing accounted for 1 in 4 of all UK jobs, in 2008 that figure had fallen to 1 in 10, although this has been offset by the significant productivity gains that are one of the overriding but uncelebrated successes of UK manufacturing over the last three decades.

… and a merging of two activities

But the future may lie in a business model that combines them both

The graph above contrasts recent trends in manufacturing with those in services, but in many ways this is becoming a false distinction. The line between manufacturing and services is becoming increasingly blurred as more and more companies are operating in both areas, or bundling goods and services together in customised packages for clients.

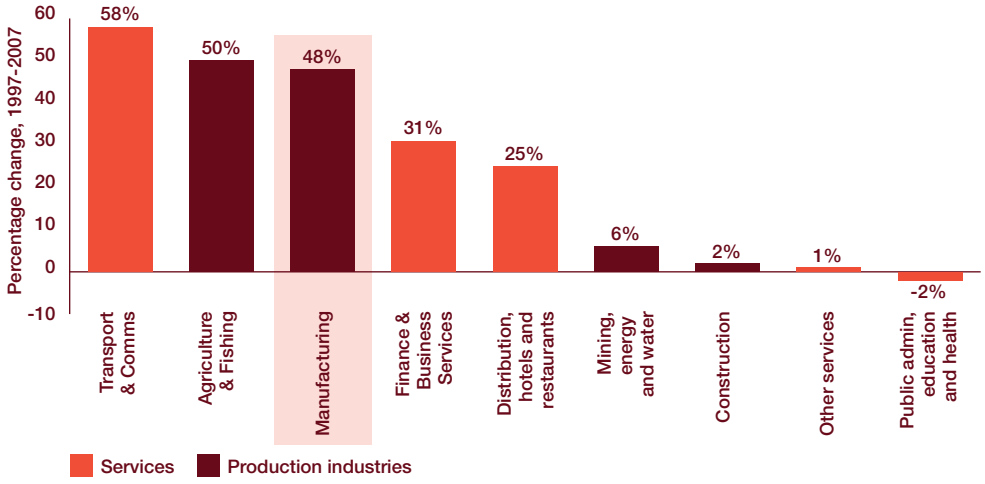
As the importance of intellectual property and knowledge-driven businesses grows, we believe that the most successful companies and economies will be the ones who manage to bridge this historical divide between manufacturing and services, and turn that new capacity into competitive advantage. A good example of this is Rolls-Royce, which has made a significant and successful transition from a pure manufacturing company in decades past, to an integrated solutions provider which now generates over half of its revenue from services as it looks to capture value across the full lifecycle of its products. And many smaller businesses have successfully followed a similar strategy.

An unacknowledged British success story

On many measures the UK punches well above its weight

In 2008, the UK was still the 6th-largest manufacturer in the world by value of output, as ranked by the UN Council for Trade and Development. 2006 was a record year for UK exports, and according to a 2008 report by BERR (the UK Department for Business Enterprise and Regulatory Reform) 25% of UK exports in 2006 were high-tech goods, compared with 22% in the USA, 15% in France and 11% in Germany. And perhaps most strikingly, over the past two decades Britain's Manufacturing sector has delivered greater productivity gains than Britain's Services sector.

Productivity growth (output in constant prices per employee), 1987-2007



Source: UK Office for National Statistics

'Everyone says there is no future in UK manufacturing. I was told that in 1975.'

Brian Cooke, Chairman, Castings plc

Of course, a few sectors of UK manufacturing are relatively immune from competition from low-wage regions just by their nature. Products from Asia, for example aren't competitive if they have high transport costs and a relatively low labour content (e.g. packaging). But even where imports are largely absent, we frequently find competition just as fierce as in other sectors, and the productivity gains achieved by UK manufacturers in recent years just as significant.

Before the current downturn took hold, there was strong growth across a wide range of UK manufacturing segments, for example:

- Britain is a world player in aerospace, accounting for 15% of global output in 2007.
- UK automotive output was near an all-time record high in 2007, and automotive exports were at an all-time high with a total value of around £20 billion.
- The country's production of mechanical equipment has risen steadily since 2002, outperforming the growth of the economy as a whole. Precision equipment has also done well.
- Sustainability is proving to be a fertile area for UK firms, with new expertise developing in everything from alternative energy technologies, to new lower-carbon production techniques for everyday products.

And while all of these sectors are experiencing slowed or negative growth in the current severe downturn, this is a global cyclical phenomenon affecting everyone, not just the UK.

Adapting to a changing landscape

Even if UK manufacturing has been more successful than it has usually been given credit for, the challenges it has faced in recent years have been significant and disruptive.

50 years ago Britain's international trade in manufactured goods was a fraction of what it is now, and most products used in Britain were designed and produced here. Now a product produced entirely in one country is a relative rarity – raw materials typically move across many countries as they are transformed from raw materials to basic components, sub-assemblies, and finished goods. British industry has survived these enormous global changes by dramatically improving worker productivity, which in many cases has meant focusing on specific niche areas of the value chain where the UK has a sustainable competitive advantage.

The sector has become far more productive, but at the cost of manufacturing jobs

But if the sector as a whole has adapted to survive, the same is less true of manufacturing jobs. From 1978-2008, almost 4m UK manufacturing jobs were lost.

That said, it's important to bear in mind that **this is very far from being a uniquely British problem: manufacturing jobs are being lost on a global level.** A recent OECD study showed that even China lost several million manufacturing jobs from 1995-2002 as the closure of inefficient state enterprises outweighed job growth in the private sector. In other words, **reductions in manufacturing employment arises first and foremost from productivity gains, i.e. improvements in technology and processes that allow more output to be produced by fewer people.** Free trade is a secondary contributor.

In our view manufacturing is unlikely to disappear altogether in the UK or any of the other developed countries; it is far more likely that it will simply adapt to the new economic environment. The more important question is how that will happen, and the answer will depend not only on the strategic decisions taken by business leaders, but the UK government's industrial policy.

The UK also has a sizeable and growing trade deficit, particularly in manufactured goods. Thus far, much of this deficit has been financed by a high level of foreign direct investment, which has also helped to sustain manufacturing employment and improve productivity (though in some cases there are signs that the intellectual property and design work is moving offshore). It is unlikely that this level of trade deficit can be sustainable in the long term – if the UK does not find a way to produce more export-competitive goods, we believe that the pound will eventually weaken to a point where Britons will be forced to import and consume less. In other words, if the UK does not take a pro-active approach to improving its balance of trade over the long term, export competitiveness and a balanced trade account could be forced on the UK by market forces in a way that diminishes the standard of living.

The level of the UK's trade deficit is also giving cause for concern

Riding out the recession

The current downturn poses very real threats

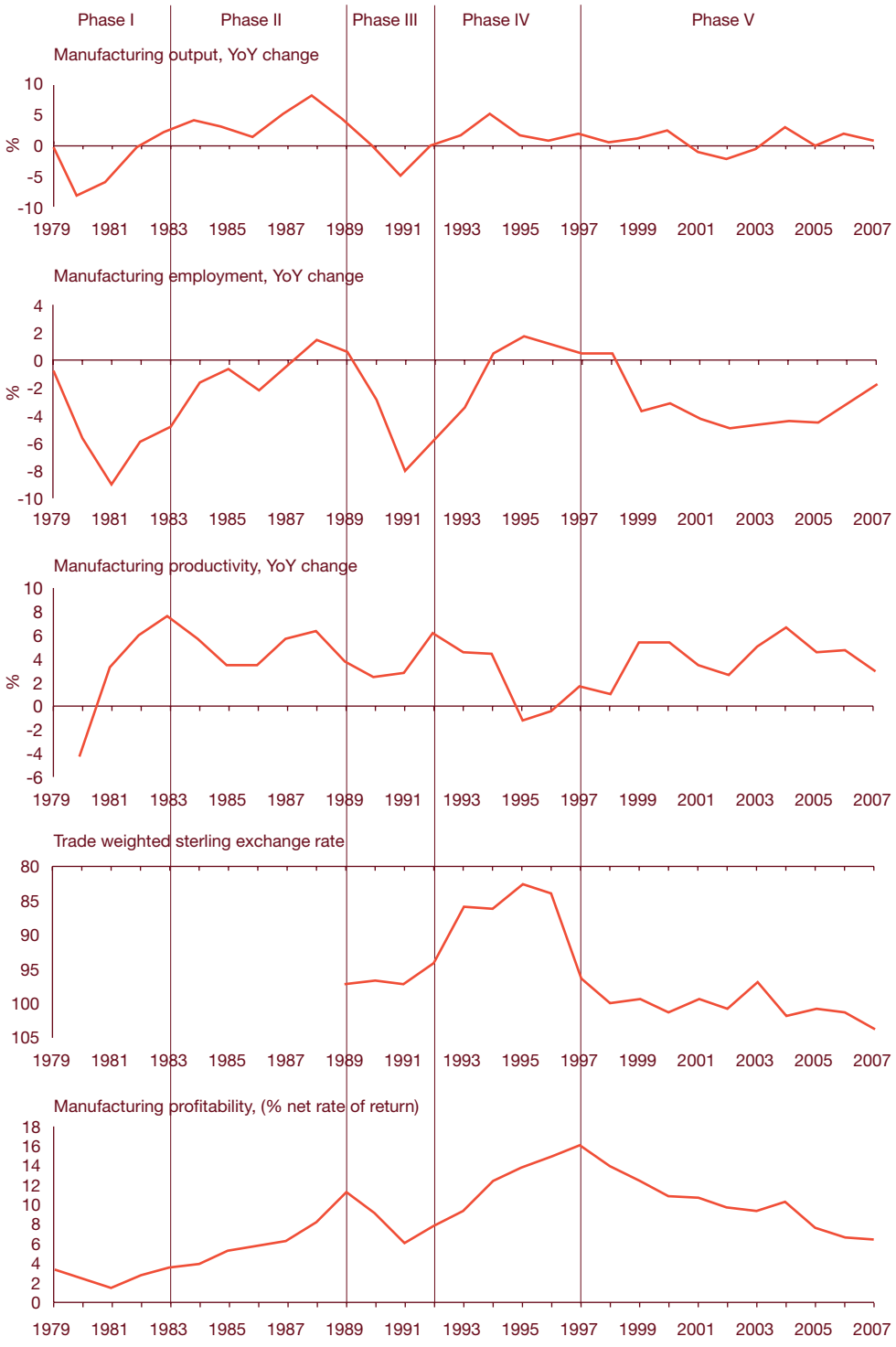
There's no question that the current economic and cash-flow crisis is severe, and is having a profound effect on low-wage and high-wage economies alike. The UK Office of National Statistics reports that manufacturing output declined by 10.4% in the three months to January 2009, which is the worst decline in decades. PwC's Economics team forecasts a 3.25% decline in UK GDP in 2009 followed by broadly flat output in 2010, but also suggests that UK businesses need to stress-test their plans against a downside scenario in which GDP falls by around 5% in 2009 followed by a further 2% decline in 2010. We also expect manufacturing output to decline by more than 8% in 2009, reflecting the highly cyclical nature of capital goods and consumer durables manufacturing in particular.

As a result there is growing pressure on all concerned to make some fundamental decisions about manufacturing and sourcing – decisions that are likely to have a significant influence on the development of the UK manufacturing sector for years or even decades. In our view there is an urgent need for informed debate and discussion about the future direction of UK manufacturing. The combination of declining British manufacturing employment, and a rising trade deficit, suggests that Britain's spheres of comparative advantage have been shrinking. However, the growth in the absolute value of British output and exports up to 2007 clearly indicates that there are some specific areas of manufacturing where British manufacturing has not only survived but thrived.

The bigger picture: adapting to globalisation over the past 30 years

We believe that the past 30 years can be divided into five distinct phases, with a sixth now beginning (see chart opposite):

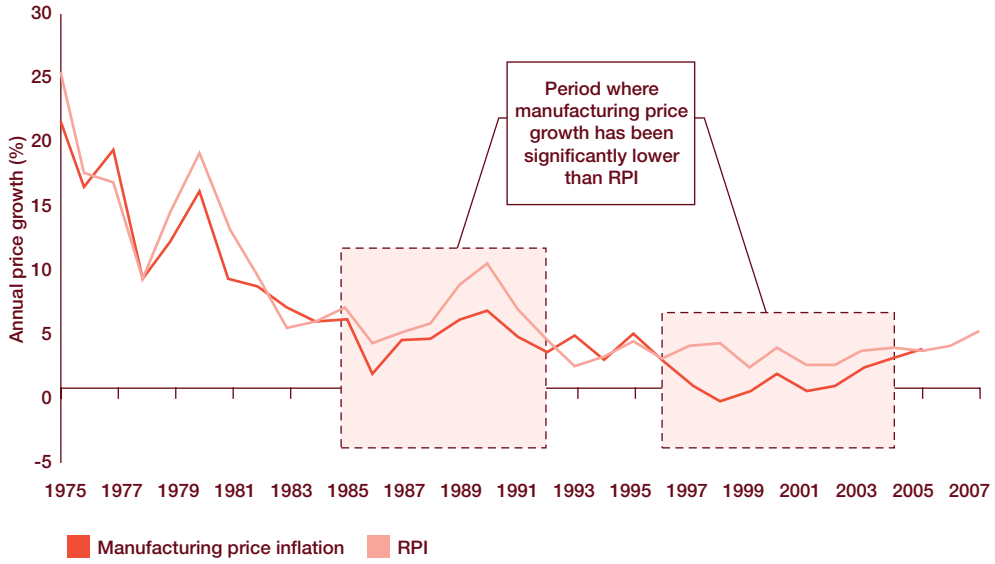
- **Phase I (1979-83):** A period of restructuring, as manufacturing adapted to multiple economic shocks including (most significantly) a substantial rise in competition from imported products of all kinds. Employment and output fell amidst significant inflation, but profitability began to turn the corner. The global downturn in 1980-81 was especially sharply felt in Britain due to a strong currency.
- **Phase II (1983-89):** the first clear signs of real productivity growth. Output increased strongly and profitability improved, but employment continued to fall (albeit at a lower rate than previously) as output per worker increased. Lower inflation and interest rates helped create a sense of prosperity in non-manufacturing areas, although this ultimately led to a consumer and housing market boom that proved unsustainable.
- **Phase III (1989-92):** A global recession was exacerbated in Europe by the costs of German reunification, which created severe shocks there. All countries in the Exchange Rate Mechanism (ERM) of the European Monetary System (including the UK from October 1990) were required to raise interest rates to keep their currencies in the required trading band with the Deutschemark. Output and employment fell sharply.
- **Phase IV (1993-97):** As soon as Britain pulled out of the ERM in September 1992, sterling fell sharply and Britain suddenly enjoyed a more competitive currency against all its major trading partners. This significantly reduced the competitive pressure of imports on British manufacturing, so creating an opportunity for Britain to move from ‘playing catch-up’ in productivity to taking a global lead. Unfortunately this opportunity was missed, in our view.
- **Phase V (1997-2007):** Sterling appreciated sharply against European currencies in 1997, just as China and other low-cost exporters started to play a major role in global trade. Thus the pressure was back on again for continuing productivity improvements in order to keep manufacturing competitive. UK manufacturing rose to this challenge, with the result that output per worker rose and employment fell, while output levelled and profitability steadily declined, even in years of strong overall economic growth.
- **Phase VI (2008-?):** Possibly the most severe global economic downturn since the 1930s. Manufacturing and services employment alike falling, not just in the UK but around the globe. Sterling weakened against both the dollar and the Euro. Manufacturers striving to manage through the downturn without compromising their long-term competitive advantages.



Source: ONS, ONS Labour Force Survey, Bank of England

Excluding Phase IV, overall long-term growth in UK manufacturing has been achieved against incessant and often fierce price competition. As the graph below shows, year-on-year manufacturing price increases have generally trended slightly lower than consumer price inflation, meaning that British factories have had to continually cut costs and increase efficiencies in order to survive:

UK manufacturing price inflation vs retail price inflation (RPI)



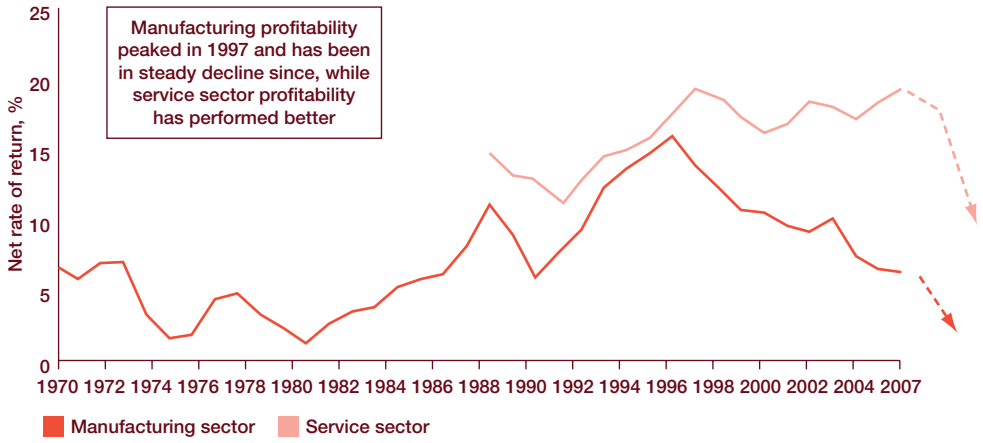
Source: ONS

Prices, profits and balance of payments: the escalating challenge since 1997

From about 1997, imports from low-cost economies such as China and Eastern Europe began to grow exponentially. Although British factories initially benefited from falling component costs, market competition forced most of them to pass these savings through to customers. At the same time, prices of many basic commodities soared due to a surge in demand from emerging markets – this put further pressure on UK manufacturing margins. By contrast, service sector profitability has fluctuated in a fairly stable band during this whole period. And as shown below, the gap in relative profitability between manufacturing and services reached record highs in 2007.

We believe, however, that the figures for 2009 and beyond may show a re-convergence of these trends. Virtually all sectors are experiencing declining performance at the moment. Manufacturing's downturn is steeper than that in services, which are inherently less cyclical. However we see a possibility that profitability rates for manufacturing and services may begin to converge in 2009, as the finance sector may be structurally affected as part of the fall-out from the current crisis, while manufacturing may benefit from a weakened sterling which makes UK exports more price-competitive.

Manufacturing vs. service sector profitability, 1970-2007

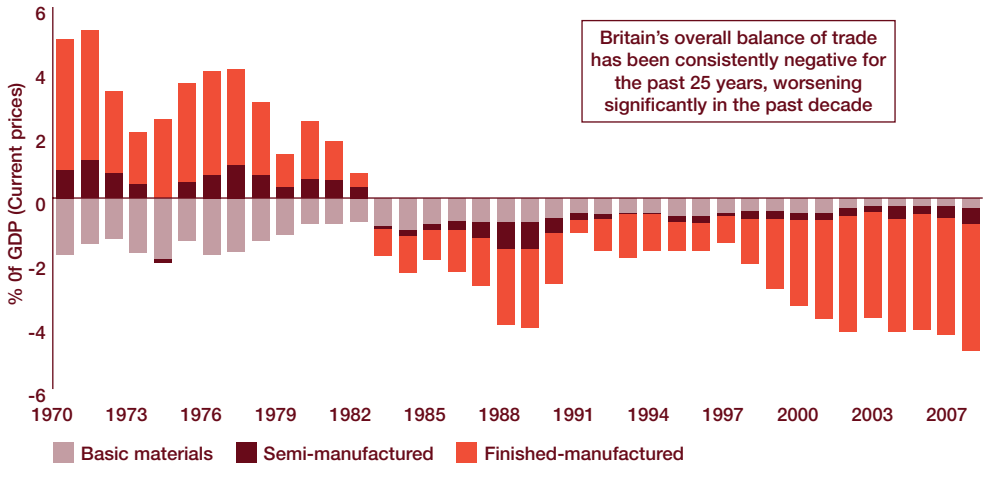


Source: UK Office for National Statistics

Britain's balance of trade continues to deteriorate…

As manufacturing profitability has declined, Britain has also seen a significant decline in its balance of trade in manufactured goods. Britain was a significant net exporter of manufactured goods until the 1970s, but that situation has since reversed.

UK manufacturing balance of payments by product type as a % of GDP, 1970-2007

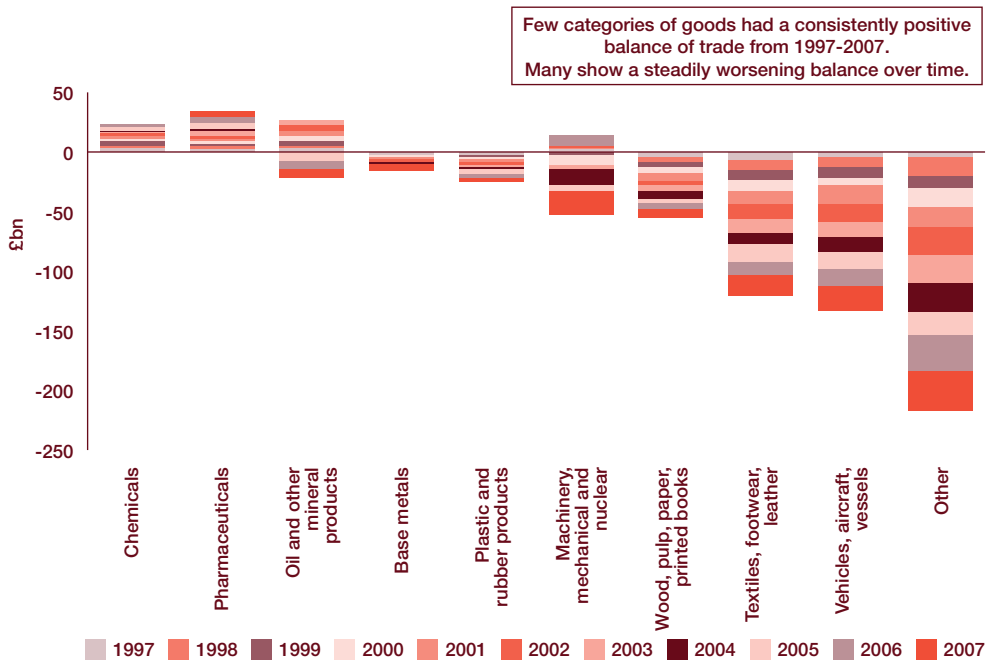


Source: UK Office for National Statistics

… but some sectors have bucked the trend

In most sectors the balance of trade has worsened year by year. In some areas, such as leather and textiles, this reflects a real decline in those industries in the UK, but in others the picture is more complex. For example, the value of UK car exports increased over this period, but the consumer demand increased far faster, and has been satisfied by a significant increase in imports.

UK balance of trade by industry, 1997-2007

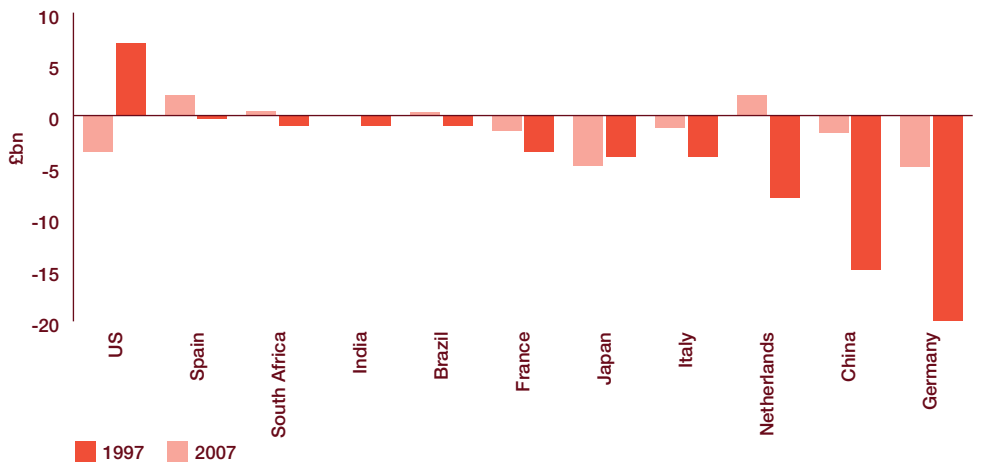


Source: Trade Statistics

The UK trade deficit isn't just with emerging markets

Perhaps most strikingly, the shift in the UK's balance of trade isn't just with low-cost countries such as China, but also with the Eurozone. Germany, for example, has dramatically increased its trade surplus with Britain over the past decade.

UK balance of trade with selected trading partners, 1997-2007

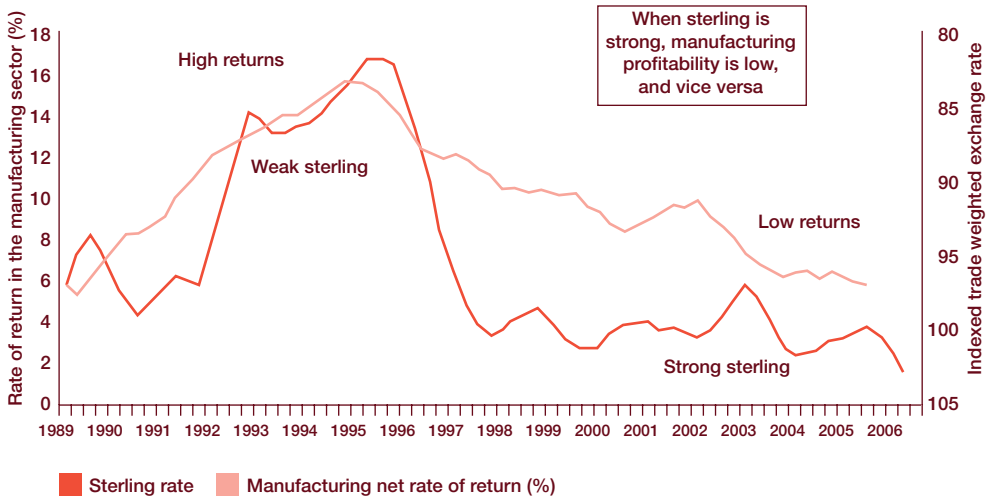


Source: UK Office for National Statistics

The relative strength of the pound has been – and still is – a key factor

Exchange rate movements have played their own role in this. 1993-96 was a rare period when the pound was weak against both the leading global currencies. Since then, British manufacturing profitability has declined steadily.

Rolling LTM average for quarterly sterling rate versus manufacturing profitability with 2 year lag, 1989-2008



Source: UK Office for National Statistics, Bank of England

'Labour market flexibility is one of the UK's USPs. This could play against the UK in the short-term, but is an important differentiator and gives us an edge in competitiveness.'
FTSE 100 CEO

A number of factors kept the pound relatively strong during this time. The strong growth of the service economy is one of these, driven in large part by London's status as a global financial centre. At the same time, Britain has been particularly successful at attracting foreign direct investment. For example, in 2006 the UK attracted £26 billion of foreign investment in manufacturing, second only to the USA and well ahead of France or Germany (Source: BERR).

Britain has a relatively flexible labour market, and its English language and legal system make it attractive to a wide range of potential investors. Overseas investors have also arguably found it easier to make large-scale acquisitions in the UK, compared to mainland Europe, where the political opposition to such takeovers has at times been more vocal. As a result, many investors from countries with a trade surplus with Britain have been both able and willing to spend this surplus sterling on direct investments, instead of selling it on the currency markets, which would have driven down the value of the pound. Significant sums have also been spent by passive foreign investors acquiring shares on UK exchanges.

There are signs that we may now be entering another phase of sterling weakness against both the dollar and the Euro. If this persists for any length of time it could cushion the worst effects of the downturn. In fact, some of Britain's Eurozone trading partners have already expressed concern about the advantages that Britain may gain from a weak pound.

There may also be more worrying structural influences at work

But there are also some far less encouraging trends in play. Perhaps the most worrying of these is the continuing worsening of the balance of trade with the Eurozone after 2002. In other words, Britain's trade deficit with the Eurozone has widened in the last seven years, despite the fact that the pound has been weakening against the Euro. This suggests that the declining profitability of UK manufacturing may not be purely cyclical, but could have structural causes as well. We turn to this question next.

The truth about productivity in UK manufacturing

'UK Manufacturers can now compete better with Far Eastern manufacturers… Productivity is not just about getting people to work harder'

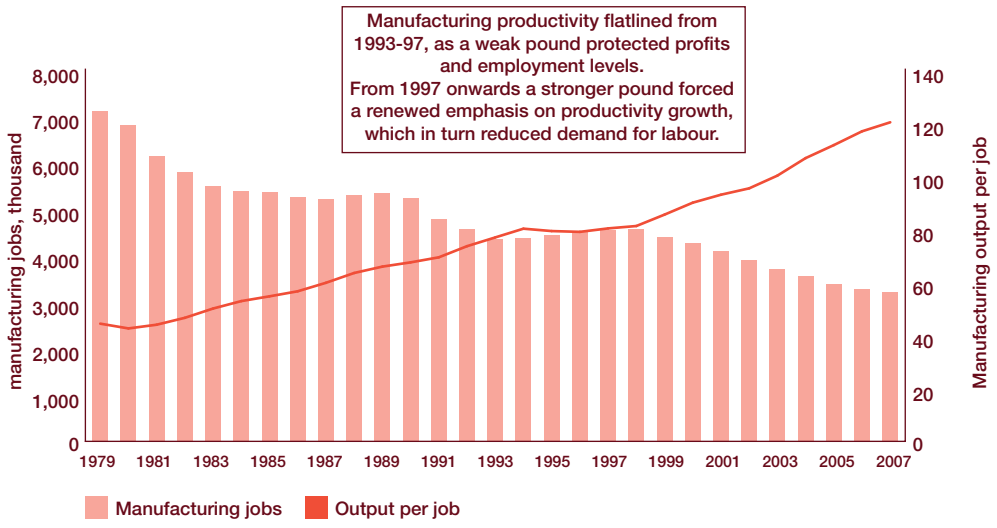
Duncan McKinley, CEO, Cable Management Group

UK manufacturing has managed to survive, and in some industry sectors even thrive in recent decades largely because it has been able to achieve quite extraordinary improvements in productivity. Some of this has been down to new tools and technologies, and some to new working practices.

Techniques like lean manufacturing, 6-Sigma, and Total Quality Management have all played a significant role, while the increasing outsourcing of lower-value-added activities to low-cost countries has concentrated higher-value-adding activities in developed economies like the UK. Both of these trends accelerated in the past decade, as technological advances have gathered speed, and offshoring to Eastern Europe and the Far East has become progressively easier.

Productivity improvements have been the secret of UK manufacturing's success…

Manufacturing employment and productivity



Source: UK Office for National Statistics

The lasting impact of even brief recessions

… but UK manufacturing jobs that disappear in recessions do not tend to come back in periods of growth.

The graph above illustrates another important trend. UK manufacturing jobs that disappear in recessions do not tend to come back in periods of growth – rather, in good times British firms meet growing demand by a combination of improved productivity and increased outsourcing and offshoring. Moreover, while in the past manufacturing employment levels used to broadly stabilise in years of economic growth, we see that even in the 'boom' years of 2004-07 it declined steadily as productivity increased.

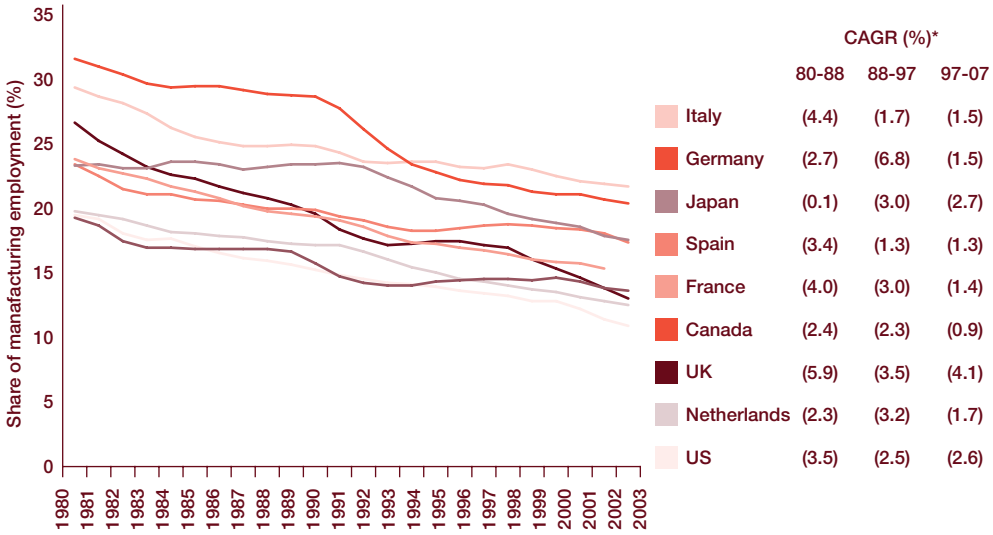
The fact that UK manufacturing output has grown at all under these conditions is testament to the significant productivity gains that have been achieved, but it also raises the question of whether British manufacturing can retain critical mass in the longer term. In our view, achieving sustainably competitive niches in high-growth industries (clean technologies, such as tidal, for example) will be critical.

The UK is losing manufacturing jobs more quickly than its competitors

The loss of manufacturing jobs is a global phenomenon….

In most major countries the proportion of manufacturing jobs in the economy is falling, however an OECD study in 2006 found that this is more severe in the UK than anywhere else. The Changing Nature of Manufacturing in OECD Countries measured the loss of manufacturing jobs from 1990-2003 across 22 nations, and the UK's decline was the highest of any developed country at 20%. The average fall was 9%, with France showing a drop of 12%, the USA around 8%, and Germany around 5%. As previously noted China posted a loss of several million manufacturing jobs between 1995 and 2002, as the closure of inefficient state-owned enterprises outweighed the new manufacturing jobs being created in the private sector.

Share of manufacturing employment, 1980-2003



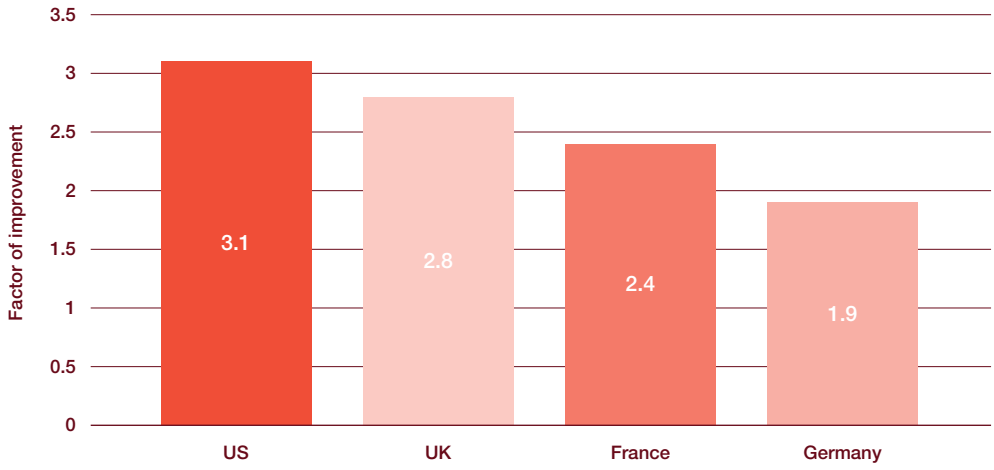
	CAGR (%)*		
	80-88	88-97	97-07
Italy	(4.4)	(1.7)	(1.5)
Germany	(2.7)	(6.8)	(1.5)
Japan	(0.1)	(3.0)	(2.7)
Spain	(3.4)	(1.3)	(1.3)
France	(4.0)	(3.0)	(1.4)
Canada	(2.4)	(2.3)	(0.9)
UK	(5.9)	(3.5)	(4.1)
Netherlands	(2.3)	(3.2)	(1.7)
US	(3.5)	(2.5)	(2.6)

Source: EuroStat

Britain's steepest decline in manufacturing employment took place in the recession of the 1970s and early 1980s, while Germany suffered most in the early 1990s, during Reunification. The old stereotype of the so-called 'British disease' (with lazy workers and uncompetitive manufacturing) is not supported by the figures. As the graph below shows, since 1980 productivity improvements in the UK have largely kept pace with the country's key competitors.

Despite popular misconceptions, UK manufacturing improvement has kept pace with its major competitors

Factor of improvement in manufacturing labour productivity, 1980-2007



Source: United States Department of Labour

…but the rate of decline in Britain has been especially severe

So if the UK is competitive in terms of worker productivity growth, why has it been losing manufacturing jobs faster than its European partners, and why has its balance of trade with the Eurozone been deteriorating? The answer to this conundrum seems to be that countries like Germany and the Netherlands have been able to upgrade (and therefore retain) a greater proportion of their manufacturing jobs than Britain has. Combine this with Britain's worsening balance of trade, and the conclusion appears to be that the scope of manufacturing activity and of the manufacturing value chain in which Britain has a genuine competitive edge is dangerously narrow.

Relative cost is a key factor here. Data from Eurostat show that manufacturing labour costs have been higher in the UK than in many other Eurozone countries, which is partly the result of a strong pound. This has put added pressure on British factories to maximise productivity gains, though this balance of pressures has now changed with the significant weakening of the pound in recent months.

Protecting what is now a scarce resource

While the downturn is obviously causing job losses in all sectors, skilled manufacturing workers are now a scarce resource in the UK. As a result, many employers are going to greater lengths than in the past to hold on to skilled manufacturing staff through the current recession, because they know they will struggle to replace such expertise when the upturn comes. In a recent study by the EEF employers' federation, two-thirds of respondents said they either have already explored, or intend to explore shortened working hours and wage freezes as an alternative to redundancies. Employees at Jaguar Land Rover, for example, recently voted overwhelmingly to accept such an arrangement, which was supported by the Unite and GMB unions. Other automakers are looking at similar plans now. Where redundancies are unavoidable, we see some employers preferring to agree early retirement with some workers, rather than make highly experienced employees redundant who will still be of working age and essential to the business when the recovery comes.

But if we wish to move from 'levelling off' manufacturing employment to actually improving its critical mass in the UK, this can only come from developing sustainable advantage in high growth industries. In our view, we have a unique but limited window of opportunity to deliver exactly that in clean technologies, for example. We explore this further in the sector-by-sector analyses in the Appendix.

The recent sharp fall of the pound against both the dollar and the Euro could play an important role, just as a similar sterling depreciation delivered improvements to revenue and profit in UK manufacturing in the mid 1990s. If this does happen, we strongly believe that British manufacturing must use the temporary breathing space provided by cheap currency to drive for even more significant productivity improvements.

We would argue that the role of government will be critical. Even if a weak pound relieves the immediate pressure in the short term, the government has a key role to play in creating the right environment to encourage new forms of manufacturing, and greater productivity increases. We explore this further on pages 30-34.

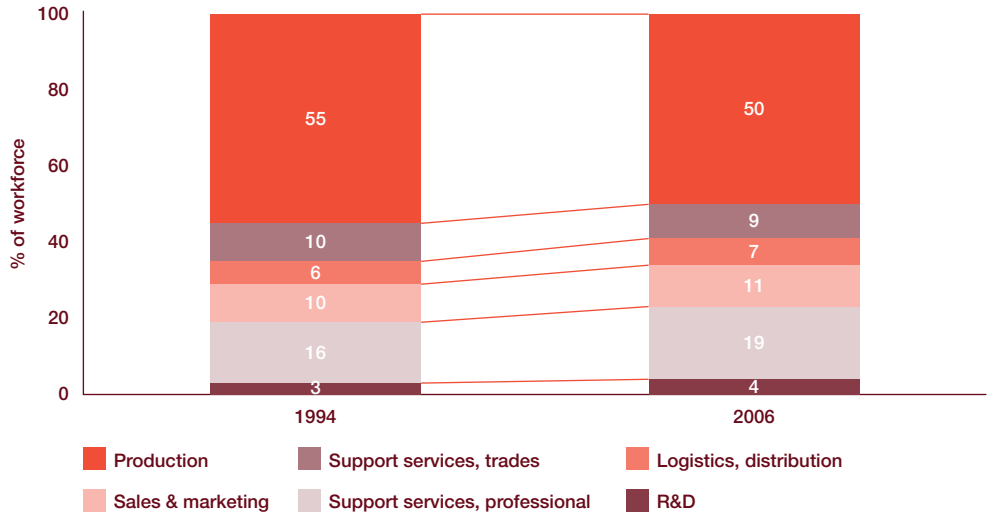
‘The UK needs to focus on PhDs not just GCSEs. We have to maintain our edge on advanced products and technologies, as mature technologies will migrate offshore and it is the people with high level skills that will determine whether or not we succeed.’

David Morgan,
Johnson Matthey plc

The nature of manufacturing jobs is also changing

The last important point to note here relates to the types of jobs that are available in British manufacturing. As the chart below demonstrates, the profile of the UK’s manufacturing jobs has also changed, as traditional blue-collar assembly-line jobs have disappeared at a more rapid rate than management and R&D roles. There appear to be two key factors at work here. The first is obvious enough: productivity improvements will naturally tend to be achieved at the expense of production jobs. The second is that with more lower-value activities being outsourced to emerging markets, the roles that remain in the UK are becoming more concentrated in areas like design, management and R&D.

Occupational activity of manufacturing jobs, 1994-2006



Source: ONS Labour Force Survey

We believe that if the UK manufacturing sector is to move from ‘holding on’ to a true renaissance, the R&D figure will have to increase. British firms will have to develop more globally competitive niches in high-growth industries or activities. This creates two challenges:

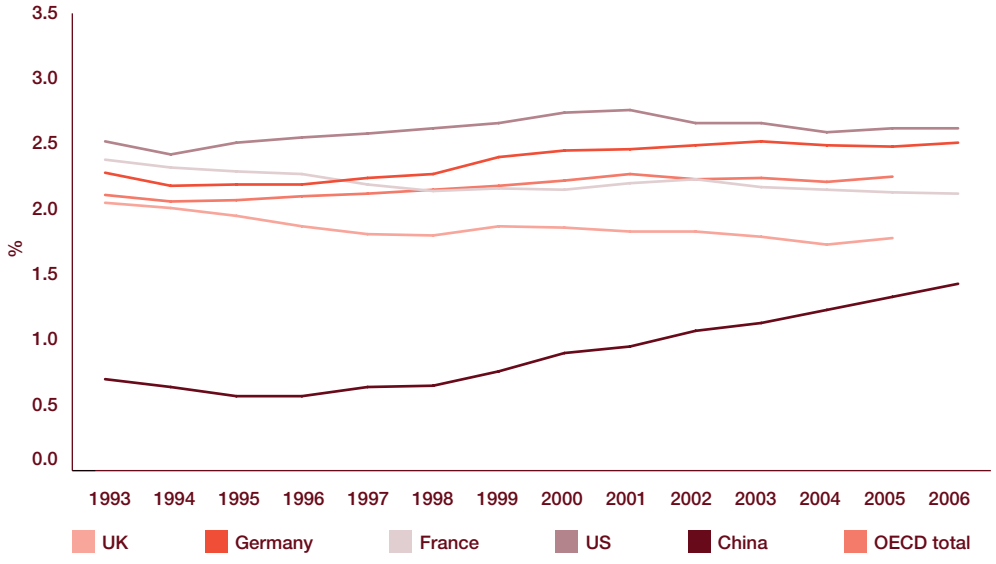
- Training – the UK must have a large and growing reserve of people with the knowledge and skills to deliver world-class R&D. In the past, people could start in entry-level jobs and work their way upward, but with many entry level jobs being offshored, training needs and challenges increase.
- R&D budgets are under threat due to the recession at the very time that they must be bolstered.

OECD figures also show that R&D spend accounts for around 1.8% of UK GDP compared with 2.5% in Germany, 2.6% in the US, 3.3% in Japan, and an OECD-high of 3.8% in Sweden. We believe that the gradual downward trend in the British figure over the past 30 years is at least partly explained by the fact that the proportion of British manufacturing that is foreign owned has steadily increased, and multi-national companies of all nationalities have a general tendency to concentrate a disproportionate share of R&D in their ‘home’ market.

‘We’re good at inventing technologies but then we lose them overseas because we don’t fund the R&D or drive the demand. Government and industry need to work together to get both sides of this equation going.’

Anthony Marrett, Managing Director, Precision Micro

Gross domestic expenditure on R&D as a percentage of GDP



Source: OECD

In summary, the lesson of the past four decades is that as Britain’s industrial workforce gets ever better trained and more productive, we seem to steadily require fewer and fewer of them. Until recently, the focus of debate on this issue was largely on whether and how we can ‘stem the losses’, or whether we should just let the jobs go. In recent years, the consensus on retaining manufacturing jobs has been growing – manufacturing workers are seen less as a costly burden and more as a scarce and indispensable resource. In our view, the real turnaround is yet to come when employment numbers in manufacturing can start growing again. As we have said, we believe that the unique high-growth window that could enable this is Clean Technologies. To do this we need to align and co-ordinate the efforts of government, academia, and the many UK-based companies that have applicable core competencies.

In the next two pages, we summarise key risks and success factors of seven key industrial sectors, and then move on to projections for the future, conclusions and recommendations.

A profile of selected key manufacturing sectors

As part of this study we analysed seven industrial manufacturing sectors that play a key role in the UK economy A brief summary of our key findings follows in the table below – for a detailed findings including observations from UK industry leaders, please see the sector-by-sector analysis.

Detailed analysis of these sectors are available at www.pwc.co.uk

Sector	Current UK position	Factors supporting the sector in the UK	Key challenges	Key opportunities
Automotive	The UK has the 3rd largest automotive industry in Europe, with total sales of around £9bn and accounting for 11% of the UK's total exports. The UK produced 1.6m passenger cars and 3m engines in 2008. Production is balanced across the volume, premium and niche segments. The UK has attracted more investment from Japanese OEMs than any other EU nation. This has raised standards, improved the supplier base and established benchmark production sites.	Value and productivity of the installed base of sites. Proximity to customer: the UK is the third largest market in Europe. Labour market flexibility. Government support. Global strengths in automotive design, engineering consultancies and specialist and racing segments.	Current severe downturn is likely to cause a shakeout of capacity across Europe. The loss of one or more major UK plants could jeopardise 'critical mass' in the UK supply chain. Longer term, the relative lack of R&D being undertaken in the UK may weaken the industry. The UK needs greater collaboration between research institutes, Government and industry to optimise R&D spend and commercialise new technologies.	Many opportunities exist in low carbon technologies, both near-term (engine efficiency, lightweight materials etc) and long term (hybrids, fuel cells, batteries etc.) Safety technologies. Globally powerful brands – opportunity to build on motoring heritage and capabilities in premium and specialist segments. Export of engineering and design consultancy.
Aerospace & Defence	A genuine world leader – the UK A&D industry is second only to that of the US. Eleven of the top 100 global A&D companies are based in the UK, accounting to $40bn of annual sales, and in 2007 the UK was the world's largest exporter of defence equipment. Many of the leading innovations that have shaped the global industry originated in the UK – a legacy that lives on in the current strength of our industry.	Sophistication of the UK armed forces requiring high-level equipment. Successive governments' open procurement policies have forced UK suppliers to become globally competitive. Sustained high levels of R&D have generated a strong knowledge base. Leading global OEMs: Rolls-Royce, Airbus (wing/pylon centre of excellence) and BAE Systems, supporting UK supply chains. Low volumes and high technology make off-shoring less suitable.	Collaboration with the government to i) agree an affordable and visible defence equipment programme and ii) establish co-ordinated 'clusters' in particular sectors. The UK is no longer a major shareholder in Airbus; the wing/pylon centre of excellence will need to prove itself the best in Europe to ensure long term survival. Shortage of skilled labour: technicians and engineers. There is a need for more co-ordinated action by all interested parties.	Long-term growth in the civil aerospace industry. Opportunities in emerging technologies including composite materials, homeland security and unmanned aircraft. Focus on international defence markets: the development of a 'home markets' strategy for UK-based companies. Consolidation further down the supply chain, to improve the UK's cost competitiveness.
Construction & Building Products	Construction output grew at 3% p.a. from 1998-2007, but UK building products output stayed flat as imports took a larger share of the market while exports fell. In the current downturn, volumes of materials for housebuilding have fallen severely, commercial less so, while infrastructure is doing relatively well.	High weight-to-value ratios for many products, thus very high transport costs. Low labour content in some products (e.g. paints and varnishes), therefore minimal potential savings from offshoring. Differing national product standards.	The trend toward off-site construction / pre-fabrication will require much-expanded co-operation and partnering to deliver successfully. But this is also an opportunity. Significant consolidation in the distribution sector has shifted market power to some extent from manufacturers to builders' merchants.	Efficiency can be improved in what is still a relatively unsophisticated, high-cost supply chain. The fall in sterling should offer a chance to stem and possibly reverse the import/export trends of the past decade. Significant spend is likely in alternative energy, particularly nuclear power plants.

Sector	Current UK position	Factors supporting the sector in the UK	Key challenges	Key opportunities
Oil & Gas Refining	The UK has the 4th largest refining capacity in Europe, with good distribution infrastructure supporting very competitive pre-tax costs. Although the number of refineries has declined from 19 to 9 over the past 35 years, increased productivity and capacity utilisation have kept output broadly flat. The broader UK Petrochemicals industry generated £50bn in 2007, employing over 200,000 people.	Proximity to North Sea oil (though this is now in decline). Value and productivity of the installed base of sites. Proximity to the customer – high transport costs to the UK are a barrier to imports. Government support for the principle of energy security. Not labour intensive – little cost incentive to move refining to areas of cheaper labour.	Refining has been low growth and low margin for a number of years – the current downturn will only exacerbate this. Closure of further sites is a real possibility. Continued high capex needs: Responding to changing demand mix and meeting EU environmental regulations is costly, often with little benefit to capacity or margins. Expansion in Russia and OPEC has created high capacity at cheaper ex-works cost than the UK. Their delivery cost should keep UK refineries competitive for another 10-15 years, but not indefinitely.	Investing in further incremental productivity improvements. Existing refineries are designed to refine high-quality North Sea crude. Future supply is primarily in heavier, more sour and acidic crudes. Refineries can invest to adapt their facilities to handle such crudes, though the costs are high – average ca $500m per refinery. While meeting increasing EU environmental standards is costly, this may exclude some imported fuels in the future.
Chemicals	A £10bn industry with a £400m trade surplus in 2007. Significant M&A in recent years, with increasing foreign ownership and many conglomerates or vertically integrated players broken up. Despite these disruptions and significant loss of employment, UK output has increased over the past decade.	Substantial value and expertise in the installed manufacturing base. Many materials are bulky, volatile and/or toxic, making long-distance transportation problematic. Cost advantages vs. continental Europe make the UK a viable exporter within the region for some products.	The industry's key source of feedstock (North Sea oil) is in decline, while the cost of electricity (typically the top variable cost) in the UK has been rising. As a result, Middle East and other producers are developing significant cost advantages in some (primarily high-volume bulk) products. Significant capex is needed to modernise or replace many plants.	Recently UK plants have shown the ability to differentiate, succeed and grow particularly in downstream areas, e.g. cosmetics and personal care. Continuing innovation in speciality is a key short-term priority. Longer-term, opportunities exist in developing non-petroleum-based substitutes for traditional bulk chemicals, and increasing the use of recycled materials.
Paper & Packaging	Squeezed over the past decade between rising input costs, and intense pricing pressure from their big branded customers who hold the market power. The need for scale economy to drive cost down has fuelled significant pan-European and (in some cases) global M&A. Despite the very low profile of low-cost country competition, this is a ferociously competitive sector.	High weight-to-value ratios (for some products) and the need for very fast responsiveness to customer requirements keep production relatively localised. Low labour content limits the benefits of offshoring to low-wage markets. Typically UK plants focus on certain product and technological specialisms as part of wider pan-European manufacturing divisions.	Delivering continuing cost reduction as customers demand, on top of the significant improvements already made in the past decade. Continually increasing the scale economies and specialisation of each plant and manufacturing line are key. Meeting increasing customer and end-consumer demands for sustainable packaging despite their reluctance in current conditions to pay a premium for it.	The cost disadvantage of a strong UK currency has now been reversed, at least for now. This is a much more 'high-tech' sector than is commonly realised. Cutting-edge R&D is essential to deliver continuously improving functionality. Companies must choose their value added-niches, and then drive relentless optimisation.
Clean Technologies	This is an emerging industry with long-term growth potential that is well suited to UK capabilities. However we have not yet established a globally significant position. Government support for renewable energy has not been sufficient to generate national champions in e.g. wind or solar power – competitors in Denmark, Spain, Germany and the US have already gained global scale because of government support. We have emerging technology leadership in tidal technologies, although this has not yet been commercialised.	Emerging sector: supply chains and industry structure are not yet fully formed. Many skills and technologies are complementary to those in other strong UK sectors, such as aerospace, automotive and oil & gas. For example the UK's skill in oil & gas installations will play well in the development and growth of tidal and off-shore wind technologies.	Developing global positions in new technologies requires co-operation between universities, government and industry to i) identify the opportunity, ii) fund and co-ordinate R&D/ commercialisation and iii) stimulate demand. The UK has not been good at this historically and will require a step-change in approach if it is to take advantage of this long-term, strategically important sector.	There is still a window of opportunity to develop genuine global leadership in Marine/Tidal and Micro-generation technologies. We believe the rapid development of an integrated supply chain, in co-operation with government and research institutes, should be a priority. There is still an opportunity to play a supporting role in wind power – development of a more co-ordinated supply chain, including UK facilities of overseas OEMs. Energy efficiency also provides an opportunity for wider UK manufacturing to generate competitive advantage (i.e. more efficient products or production).

Engineering the future: where next for UK manufacturing?

Perhaps the most valuable outcome of the work done for this study has been the chance to talk to business leaders about what new possibilities they see for UK manufacturing, and what government and industry can do to prepare British manufacturing for a more successful future. We pick up on these recommendations in the next section, but first we look at some of the wider factors that will help to shape the environment the industry operates in.

Demographic factors

For the past 300 years, the economic power and status of the UK has been out of all proportion to its population. In 1900 the UK accounted for around 2.2% of the world's population but roughly 10% of global GDP. In other words, GDP per head was some 4.5 times the global average. Amazing as it may seem, this ratio has not changed much in the past century: the UK's share of global population has shrunk to around 0.9%, but its £1.4 trillion GDP represented around 5% of global GDP at market exchange rates in 2007, which made UK output per capita around 5 times the global average.

But this is not sustainable over the long term. Larger emerging markets will outstrip the UK over time just as China has done, and per capita wealth in many emerging markets will gradually converge toward levels in Britain and other developed markets.

New markets, new know-how

Major emerging economies are opening up new markets for UK manufacturing

Until recently there was a prevailing view that Britain was destined – and indeed should seek – to become a post-industrial economy built almost entirely on services. Even before the recent meltdown in global banking, this view was beginning to change, and we strongly agree with the majority of public and private sector commentators that manufacturing is an essential part of a modern knowledge-based economy. Indeed, without a viable manufacturing base, many related industries, as well as important skills in design, development, and finance may also wither over time.

The Diminishing Gap between Emerging and Mature Markets

While emerging markets may be low-cost economies now, their relative unit labour costs will rise as their national wealth increases, and their real exchange rates tend to appreciate over time. In our view, the UK will increasingly compete and collaborate with countries such as India or China in the same way that it does today with France or Germany. Labour cost differentials will diminish, and the emphasis will shift to unique knowledge and skills. Likewise, economic growth in countries like India and China will open up important new markets, and we see no reason why a competitive UK manufacturing sector cannot supply its own share of that demand in niches where it has sustainable competitive advantage. The key challenge lies in maintaining competitive advantage while these cost differentials remain in place.

And while it's clear that emerging markets will account for an ever larger share of high value-added manufacturing activity, astute and nimble firms have always been able to find and exploit profitable niche markets, often in partnership with much larger global players. In some cases (as with, say, Nissan in Sunderland) the UK has demonstrated proven standards of global competitiveness in pure assembly work, with the design and engineering largely done elsewhere.

The Knowledge Economy

Most of the UK's future success stories will be tied to patented intellectual property and unique competencies that can be kept a step ahead of the competition through relentless investment and improvement. In many cases, these patents will be jointly developed with other UK or foreign partners, and many will be bundled into complex, customised combinations of products and services. The days when any one stand-alone company can reliably identify all the relevant emerging trends around the world, and do so quickly enough to develop and market its own distinctive products to meet them, are surely over. Partnerships will be essential. This is particularly true as the locus of new demand and consumer desire start to shift to countries that are culturally and geographically removed from Europe, North America or Japan.

So this is the challenge for UK plc: to find unique, knowledge-based niches where competitive advantage can be identified and sustained through a ruthless focus on continuous improvement, and leverage of specialised knowledge and intellectual capital.

The question is, how? We attempt to answer it in the next section.

Conclusions and Recommendations: how to create a sustainable UK manufacturing sector

If UK manufacturing is indeed to become a successful niche player in a 21st century global economy, there are a number of significant and systemic issues that the sector will need to address. These range from cultural perceptions about the value and status of technical jobs, to the development of the fiscal and regulatory frameworks that will foster the right environment for a progressive manufacturing base. In this section we look at what our research, as well as the CEOs with whom we spoke, indicate that our industry can do, and then at what government must do to help.

Five recommendations for companies

1. Focus on knowledge, not products

Identify the core knowledge and capability within your businesses that drives your differentiation in the market, and focus on keeping this to world-class standards.

UK manufacturing is vulnerable to low-cost emerging economies whenever it tries to compete on mass-market, commoditised products. By contrast, many small central European manufacturers (e.g. in Switzerland, Germany and northern Italy) have survived by concentrating on re-applying their core knowledge rather than becoming tied to an outdated product range. There are some encouraging signs that this same trend is gaining ground in the UK: according to a recent report by the Work Foundation, the value of UK investment in intangibles (i.e., knowledge) was 140% of the value of investment in tangible goods in 2004. In 1970, that ratio was just 40%.

Our research shows that there are some common themes that characterise most successful, sustainable manufacturing:

- A strong focus on **R&D**
- A dedication to **quality, reliability and responsiveness**
- **Strong partnerships** throughout the value chain, with suppliers, customers, and even competitors. And don't forget the universities – as we discuss below, the lack of strong links between British academia and business is a missed opportunity that both the universities and senior business managers can and must work to rectify.
- A concentration on **customisation**, with unique or bespoke combinations of products and services offered to each customer.

'We need to give the UK more substance in the R&D area. We need to co-ordinate and knit together the pockets of R&D that are being done, to make more of a critical mass.'

David Smith, CEO, Jaguar Land Rover

The last point also has interesting implications in relation to offshoring, i.e. transferring business activities out of the UK to other (usually lower-cost) countries. Offshoring is usually most prevalent in areas such as auto manufacture, pharmaceuticals and shipbuilding, which are based on mass production techniques which can be relatively easily copied elsewhere. By contrast, one of German manufacturing's great strengths is the 'Mittelstand' – a core of medium-sized firms that produce factory machinery and other manufactured goods to custom specification. In fact, many of the new factories in emerging markets that are accused of appropriating Western manufacturing jobs are using high-quality tooling and equipment made in Germany. The ability to produce such precision machinery is a skill that takes years to develop and is difficult to replicate en masse in an emerging market. Likewise several of our interviewees stated that a key reason they continue to maintain R&D activities in the UK is that the expertise their teams have developed over the course of

decades cannot be easy replicated in a cheaper location – it isn't simply a matter of hiring skilled individuals, but creating a team with the right collective knowledge and team dynamics to deliver cutting-edge solutions.

2. Take a global perspective

Think global, act global

As the UK's share of the global market continues to decline, UK firms must define their 'home' market (i.e. the markets that they know intimately) more broadly. For some, 'home' may be the whole of the European Union; for others, it may be those countries that have adopted British product standards. Whatever the grouping, this obviously requires a wider knowledge of culturally diverse markets and consumers. Even those companies whose suppliers or customers are all UK-based will almost always find that they operate within a global end-to-end value chain, which affects their key success factors and requires a cross-border knowledge base.

3. Take advantage of the government, and don't be afraid to lobby

The current economic downturn is an opportunity, as well as a crisis

In our view, manufacturing is a demonstrably greater priority for the UK government now than it has been in previous decades, and the private sector should take full advantage of all the resources and support that BERR, SEMTA and other government agencies are offering. Businesses should ensure that they know how these programmes can help them, and that they take full advantage. We recognise, however, that this is not always easy. One complaint mentioned in some of our interviews is that the UK has created so many different programmes and agencies, that it is not always clear which one can be of greatest assistance. Some streamlining and clear structuring might help deliver greater benefit from the government's expenditures in this area.

Manufacturers should be more outspoken in pushing for a more supportive business environment

Owners of manufacturing concerns should not hesitate to lobby for a business environment that is conducive to success. In some limited cases this may include pressing for 'national champions', in others, such as the new opportunities in climate change and sustainability, there is a need for pump-priming and start-up investment. Broadly, however, we believe that the fundamental requirement for success is that government, academia and business work together to deliver an environment that fosters knowledge, innovation, and entrepreneurship.

4. Be a champion for your business and your industry.

Talk up your achievements, and make sure that the widest possible audience knows what you have done and what you can do. Most 'iconic' brands benefit from (amongst other things) a passionate and articulate spokesperson. This will be important in counteracting common misconceptions and improving the image of manufacturing, so that industry can attract the best young minds and also garner support for government action.

5. Make a virtue of necessity – take advantage of the downturn where possible.

Hands-on management are more likely to spot emerging trends

The current economic crisis offers its own unique opportunities to invest and restructure. In times like these, top talent can be recruited and retained more easily than in boom years. State-of-the-art capital equipment can typically be had at attractive prices, and typically on shorter lead times than usual. Market share can be easier to take during recession, if your competitors are especially limited by cash flow or other constraints. Good acquisition opportunities may arise as companies in need of cash chose to shed their non-core operations. This could be a once-in-a-generation chance to invest and re-position for the future, subject to available financing. To do that, management teams need to have a clearly defined internal consensus on their unique, knowledge-driven competencies, to focus limited capital on those investments that will maximise long-term competitive advantage.

Recommendations for government

Background – government's increasingly visible role

In recent years the government has taken an increasingly visible role in seeking to support British manufacturing. At an Automotive Summit in January 2009, for example, Business Secretary Lord Mandelson stated that Britain needs 'less financial engineering and more real engineering'.

The BERR strategy document, Manufacturing: New Challenges, New Opportunities, published in September 2008, identified five major trends that are already reshaping global manufacturing:

- The increasing complexity of global value chains
- The accelerated pace of technological advance
- The growing importance of investment in intangibles, such as design, branding and R&D
- An increased recognition of the importance of investment in people and skills
- The move to a low-carbon economy, as climate change creates new risks and opportunities

The document explains in some detail what the government proposes to do. Some of these coincide with the recommendations we make in this section, and include:

- Investment in maths and science education, and apprenticeship programmes;
- Tax credits and other indirect support for manufacturing, R&D and other innovation;
- Promoting business links with academia;
- Improving infrastructure; and
- Improving the overall market and regulatory framework.

That said, CEOs highlight that there is more that the government could do, in partnership with academia and the private sector. We outline the key issues below.

1. Achieving a more visible role

As noted in the previous section, one complaint we hear in some interviews is not that the government provides too little support, but that the structure and organisation are overly complicated. With regard to employee training and upskilling, for example, some business leaders feel there are such a variety of programmes under the ownership of various authorities and it isn't clear how they can get the integrated, comprehensive support that best meets their needs.

The government could do more to encourage the active participation of UK universities. The US is the world leader here, with strong and productive links between academic research and industrial R&D. In Britain these links are much less developed – Philip Davis, an automotive industry expert in BERR cites this as a weakness in the UK, and lists several examples of cutting-edge university research that could benefit from corporate involvement or sponsorship. The problem may lie with a credibility gap, i.e. because the UK government was not perceived to be actively assisting UK manufacturing in past decades, the private sector may not be quick to see the opportunities and engage with government, now that more support is on offer.

More needs to be done to attract top talent into science and technical careers

2. Supporting the development of key sectors

All EU countries are restricted in their ability to provide direct subsidies to manufacturing, which potentially places European firms at a disadvantage compared with businesses in the US, China, or other emerging economies. That said, there are a number of ways in which governments can still support their own domestic industries.

For example, countries like France and Spain have deliberately sought to create globally competitive 'national champions' in a variety of industries. This can be successful, though care must be taken – the cluster of aerospace engineering and manufacturing around Toulouse is a notable success story, and one that has been created largely through focused government promotion and support. On the other hand, significant investment in Air France or Alitalia by their home governments has not necessarily produced a good return on investment for taxpayers. We believe there is a role for government but it should be pursued with caution, and only in a limited number of industries where global competitive advantage can be demonstrated.

The UK government is perceived to be less interventionist, and more supportive of unfettered free trade, than most of its European trading partners, but where it has played a more active role the benefits have been significant. The UK's strong global presence in aerospace and defence, for example, is partly the result of the UK government's relatively high level of defence spending over the last century and its active promotion of this sector in the UK.

'UK plc needs to make a decision about which are the strategic sectors that you want to support.'
FTSE 100 CFO

There may also be a valuable opportunity to adopt a version of a national champion strategy in the UK. Sir John Rose, chairman of Rolls-Royce Group plc and a vocal supporter of UK manufacturing, believes that the significant investments the UK will have to make in nuclear power and other sustainable energy offers a unique opportunity to revitalise Britain's manufacturing and engineering base. He argues that the government should do two things:

- Make it a condition of all tenders that the winning bidder develop significant sustainable capacity and skills in the UK; and
- Focus the government's own substantial R&D spend and resources on these areas of unique, high opportunity.

3. Re-engineering engineering

There is no doubt that manufacturing and technical careers command far higher prestige outside the UK than they do at home. Engineering is generally perceived to be a well-paid and important occupation in Germany, Japan, and the USA. This is not the case in the UK, where careers in financial services have traditionally attracted the best talent. This may well change, given the damage that has recently been done to the public image of banking.

'We have to get youngsters interested in engineering. We now have a window of opportunity given the troubles in the financial sector'
Allan Cook, CEO, Cobham

The same applies to technical roles that don't require degree-level qualifications. Many of the CEOs we talked to in preparing this report told us that foreign industrial investors are often dismayed at the level of training needed by their British employees, and the UK's apprentice training schemes struggle to compare with those in countries such as Germany. A more standardised approach to education and skills would help employers find and assess the right candidates for each job, especially the smaller firms who do not have extensive resources for in-house training and development. Some of the proposals in the BERR strategy document will seek to address this.

‘There’s no glamour in entering the engineering industry. The respect and regard that an engineer gets in Germany is off the scale compared to the UK’

FTSE 100 CEO

These initiatives are crucial because any viable manufacturing base in Britain will need the continual re-training and up-skilling of manufacturing workers. This will be an essential part of any knowledge-based economy. An object lesson on this issue comes from Britain’s IT sector – the Financial Times reported recently that even in the current downturn it has become difficult to recruit qualified mid-level IT staff (e.g. software engineers or systems analysts) because the entry-level jobs that once would have developed these skills in UK workers have now largely been offshored. As a result, in 2008 roughly three times as many work permits had to be issued for non-European IT professionals, as were issued at the height of the dot-com boom. In our view the solution is not to try to bring lower-value-added jobs back to the UK that are no longer economic here, but to make sure that UK residents can get the training they need to deliver higher-value-added jobs that are still economic in the UK.

4. Encouraging entrepreneurship

The UK’s competitors have fostered more supportive and entrepreneurial environments

In contrast to the UK, many of the smaller and medium-sized manufacturing concerns in Europe are either private or family-owned enterprises. Businesses like these are not under the same short-term pressures as quoted companies, and can afford to take a longer perspective on issues such as capital investment. Likewise, German manufacturing benefits from a banking sector that frequently takes shareholdings in its clients, and the regional landesbanks have a specific remit to finance the long-term development in their own territories.

In the US, by contrast, there is a strong culture of individual entrepreneurship, which results in many new start-up businesses, as well as world-leading firms like Apple or Microsoft which initially succeeded by challenging the status quo or developing their own technology. As Lord Mandelson pointed out in a recent speech to the BVCA, 33% of capital investment in the USA goes to venture capital, compared with 4% in the UK. In the same speech he re-iterated the government’s increasing support for entrepreneurship through Enterprise Capital Funds.

‘Some companies make the wrong decisions. These are often those with City pressures on their P&L, focussed on short-term savings rather than the long-term prospects for their business.’

Tim Otter, Future Business Director, Marshall Land Systems

The European and American models are quite different, but there are some important common themes, which would support entrepreneurship in UK manufacturing:

- **Effective local networks.** There are many examples of productive geographical clusters, from Munich, to Lake Orta in Northern Italy (a cluster of small, mostly family-owned precision manufacturing companies), to Silicon Valley and the Research Triangle of North Carolina. These manufacturing communities make it easier to share knowledge and attract bright young talent.
- **Supportive financiers.** The short-term time horizons of the UK equity markets arguably put too much emphasis on quarterly earnings, at the expense of long-term opportunities. More supportive lending is needed, as well as a significant upscaling of the venture capital available to UK entrepreneurs and inventors. In the short term, ensuring that financing is available through government rescue packages will also be key in supporting these high-potential but often cash- constrained nascent businesses.

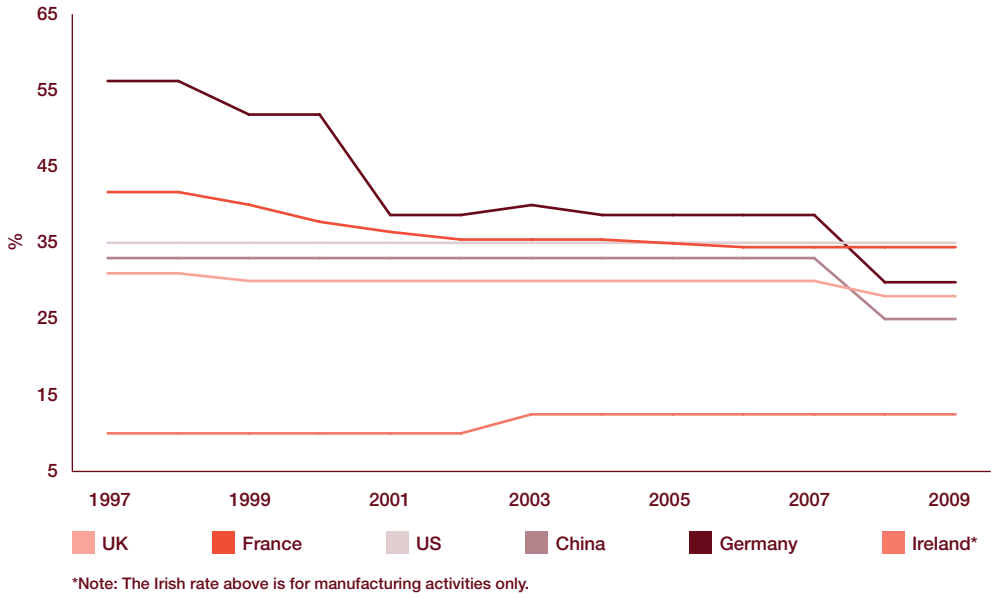
5. Creating the right tax and regulatory frameworks

The UK tax regime is not as supportive to manufacturing as it could be…

In recent years the UK tax regime has given a decidedly mixed message to UK manufacturing. For example, legislation that was designed to encourage R&D spend in the UK was rapidly followed by cutbacks in the tax deductions available for capital expenditure, and initiatives to encourage investment have been packaged with cumbersome anti-avoidance provisions.

In the face of intense competition for manufacturing from low-cost economies, many of the UK's traditional competitors have reduced their headline tax rates to encourage investment. Although the UK corporation tax rate of 28% appears to be relatively pro-business, other competitors have taken a more radical approach: Ireland, for example, has had a corporate tax rate of 10% on manufacturing income since the 1980's, and 12.5% since 2002 and this is a factor cited by businesses when locating there. Ireland is not unique: countries like Hungary and Bulgaria have also reduced their rates to 16% and 10% respectively.

Comparison of headline corporate income tax rates over time



*Note: The Irish rate above is for manufacturing activities only.

Source: PricewaterhouseCoopers

UK manufacturers have also seen cuts in the tax relief available for capital expenditure. The UK government reduced the headline rate of corporation tax from 30% to 28% in 2007, but part funded this by cutting capital allowances from 25% to 20%, and phasing out industrial business allowances (IBAs). The relief from business rates on empty properties was also abolished. Taken together, these measures had a disproportionately negative effect on capital-intensive businesses such as manufacturers.

If UK manufacturing is to differentiate itself by focusing on knowledge-based, value-added niche sectors it must speed up its investment in new plant, machinery, and technology. But the deductions available for such expenditure under the current capital allowances regime may not keep pace with the actual outgoings, creating a disconnect between the tax system and economic reality.

The phased abolition of IBAs will also make it very difficult for UK manufacturers to recoup the costs of investment in new factories or similar industrial buildings, and may make the UK less attractive to foreign investors, compared with other jurisdictions that offer substantial incentives. In short, new and more targeted incentives are needed.

The position on R&D is more encouraging. The R&D tax credit regime introduced in 2000 allows small and medium-sized businesses to claim tax deductions of 175%, and large companies 130%. In a CBI survey conducted in November 2008, a third of companies said that this credit was directly responsible for increasing their R&D spend, and 76% said it helped keep R&D activity in the UK. However some concerns were raised about the difficulty of making a claim, and while HMRC has made progress here, more could still be done.

Green taxes are another high-profile issue, and one that is currently creating considerable uncertainty. The first Carbon Budget is due in 2009, and the government has committed to an 80% reduction in carbon emissions by 2050. However, it is as yet unclear how such reductions are to be achieved. To date, the main 'green' tax break relevant to manufacturing firms is the 100% deduction available on capital investment in designated energy and water-saving plant and machinery, which is tax deductible in full in the year of purchase. There needs to be much more clarity about the long-term direction of environmental taxes, so that manufacturers can plan for future investment. It will be vital to ensure that any changes create a fair tax regime that does not pose disproportionate burdens on UK business.

A greater degree of stability and predictability in the tax framework is also imperative: the constant changes to the UK tax regime and the speed at which they are implemented are undermining the country's appeal as a manufacturing location. At the same time, recent proposed measures designed to encourage inbound investment have been packaged together with complex anti-avoidance rules.

… and more stability and predictability is as important as the headline tax rate

We believe the future model for UK manufacturing may well shift increasingly towards one based on intellectual property and specialised niche production. In this case, R&D activity would remain in the UK, but more commoditised manufacturing could be re-located to low-cost and low tax jurisdictions off-shore. In this environment, the challenge for the UK government will be to create a taxation regime that is both competitive and stable, and encourages both capital expenditure and R&D spend. Failure to do so will damage the attractiveness of the UK as a manufacturing centre, and discourage future investment.

The good news is that the government seems aware of these issues. The new Business-Government Forum on Tax and Globalisation, chaired by Financial Secretary Jane Kennedy, is already looking at the long-term competitive challenges facing the UK, with the aim of ensuring that competitiveness remains at the heart of any tax reforms. As the government itself has acknowledged, 'a stable, sustainable and competitive business tax system continues to be critical to ensure business can start up, grow and invest'. Time will tell whether this translates into practical reform of the taxation system that helps rather than hinders UK manufacturing.

In closing….

We are genuinely enthusiastic about the long-term prospects for manufacturing in the UK. The challenges (both short-term and long-term) are significant, but over the course of this study our discussions with business, academic and governmental leaders have given us confidence that the necessary building blocks exist to not only preserve the UK's manufacturing sector as has been achieved through numerous past recessions, but to see it thrive once again.

The key to success is to ensure that good ideas and initiatives taking shape around the country are properly co-ordinated. Cutting-edge university R&D is only an advantage if it has commercial sponsorship. Increasing government efforts to support innovation, employee re-training, start-up venture financing, etc. will only deliver the results if the private sector is fully aware of what is available and how to most efficiently take advantage of it. And in the high-growth, high-potential area of green technologies and renewables, British engineers and manufacturers will only make the necessary sizeable, long-term investments to take a leading role going forward if they have clear visibility of the future regulatory and investment framework upon which all payback from such investments depends.

The greatest risk to British manufacturing is in self-fulfilling prophecies

It may well be that the greatest risk to British manufacturing sector lies in self-fulfilling prophesies. Young people will not train for careers in manufacturing and engineering if they think there is no future in them. Buyers will not invest in UK assets or businesses if they cannot get skilled staff.

We are encouraged by the efforts that many firms are making to avoid laying off the critical core of highly experienced employees whose expertise will be indispensable when the recovery comes. British manufacturing staff are increasingly being recognised for what they are: deeply knowledgeable specialists whose expertise – refined through many years of continuous improvement and best-practice development – is a scarce and ultimately irreplaceable resource that is essential not only to their employers but to the UK as a whole.

Moreover within the UK manufacturing sector we see an increasing number of manufacturing 'champions', deeply knowledgeable leaders who are investing and innovating for the long term, proud of UK manufacturing's capabilities and achievements, and not shy about correcting negative misperceptions and lobbying to ensure future successes.

We hope that this document will play a role in enriching the debate, further correcting negative popular misconceptions, and strengthening the essential linkages and co-ordination to make this vision a reality.

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