Oxford
Economic
Forecasting

The Economic Contribution of BMW Group in the UK

Oxford Economic Forecasting

February 2006

Oxford Economic Forecasting
121, St Aldates, Oxford, OX1 1HB
☏: 01865 268900, 🖷: 01865 268906
🌍: www.oef.com

1. Executive Summary

The BMW Group in the UK is a manufacturing success story…

- During a time when UK manufacturing has struggled, the BMW Group has made a significant contribution to the UK economy. It has invested heavily and seen large leaps in the production of the new MINI, a commitment to training rewarded with the success of its Hams Hall engine plant, and a revitalised Rolls-Royce Motor Car Limited relocated to new state-of-the-art production facilities in Goodwood.
- Although the car industry has done better than UK manufacturing has a whole, the share of UK car production in global output has fallen from 4% in 2000 to 3.7% in 2004. But over the same period, BMW Group in UK has prospered. Since 2000, BMW Group has starting making the new MINI in Oxford, producing 189,492 cars in 2004, and seen the number of engines made in the West Midlands reach 146,200. Meanwhile, BMW Group has taken the Rolls-Royce marque, started afresh, and produced the new Phantom, assuring its position as one of the most valuable luxury brands in the world. BMW Group sales accounted for 5.7% of UK new car registrations in 2004.
- The combined activities of the BMW Group in the UK generated sales – including sales of cars, motorcycles and engines – of £5.1 billion (€7.5 billion) in 2004, nearly 20% of the BMW Group's £30 billion (€44 billion) global turnover.
- £2.3 billion of these sales can be attributed to BMW Group's UK manufacturing activities in the UK - over 7% of the nation's total turnover of the motor vehicles and parts sector and 0.5% of turnover of the overall UK manufacturing sector.
- Sales of BMW Group products in the UK support a dealership network with turnover of £5.4 billion in 2004, and 10% of the total turnover of the UK motor vehicle distribution, repairs and automotive fuel retail sector.

…contributing £1 billion directly to GDP in 2004 and almost 20,000 jobs…

- The activities of BMW Group directly contributed £0.4 billion to UK GDP in 2004 and the dealer network another £0.6 billion. Overall, the direct contribution of the BMW Group to UK GDP was therefore £1 billion in 2004. This core business employed 8,700 workers engaged both in production and supporting activities, plus another 10,900 people in the dealer network.
- As well as this direct contribution, BMW Group's activities also have important 'multiplier' impacts on the UK economy. The group's purchase of £1 billion of raw materials, components, capital equipment and business services from UK suppliers, together with £0.4 billion of purchases by the dealer network, contributed a further £1.4 billion to UK GDP. These purchases support 25,600 jobs in, for example, metal, electrical equipment and the textiles industries.
- Moreover, the purchases of those whose jobs depend on BMW Group, both directly and indirectly, adds an estimated £0.5 billion to UK GDP and supports a further 11,300 induced jobs in the retail, consumer goods and services sectors.

…and supporting over 55,000 jobs in total in the UK

- So, taking these direct, indirect and induced impacts together, we estimate that in total BMW Group contributed over £2.5 billion to UK GDP in 2004. This is equivalent to 0.2% of national income. And BMW Group supports a total of over 55,000 jobs in the UK, 0.2% of total employment.

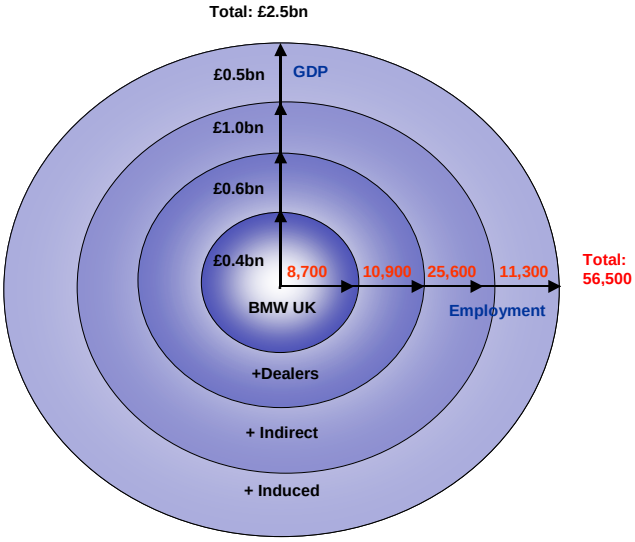
BMW Group is a major UK investor and exporter…

- BMW Group has spent around £900 million in upgrading its production facilities in the last four years. And its ongoing investment of £96 million in 2004 was 0.7% of total UK manufacturing investment.
- BMW Group is also an important exporter. The £1.7 billion worth of car, engine and related exports in 2004 accounted for 0.9% of UK total goods exports.

…and contributes over £1 billion to the Exchequer

- The company's contribution to UK GDP generates a significant contribution to the UK Exchequer through payments of income tax, national insurance, corporation tax, business rates and VAT on car sales. In 2004 these totalled over £1 billion, equivalent to a third of a penny on the basic rate of income tax.

Figure 1.1: BMW Group's contribution to the UK economy



BMW Group is helping the UK economy to "raise its game"

- The commitment to quality and delivering a car tailored to customer requirements adds complexity to the supply-chain. The BMW Group cooperates and shares knowledge with its suppliers at every stage of the process. This helps to raise the productivity and efficiency of a wide range of manufacturing companies.
- BMW Group's commitment to training helps raise skills levels. The flagship training programme at Hams Hall – with the Mature Modern Apprentice at its heart - means that its workers now have skills levels that compare favourably with BMW engine plants in Germany and Austria. And the lessons learnt from seeing the plant's operations in action are also helping the transfer of skills to a wider body of students through cooperation with two local colleges.
- Finally, BMW Group recognises its wider responsibilities. Arts and culture are supported in Oxford and restoration work on a public space in Swindon has seen contributions of workers' time as well as money. And the environmental impact of manufacturing is kept to a minimum, by using resources more efficiently and working towards cars where more components can be recycled directly through the dealer network. And in the case of Hams Hall, and particularly Rolls-Royce at Goodwood, the plants themselves have been built to blend in with, and work with, their surroundings.

2. Introduction

2.1. BMW Group: a UK success story

The BMW Group is a UK manufacturing success story. As such, it is a major asset to the UK economy. This success has come at a time when UK manufacturing as a whole has been under considerable pressure. Without the contribution made by BMW Group since the turn of the millennium, UK manufacturing performance would have been even more subdued and the foundation for future growth less secure.

BMW Group is ahead of many companies associated with the traditional industrial landscape in Europe in terms of product design and productive processes and this is to the benefit of the UK economy as a whole. Any BMW Group product – whether it is imported BMW cars or UK-manufactured MINI and Rolls-Royce cars – represents a piece of advanced engineering that has been tailored to the individual customers' specification – more than 80% of all MINIs, for example, are produced in accordance with customers' specification. Indeed, this mix of engineering and marketing has seen the BMW brand ranked as the 16th most valuable global brand in Business Week Magazine's 2005 survey[1]. Similarly, Europeans ranked it second in terms of brand quality in a recent Harris Interactive survey[2]. And, as a statement of a driver's success, BMW was identified as the number one brand.

BMW Group's strategy is to focus on carefully selected premium market segments rather than delve into mass production – although output of MINIs is surging far ahead of levels originally envisaged – and this is crucial for maintaining brand value. In premium car markets, a focus on each individual customer is essential: supplying cars to these markets is similar to providing a service where specific characteristics and personalised attention are crucial. Uniting technological complexity with customer choice and flexibility needs state-of-the-art production lines: the BMW Group uses resources more productively than most other alternative uses in the UK, and enables future growth through a focus on innovation, best practice, and workforce skills and training.

The location of BMW Group production facilities in the UK contributes to the economy's worldwide reputation as a location for production, quality and business dynamism. But BMW Group directly improves performance in other areas of the economy by sharing know-how and encouraging productivity improvements. As a result, BMW Group's contribution to the economy is much wider than the output, exports, employment and incomes that it generates and the physical and human investments that it undertakes. This report puts BMW Group's UK success in the context of the wider economy and provides insights to the routes through which BMW Group influences current and future economic performance.

BMW Group has been growing its manufacturing presence in the UK, producing 189,492 MINIs from its Oxford plant in 2004, developing a state-of-the-art engine plant at Hams Hall near Birmingham, creating a modern facility to preserve the traditions and crafts of Rolls-Royce Motor Cars Limited luxury car making, and through the body pressing facility in Swindon. To this production presence there is the added impact of an administrative head office in Bracknell, a financial services subsidiary in Hook, a vehicle distribution centre in Thorne and an IT company in Birmingham. In addition there is a 159-strong dealer network throughout the UK.

[1] Interbrand survey for Business Week Magazine, July 2005
[2] harrisinteractive.com, 13 September 2005

2.2. Categorising BMW Group's impact on the UK

The channels through which BMW Group contributes to the UK economy can be categorised as follows:

- **Direct impacts** – employment and activity in the motor vehicle sector. BMW Group manufactures MINI and Rolls-Royce cars in the UK. There is also a plant producing engines for BMW cars at Hams Hall and a plant in Swindon that manufactures body parts for MINI. BMW Group is also responsible for a number of ancillary services that are dependent on the company's activities in the UK. These include the BMW and MINI dealer network and a business unit responsible for organising finance for those wanting to purchase a BMW car or motorcycle or a MINI.
- **Indirect impacts** – employment and output supported in the supply chain to the motor vehicle sector in the UK. These include, for example, jobs in the metal, electrical equipment and the textiles industries.
- **Induced impacts** – the spending by those directly or indirectly employed by BMW Group, which in turn supports economic activity in a diverse range of industries across most production sectors, including retail outlets, companies producing consumer goods and a range of service industries (eg banks, restaurants etc).

These impacts flowing from the presence of BMW Group do not, however, take account of a number of **dynamic** and often less tangible effects. These include:

- Enabling **higher value added** from UK-based resources than are available in alternative activities.
- Raising skills levels from BMW Group's **investment in training**.
- **Knowledge transfer** to colleges and external training facilities.
- Raising the game of suppliers via **collaborative working** with influences on design, product capabilities, production and logistics processes, management and supplier workforce skills.
- Providing **growth opportunities** for entrepreneurial small and medium sized companies.
- Enhancing the **UK's reputation** as a business location for cutting-edge technology, and quality-conscious producers, so boosting footloose investment to the UK.

2.3. Report structure

In the rest of this report:

- Chapter 3 provides background on the UK manufacturing and automotive sectors, and examines BMW Group's contribution to GDP, investment, exports and public finances within this context.
- Chapter 4 looks at the employment generated by BMW Group's presence in the UK, including the focus BMW Group has on raising the skills levels of its workforce

- Chapter 5 examines BMW Group's impact on local communities and the environment
- Chapter 6 presents the conclusions of our analysis.

3. BMW Group's contribution to UK output

Key Points

- The automotive sector in the UK has been much more successful than manufacturing as a whole over the last 20 years, and in recent years the BMW Group has contributed to this success through developments at Plant Oxford and Plant Hams Hall in particular.
- BMW Group contributes to UK GDP through direct, indirect and induced effects stemming from its production and distribution activity, as well as through a range of less tangible dynamic effects that help to raise the UK's growth potential.
- The direct contribution of BMW Group's manufacturing activities to UK GDP was £0.4 billion in 2004, which accounts for around 4¼% of the total motor industry in the UK. The direct contribution of BMW Group's dealership network was an additional £0.6 billion.
- Including direct, indirect and induced effects BMW Group contributed over £2.5 billion to UK GDP in 2004, accounting for 0.2% of the economy, making BMW Group's contribution to the UK economy similar to the direct contribution of the office machinery and equipment industry to the UK.
- BMW Group invested £96 million in 2004, 0.7% of total UK manufacturing investment.
- BMW Group contributed over £1 billion to the UK Exchequer in 2004, in income tax, national insurance, corporation tax, business rates and VAT on car sales.
- Tailoring cars to customers' precise requirements adds complexity to supply-chain management. BMW Group collaborates and shares knowledge with its suppliers at every step of the process.
- The "bespoke" nature of the company's cars is exemplified by Rolls-Royce. The detail and quality of the finished vehicle reflects the traditional skills used in handling wood and leather.

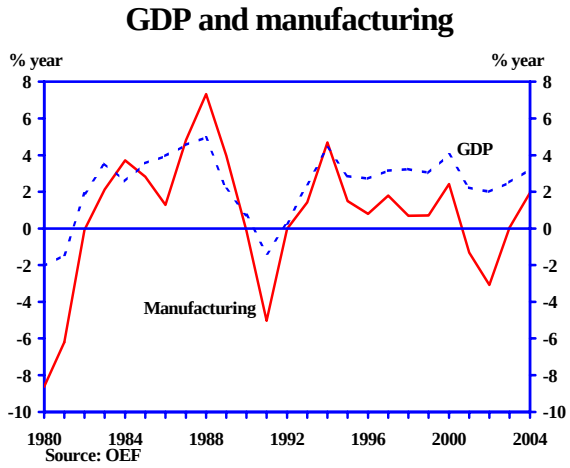
3.1. UK manufacturing – the car industry in context

The manufacturing sector in the UK has been under increasing pressure in recent years. While the overall economy has enjoyed strong and steady growth since the early 1990s, manufacturing output has struggled to expand and has continued to be vulnerable to marked recessions (as in 2001/2). Indeed, over the period since 1997, when the BMW Group began significant production in the UK, manufacturing output as a whole has been stagnant – rising by less than 1%, compared with a rise in GDP of nearly 25%. This reflects the fierce competitive pressures faced by UK manufacturers, with only the best able to prosper against external competition, including low-cost producers in China and the rest of the emerging world. As a result, manufacturing has shrunk to around 15% of the economy, with its 3.4 million employees representing just 11% of the UK workforce.

The motor vehicles and parts sector now account for around 6½% of UK manufacturing output. It has performed much better than manufacturing as a whole over the last two

decades, with its production rising at a compound rate of 2.3% since the mid 1980s. This growth has been fuelled by inward investment from Japan, Europe – including BMW Group - and the US. However, the boost to output from inward investment in new plants has partly been offset by plant closures elsewhere. The high level of sterling against the euro has contributed to increased sourcing of components from Europe at the expense of UK output, and the sector faces increasing competition from Eastern Europe, China, India and other Asian producers. As a result the sector's annual growth rate has slowed to 1.6% since the mid-1990s – but still much stronger than manufacturing output as a whole.

Figure 3-1



Within the motor vehicles and parts sector, the UK has benefited from investment to increase significantly production of engines, with most UK car producers planning expansions, including BMW Group at Hams Hall. Estimates from the DTI suggest that engine production now accounts for 10% of the sector's contribution to GDP, double its share a decade ago.

Figure 3-2

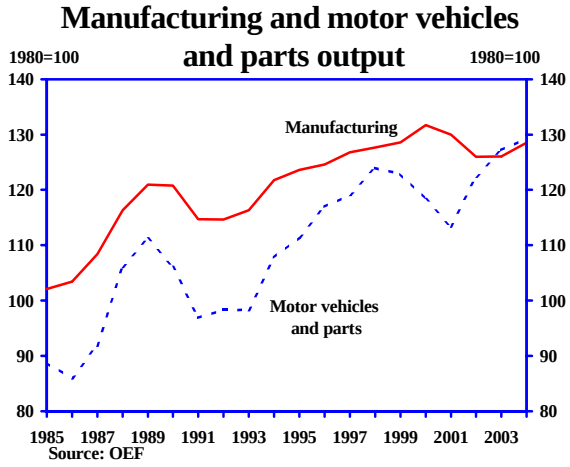
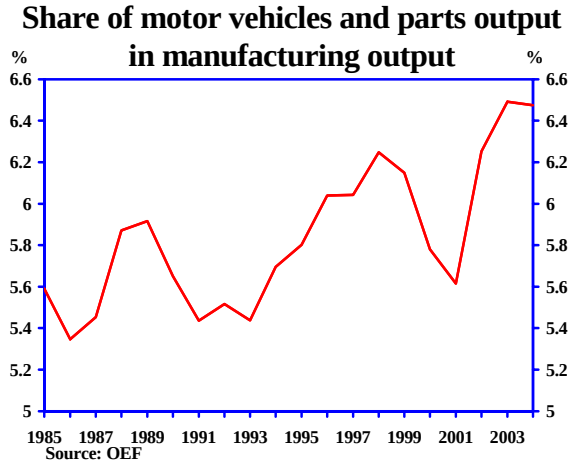


Figure 3-3



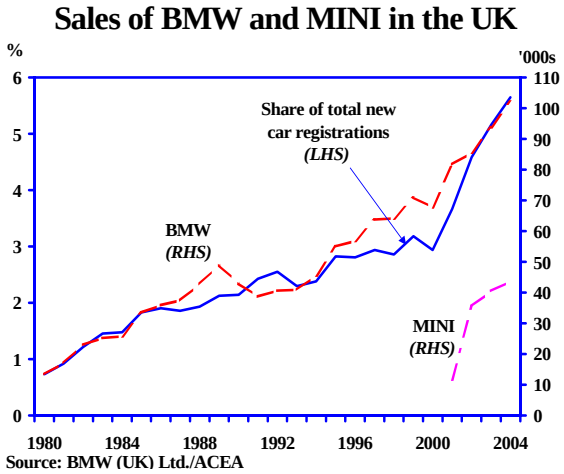
The BMW Group's production activities make a significant direct contribution to the UK's automotive production, to manufacturing output and to total GDP. Given the difficulties

experienced by manufacturing industries in the UK in recent years, the progress that the company has made over the period – both in producing in the UK and sourcing from other UK manufacturers – is all the more remarkable, generating a significant pay-off for the UK from BMW Group's investment in technology, people and facilities. The number of vehicles produced by the BMW Group in the UK has risen strongly from 42,395 in 2001 to 190,367 (MINI and Rolls-Royce) in 2004, and the BMW Group's share of UK car production has risen to over 10% from 3% in 2001, making it the fourth largest car manufacturer by volume in the UK. Moreover, MINI is now the most successful model currently produced in the UK.

3.2. BMW Group and the UK economy

The key activities of BMW Group in the UK include the sale of BMW cars and motorcycles and MINI to the dealer network, production of MINI and Rolls-Royce motor cars, production of the BMW 4-cylinder petrol engine, and BMW Financial Services. Overall, these activities generated sales of £5.1 billion (€7.5 billion) in 2004, nearly 20% of BMW Group's £30 billion (€44 billion) global turnover. Of these sales, about £2.3 billion can be attributed to the BMW Group's manufacturing activities in the UK, which is equivalent to over 7% of the total turnover of the motor vehicles and parts sector and 0.5% of the turnover of the overall manufacturing sector. In addition, sales in the UK support a dealership network with turnover of £5.4 billion in 2004, 10% of the total turnover of the UK motor vehicle distribution, repairs and automotive fuel retail sector. Sales of BMW and MINI together accounted for 5.6% of UK new car registrations in 2004 and has trended upwards since 1980 – the total volume of BMWs and MINIs sold in the UK approached 150,000 in 2004.

Figure 3-4



The contribution to of UK GDP is measured by its so called 'value added' – i.e. the value of its sales less the value of intermediate purchases it buys from supplier industries adjusted for any change in inventories. On this basis, we estimate that:

- The activities of BMW Group directly contributed to £0.4 billion to UK GDP in 2004. This is equivalent to 4¼% of the value added of the motor vehicles and parts sector.
- In addition, the BMW and MINI dealer network directly contributed about £0.6 billion to GDP in 2004.

- Overall, the direct contribution of BMW Group to UK GDP was therefore £1.0 billion in 2004.

As well as its direct contribution, BMW Group's activities also have important 'multiplier' impacts on UK GDP:

- Indirect impacts – in 2004 the BMW Group purchased £1 billion of raw materials, components, capital equipment and business services from UK suppliers. And the dealer network purchased a further £0.3 billion of goods and services. These purchases stimulated activity in other sectors of the UK economy and contributed a further £1.0 billion to UK GDP in 2004.

- Induced impacts – workers who are employed (either directly or indirectly) by BMW Group use their income to purchase goods and services for their own consumption, and this spending helps to support the output and jobs of the industries that supply their purchases. Estimates based on simulations conducted on the Oxford Economic Forecasting macroeconomic model of the UK economy suggest that this so-called induced impact may contribute about £0.5 billion to UK GDP (i.e. about 25% of direct and indirect output of BMW Group)

Taking the direct, indirect and induced impacts together, we estimate that in total BMW Group contributed around £2.5 billion to UK GDP in 2004. This is equivalent to 0.2% of UK GDP and means that BMW Group's contribution is equivalent to the direct contributions of, for example, the office machinery and equipment industry in the UK.

Table 3.1: The contribution of BMW Group to UK GDP, 2004

Direct Contribution	**£1.0 billion**
of which:	
BMW Group	£0.4 billion
Dealer Network	£0.6 billion
Indirect Contribution	**£1.0 billion**
of which:	
BMW Group	£0.8 billion
Dealer network	£0.3 billion
Induced Contribution	**£0.5 billion**
BMW Group's total contribution to UK GDP	**£2.5 billion**

3.2.1. Working with the supply chain – cooperation, quality and innovation

The bald statistics on the indirect impact outlined above are only one aspect of BMW Group's influence on producers in the supply chain. An equally important aspect is BMW Group's impact on efficiency through co-operation with its suppliers. Success in the car and other product markets is increasingly reliant on the successful management and coordination of the complete supply chain. The result is a symbiotic relationship across all the linkages in the chain – without innovation by the final product producer, the prospects of supply chain companies deteriorate. But at the same time innovation in

product and process by members of the supply chain support the competitive position of BMW Group.

Since its launch in 2001, production of new MINI has soared, with 189,000 cars produced in 2004, against early expectations that production would run at a rate around 100,000 vehicles a year. This expansion has only been possible through close cooperation with suppliers – and the same is true of the ever-increasing array of personalised options that is available to customers. Because nearly every car is slightly different – customers have the potential to change certain specifications until almost a week before their car is actually produced – it is essential to get the parts going into the car to the production line at the right time and in the right order. And even when that has been achieved, it is essential that the quality of those parts is of the highest standard. Any deviation from this could lead to a costly break in production. At Plant Oxford, around 40 of the 4,500 workers are directly tasked with working with suppliers to ensure the quality of the components provided by suppliers.

As the BMW Group and its suppliers share responsibility for quality, a high degree of cooperation is vital. In the planning stage, associates at Oxford work closely with suppliers on the technical specification of the part. Working with the supply chain requires dialogue – suppliers have their own areas of expertise. Any problems reported by suppliers are fed back to Oxford and solutions are often arrived at jointly. At all stages, the quality of the product and the process is paramount.

This cooperation continues after the part enters production, to ensure quality does not slip. While suppliers know the likely production schedule weeks in advance, the bespoke nature of car manufacturing that is BMW Group's Unique Selling Proposition (PSP) means that late customer changes to vehicle specifications – and therefore parts – are not uncommon. The firms supplying the more complex components – such as the headliner (the module that fits into the ceiling of the car), the harness (i.e. the electronic circuitry), or the cockpit - all have workers based permanently at Plant Oxford. This allows final configuration or late changes to be made just before the parts go through to the line. The close relationship is not just at the sharp end of production. An engineer – associated with development and design – from the firm producing the cockpit sits full-time at a desk in Plant Oxford. This allows close cooperation in ensuring quality is maintained and opens the potential for manufacturer and supplier to continuously look at possible improvements to the product.

While the BMW Group, unsurprisingly, is highly demanding of its suppliers, both in terms of delivering quality and lower costs, the relationship clearly works well for both partners and the UK automotive industry. Companies working for the BMW Group see the company's high standards and innovation in terms of technology and process and, as they typically also supply other car manufacturers, the flow of information they get from supplying Plant Oxford is bound to help make sales elsewhere.

Norman Taylor, the general manager of Intier Automotive in the UK confirmed this in an interview with OEF. His company manufactures the cockpit – the most complex component that goes into MINI – and was involved with the vehicle right from the design stage. Obviously, as it is their day-to-day business, Intier has specialist knowledge of cockpit design and build, and with the materials that are used in cockpit manufacturing. So, right from the quotation phase onwards they work alongside the company to help and advise, for example, on how to take out weight (and hence cost) from the component. Mr Taylor describes BMW Group's requirements as "exacting" – to demonstrate that it can meet these high benchmarks, Intier has had to show the BMW Group that it is capable of managing its own suppliers, and that the systems that it uses are up to the standard the

company requires of its own operation. Intier has engineers permanently based at Plant Oxford, illustrating the extent of the cooperation and the drive for innovation.

Given the constant need to push the product forward technically and cut costs by working more efficiently, this close contact helps meet customer demand for new options and for bespoke tailoring of each car. Achieving such flexibility places major demands on the supplier. But Intier recognises and enjoys the benefits – they "appreciate the business with BMW Group, especially given the rapid rise in output in recent times".

Supply chain at work – ensuring quality

The supply chain process starts many months before a particular part gets anywhere near the production line - a thorough system of checks is carried out by BMW Group before a supplier is even chosen. In the UK, the benchmark for suppliers in terms of meeting an assured quality benchmark is the ISO 16949 accreditation. Companies seeking this "qualification" jump over a series of hurdles to show that they have the skills to provide the specified product on time and on cost, and that the general health and culture of their company is up to the task. Most of BMW Group's suppliers have this accreditation, although this is not actually compulsory. To ensure the quality is of the very high standard required, the company prefers to take a very hands-on approach, seeking out its own reassurance rather than rely solely on the normal benchmark.

While the quality of the delivered component is paramount, there are a series of wider checks on the suppliers' capabilities that have to be satisfied before a supplier gets to provide parts for MINI. The BMW Group has to know that their partners in the supply chain have the capacity and flexibility to meet its requirements. This means:

(i) **Low cost and high quality is vital**. As in all examples of manufacturing best practice, there is constant pressure to deliver a better quality product at a cheaper price.

(ii) **Delivery of the required product at the required time is essential**. It is becoming the norm that components are complex (for example, some of the assembly that years ago used to be done on the production line is now done at the suppliers).

(iii) **Suppliers need to be experts**. Given the complexity of the components, the supplier must show that it can manage its own projects efficiently. With many of the more complicated tasks that used to carried out in final assembly stripped away, the responsibility for building this complexity into the car is passed onto the supplier. Suppliers have to be able to cope with these demands. The ability to help in design and development is also a key test.

(iv) **Sound management is also vital**. The way suppliers run their business is key, as might be expected given BMW Group's view that "quality relies on culture". Financial systems, personnel management, etc, all need to be effective. And BMW Group is looking to work with firms that show aptitude for innovation and the use of technology.

(v) **Managing the supply chain also means looking for suppliers who can be flexible**, both in response to demand of customers – with more than 80% of MINIs built to customer orders, this is crucial – and in response to wider market changes. Suppliers need to be proactive to insure they have the capacity needed to meet BMW Group's requirements.

To sum up, quality and innovation is to the fore, both in the end-product and the production process. Suppliers must have their own systems to internally monitor the quality of their output to ensure standards are maintained. Machines used to produce parts require regular maintenance and service, with records kept to show this is being done. And BMW Group is also looking at how financially robust its suppliers are. In cases where the part is critical, the company will also want assurances about how the Tier 1 company (ie the firm just below Plant Oxford in the supply chain) manages its own suppliers. Clearly, it is important it guards against any danger that the supplier could not

ensure continuity of production, especially given the small amount of stock held in the automotive industry.

For BMW Group, managing the supply chain requires effective supervision. This is achieved through its Supplier Parts Quality Management (SPQM) tool. The overriding focus here is on minimising risk, and the level of supervision from the Oxford Plant will depend on the amount of risk attached to a particular component. At the outset, when deciding on the supplier, and if the part is critical, there could be representatives from four branches of activity at Oxford, each seeking their own reassurance. Some will be looking at the supplier purely from the quality point of view, while an engineer will assess whether the level of technical expertise is adequate. Meanwhile, the logistics department will gather information on how well-equipped the firm is to deliver the product at the right time – with some parts arriving literally minutes before they are needed on the line, this is vital. Finally, those in charge of procurement will work with suppliers to ensure the product can be delivered at the agreed cost.

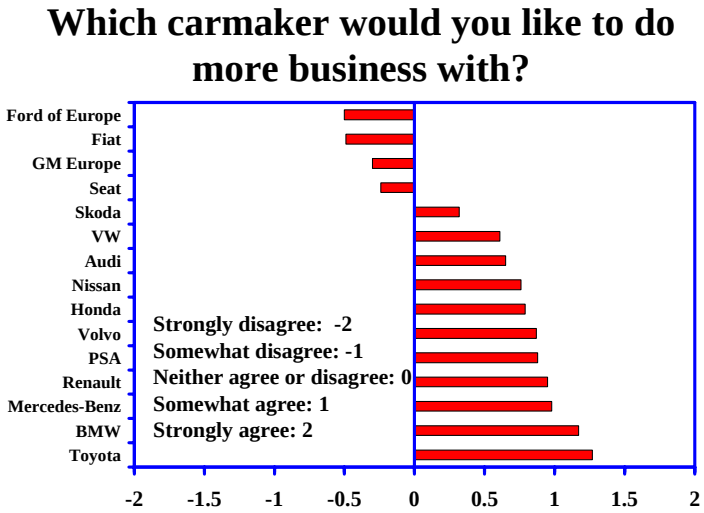
Clearly, it is possible to paint an overly rosy picture of the relationship between manufacturer and supplier – the usual perception is that the "cooperation" is all one way. Fortunately, as far as BMW Group is concerned, there is some evidence that suppliers themselves value the relationship very highly. In a survey carried out by Automotive News Europe and SupplierBusiness.com in Spring 2005, suppliers were very positive about the BMW Group, rating it as "a preferred customer" alongside Toyota (who of course supply MINI's diesel engine). According to those who carried out the survey, "the results show the difference between adversarial and collaborative relationships among automakers and suppliers…Those carmakers that suppliers prefer have a more collaborative model. They are easier to work with."[3]

Why do suppliers have such strong preferences? The overall rating is closely correlated with rankings given in answer to questions on suppliers' return on investment, manufacturer's support, accuracy of production forecasts, willingness to reward cost-saving ideas and protection of suppliers' proprietary technology. Other parts of the survey show that suppliers prefer to work with premium brands, and (perhaps rather obviously) with automakers that are expanding. MINI would seem to fit both criteria pretty well. And despite typical perceptions, suppliers are not without power: they are reportedly shifting away from the less-favoured producers towards those who score highest.

Often this decision reflects a costly and time-consuming process that has to be gone through in order to win the manufacturer's business. But finally, and perhaps most tellingly, the survey suggests that suppliers associated with the most successful brands are the most profitable. Clearly BMW Group's strong showing therefore confirms that the benefits from the relationship flow both ways.

[3] *Automotive News Europe*, 16 May 2005

Figure 3-5



Source: Automotive News Europe/SupplierBusiness.com OEM-Supplier Relationship Survey 2005

3.2.2. Logistics - just in sequence production

The BMW Group demands a lot of its suppliers. And managing both quality and the logistics is arguably more complex than for other car manufacturers. The ability of customers to request a myriad of different options, and to alter the specification of their car up to eight days before it hits the production line, is probably unique in a company making this number of cars worldwide, and this process needs cutting-edge management to ensure all the pieces arrive at the right place at the right time. Rather than "just in time" management, where the suppliers know they will have to deliver a number of generic parts at a particular time, the BMW Group uses "just in sequence" production methods. For suppliers, this means that parts must arrive in the exact order they are required on the production line. And as each cockpit for the MINI (to give just one example) could well be subtly different, this is not a trivial task. First, BMW Group gives the exact specification to the supplier 7-10 days in advance. Then, some 4-6 hours before the part is required on the production line, the final "broadcast" is made to the supplier. The parts are then loaded onto lorries (and the even the order of this loading is important) and are delivered to the line shortly before each car comes down the track.

Technology helps. Before the sequence described above even starts, suppliers like Intier know the production plant's rough plans months in advance. In fact, the company supplies Intier with its own software that then communicates back to the plant over the internet so that it can access these plans. Intier can then better manage the companies in its own supply chain. This system delivers the final order a week in advance and then confirms the exact time delivery is expected a few hours before the car is produced. The part is then delivered to the line - and in the case of cockpits, Intier's engineers are in Oxford to administer any last minute tweaks to the configuration. The cockpit, along with all the other parts, appears on the line just before required. An electronic "passport" attached to the front of each body then helps the rest of the assembly run smoothly. As the car passes certain electronic trigger points, a signal is sent to the Integrated Logistics Centre (ILC) and the required parts are sent through to the production line.

Although all modern car manufacturers employ broadly similar techniques, the innovation from the BMW Group comes in being able to deal with the sheer complexity of the

product. And this complexity has grown over time. Not only has MINI production shot up beyond all early expectations, but the variety of MINIs available has also multiplied. So, in the last few years, a convertible, a diesel version and the high-tech Cooper S have all been added. The more high-spec models like the MINI Cooper and high-performance models such as the Cooper S have, somewhat unexpectedly, proved more popular than the MINI One, bringing more challenges to the suppliers in terms of flexibility. When the different modifications that have to be made for the various export markets are taken into account, together with the array of different consumer choices (now including three types of contrast roofs), the logistical challenge is immense.

This bespoke nature of the company's products is a feature of BMW Group's activities worldwide – arguably it distinguishes BMW from the crowd. The systems used and the standards demanded in Oxford are the same as the BMW Group has honed in its other facilities. Central to the shared approach when it comes to managing logistics and suppliers is the view that flexibility is a must. Suppliers need to match and alter shift patterns to mirror those at the plant and to deliver the volume and quality demanded at the right time. But, most importantly they need to be up to the task of dealing with the complexity of the product and the constant desire to innovate and improve the car delivered to the final customer.

3.2.3. Investment

Innovation, and the capability to meet the almost "bespoke experience" that the modern car owner demands, requires considerable investment in the latest production technology. Over the past few years with the expansion of the MINI plant in Oxford, the relocation of Rolls-Royce Motor Cars Limited to a brand new factory in Goodwood, the decision to locate a state-of-the-art engine plant at Hams Hall and the upgrading of facilities at Plant Swindon, the BMW Group has invested a considerable amount into the UK economy. To date, around £780 million has been spent by BMW Group in developing its production facilities. Of this, £280 million was spent at Plant Oxford, £400 million at Hams Hall, £60 million at Plant Goodwood and £40 million in Swindon.

Moreover, there is ongoing investment relating to maintaining and upgrading plant as the BMW Group strives continually to improve productive performance. In 2004 investment by BMW Group in the UK amounted to £96 million, equivalent to nearly 8% of capital expenditure by the motor vehicles and parts industry and approximately 0.7% of total capital outlays by the manufacturing sector. These shares are higher than BMW Group's share of output – BMW Group accounts for 7% of the total turnover in the motor vehicles and engines sector and 0.5% of total turnover in manufacturing – and highlight the emphasis BMW Group places on maintaining state-of-the-art production facilities.

In April 2005, a £3.3 million tool maintenance facility was opened at Plant Swindon. The new tool maintenance facility has been designed to incorporate some of the latest infrastructure technology and environmental innovations, and is the first phase of a three-year £40 million investment programme in new production facilities announced in June 2004. The BMW Group has also announced plans to invest over £100 million in its Oxford plant before end-2007, which will create around 200 new jobs. The investment is for a new body shell production building: from 2007, over 80 people and 160 computer-controlled welding robots will be assembling MINI body shells in the new building. Some of the money will also be targeted at developing the paint shop, which will be equipped with new, highly efficient and flexible paint technologies to improve both capacity and flexibility at Plant Oxford.

Part of the investment undertaken by suppliers to BMW Group can also be said to be dependent on the activities of BMW Group in the UK, in a similar way to output in these

sectors being dependent on the company. It is estimated that BMW Group indirectly supports nearly £100 million worth of investment in the UK and induced demand is responsible for a further £60 million of investment. Summing direct, indirect and induced investment, the BMW Group therefore generates total investment in the UK of around £250 million a year.

Rolls-Royce Motor Cars Limited – defining quality and individual flair

If all BMW Group cars have a reputation for catering to the customer's specific needs, but Rolls-Royce clients are the most particular in their requirements. Phantom buyers have a huge array of choices to make about the specification of their car, which are really only limited by their imaginations. To take the simple example of the car's colour, there are 45,000 different shades to choose from.

Goodwood, the home of Rolls-Royce Motor Cars Limited, is a unique manufacturing plant, which hand-builds one of the most technically advanced cars in the world. A light weight aluminium space-frame is used to give the Phantom outstanding dynamic strength and safety performance, while at the same time enhancing performance and fuel economy. Power comes from a 6.75 litre V12 engine, featuring the latest in engine technological know-how, which gives the Phantom a performance that would embarrass many sports cars.

In the paint shop six separate layers are applied. Before each coat is sprayed, the body is prepared by hand to ensure a perfectly flat surface. It is only in this way that the perfect mirror finish can be achieved. This is an example of the uncompromising approach to quality engineering, which has helped to build the reputation of Rolls-Royce over more than a century.

In 2004, almost 800 cars left the Goodwood plant – the highest number of Rolls-Royces sold for 14 years. Around 90 per cent of these were destined for overseas. Indeed, the Luxury Institute[4] finds that Rolls-Royce cars receive top ratings frequently from the very wealthy, After just three years since its launch in 2003, the new Rolls-Royce Phantom now comfortably dominates the super-luxury sector of the car market.

Each Phantom that is built at Goodwood is to a particular specification chosen by the customer. This means that the different permutations are almost infinite, with many of the special features demanding many hours of highly skilled work to finish. A special blend of skills is required within the Goodwood team to achieve this, each with the ability to be extremely flexible in work that they do. Employees come from many different backgrounds, many with long experience in special craft skills in the wood and leather areas. Many, too, bring experience from modern high technology industries. It is this blend of highly skilled craftsmen and women with the latest in engineering and manufacturing technology which makes it possible to build such a unique car. For example, in the leather-shop highly skilled inspectors check the hides for even the tiniest imperfections by eye and then the cutting is done by laser.

The choice of Goodwood as the location for Rolls-Royce Motor Cars Limited's headquarters and production base reflects several considerations. First, Goodwood's transport links, especially to the docks at Southampton, are vital given the contribution Rolls-Royce makes to the UK's export performance, with around 720 cars being shipped abroad in 2004. Staff have come from backgrounds in boat building, furniture and instrument making, shoe manufacture, luggage and apparel making.

The quality of the wood finishing in the car is down to the expertise of the craftsmen working on it. The wood is very carefully selected from individual trees around the world before the process of matching, layering and sanding starts. The finish in every car is

[4] The Luxury Automotive Brand Status Index, The Luxury Institute, July 2005

slightly different and the quality reflects both the skill required to identify wood and the craftsmanship involved in achieving the desired impact.

Some of the crafts involved in creating the interior of a Rolls-Royce car are closely related to those involved in fitting out luxury boats. So the location of the company in the area helps sustain these skills. These include the complicated joinery work and the intricate inlays that go between the veneers.

Although Rolls-Royce Motor Cars Limited has undoubtedly benefited from the existence of key skills in the local economy, it has also added to the pool of these skills through its own training efforts. Many of the specialised skills described above are acquired "in-house". So, while the company does compete for skilled workers in the local labour market, it is also expanding the skills base in the region by training workers to the exceptionally high standards demanded by Rolls-Royce. The commitment to training saw a total of £217,000 spent in this area last year, over £400 per full-time worker

Rolls-Royce has engaged a number of local suppliers, including, for example, Polycast Ltd of Southampton who makes the famous Spirit of Ecstasy mascot – for many the defining symbol of a Rolls-Royce car. The figure is cast using a technique called "investment casting", which is a method of making small, simple or intricately shaped parts to a high degree of accuracy and with a smooth surface. As with every part of a Rolls-Royce car, quality is paramount. Here the quality reflects the precision and skill shown by the worker preparing the mould.

More prosaically, the bespoke nature of each Rolls-Royce offers further opportunities up the supply-chain. One recent client, for example, asked for their car to be finished with mother-of-pearl inlays – this meant engaging the help of one of the UK's foremost experts in this field.

3.2.4. Exports

The BMW Group's production facilities in the UK make a significant contribution to UK exports. Over 75% of MINIs are sold on international markets and international customers buy over 90% of Rolls-Royce cars. This is only part of BMW Group's contribution to UK exports since key customers of the engine plant at Hams Hall are BMW Car Plants facilities overseas. In total, BMW Group exported cars, engines and related products valued at £1.7 billion in 2004. These represent 0.9% of UK goods exports.

3.2.5. Tax revenues

The activities of BMW Group in the UK also make a significant ongoing contribution to public finances, both at the national and regional levels. BMW Group in the UK paid £256 million in wages in 2004. This contributed £76 million to the Exchequer through income tax and national insurance contributions. In addition, an estimated £11 million of direct taxes were paid by agency workers working for the BMW Group in the UK, while around £90 million of taxes were also paid by employees in the dealer network.

The BMW Group in the UK also contributes to the revenues of central government through its corporation tax payments. In 2004, the company paid £39 million in corporation tax and business rates totalling £9.6 million (excluding refunds) on its UK premises. Overall, the company and its dealer network directly contributed about £225 million to the public finances in 2004. When estimated VAT receipts on car sales of around £790 million are added, the total contribution to the Exchequer tops £1 billion, equivalent to around a third of one penny on the basic rate of income tax.

4. Contributing to UK employment and skills

Key Points

- The BMW Group and its dealer network directly employ nearly 20,000 in the UK, with a further 36,900 indirect and induced jobs supported by BMW Group's activities.
- A skilled flexible workforce is essential in the modern car industry. At Plant Hams Hall, in-house training helps workers towards NVQ level 2.
- BMW Group's flagship training programme is its Mature Modern Apprenticeship. Older workers can spend a year in college, followed by another year's on-the-job training to receive an NVQ level 3 qualification.
- Benefits spill over to the wider economy as lecturers in the partner colleges are able draw on BMW Group's expertise.

4.1. BMW Group's contribution to employment in the UK

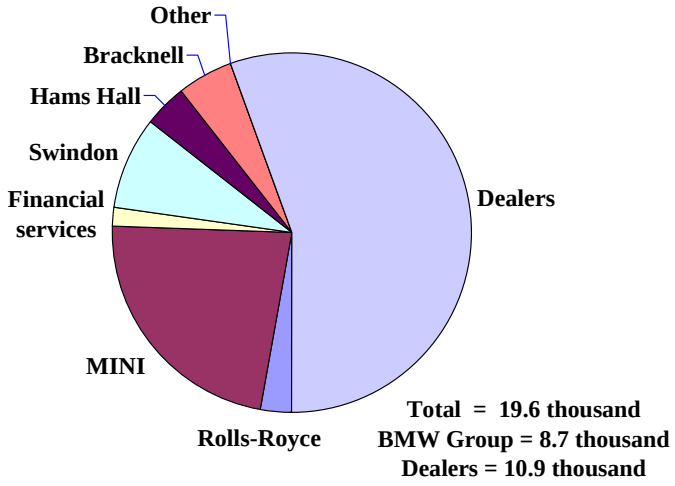
The success of the BMW Group means that it has become a very important employer in the UK. We estimate that:

- BMW Group directly employed around **8,700** people in the UK in 2004, including some 2,500 through agencies – this is equivalent to 0.25% of the UK manufacturing workforce and 4¼% of those in the motor manufacturing sector.
- In addition, the BMW and MINI dealer network employed a further **10,900** in 2004.
- So, in total, BMW Group generates direct employment of around **19,600** in the UK, equivalent to 2.6% of employment in the combined motor manufacturing and distribution sectors.

Figure 4.1 shows the composition of the direct employment in the UK dependent on BMW Group's activities. Within the BMW Group in the UK, around 4,500 people are employed at Plant Oxford, 1,700 at Plant Swindon, 700 at Plant Hams Hall and 500 by Roll-Royce at Goodwood.

Figure 4-1

Direct employment in the UK by the BMW Group and its dealer network, 2004



But BMW Group's activities also have a multiplier effect on UK employment, as jobs are supported in its supply-chain and by the spending of its employees.

Using data on BMW Group procurement and incorporating information from input-output tables, we estimate that:

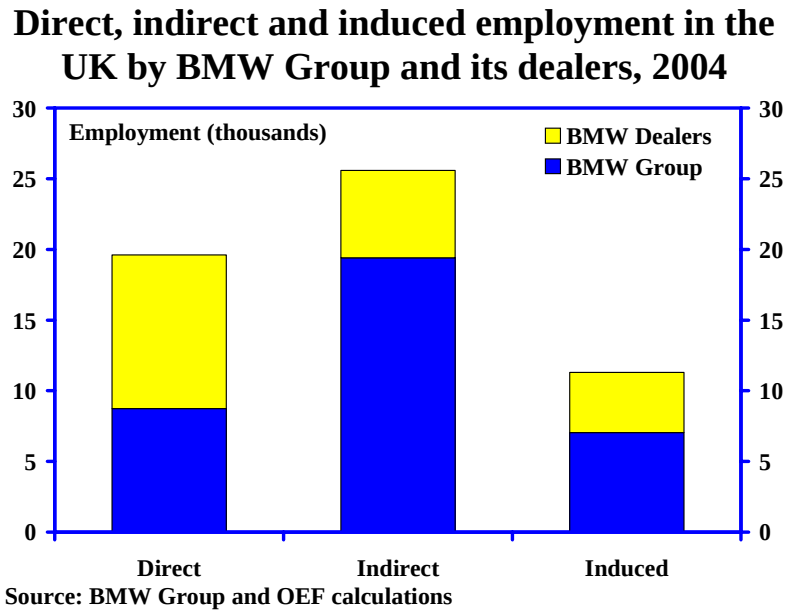
- **25,600 indirect jobs** are supported through purchases of goods and services by BMW Group. These include jobs in the metal, electrical equipment and the textiles industries that supply components important for the manufacture of vehicles. In addition, the BMW dealer network supports a further **6,200 jobs indirectly**.
- A combined **11,300 induced jobs** in the UK are supported by employees of BMW Group and its dealer network (whether direct or indirect) using their income to purchase goods and services for their own consumption. The impact includes jobs generated in retail and a range of service industries.

Taking the direct, indirect and induced employment together, we estimate that the BMW Group supports a total of 56,500 jobs in the UK. This means that BMW Group helps to generate more jobs than are directly supported by the railways.

Table 4.1: The contribution of BMW Group to UK employment, 2004

Direct contribution	**19,600**
of which:	
BMW Group	8,700
of which:	
Rolls-Royce	500
Plant Oxford	4,500
Financial Services	300
Plant Swindon	1,700
Plant Hams Hall	700
Plant Bracknell	1,000
Dealer network	10,900
Indirect contribution	**25,600**
of which:	
BMW Group	19,400
Dealer network	6,200
Induced	**11,300**
BMW Group's total contribution to UK employment	**56,500**

Figure 4-2



Source: BMW Group and OEF calculations

4.2. Developing skills – benefiting BMW Group, benefiting the UK

Productivity growth – the key engine of increased wealth and living standards – is heavily dependent on the development and application of skills in the labour force. As manufacturing increasingly relies on technology and on lean processes, while product success depends on innovation and quality, so the ability of the workforce to adapt to new ways of doing things, and indeed find better ways of working, becomes crucial to the success of individual companies and the colony of collaborative suppliers and distributors. The skills embedded in the workforce are both specific to individual companies and tasks, and general, in the sense that an individual's skill-set can be make learning new tasks easier or can help in the wider innovation process as individuals move among employers.

4.2.1. Meeting the skills challenge at Hams Hall

In 1997, the BMW Group decided on Hams Hall in the West Midlands as the location for its state-of-the-art plant for production of all BMW four-cylinder petrol engines. If one word can adequately summarise the approach taken to establishing a world-class business during the planning and launch phases of the factory, as well as in the years since series production began in January 2001, it would be "skills". In many ways, the problems facing BMW Group when it made the choice to locate in the UK are those that face the UK as a whole: a lack of suitably qualified employees, both at managerial and non-managerial levels, in certain key areas. BMW Group's response has been to invest substantial amounts of money in training and personal development, with the aim of ensuring that all its associates have appropriate formal qualifications. As the director of the plant said at the time volume production got underway in earnest in 2001, "training good people to become even better is not a luxury, but an imperative for us in order to remain internationally successful".

Initially, the decision of the BMW Group to invest in Hams Hall was a finely balanced one: the workforce in the BMW engine plant in Steyr, Austria, the other internal business unit competing with Hams Hall for investment, was typically qualified to a level equivalent to the National Vocational Qualification (NVQ) 3 or higher – a standard comparable with A-level in the UK. This level of skills and qualifications was not generally true of the UK, and especially the West Midlands, when BMW Group made its choice, so an agreement was struck with the government to jointly fund a comprehensive training programme to bring the workforce at Hams Hall up to international standards. The plan means that every pound spent on training delivery and associated costs by BMW Group is matched by the government. By 2004, around £20 million had been invested.

Figure 4-3

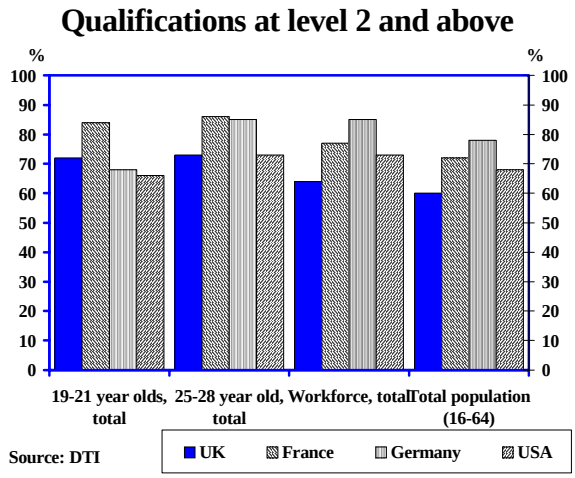
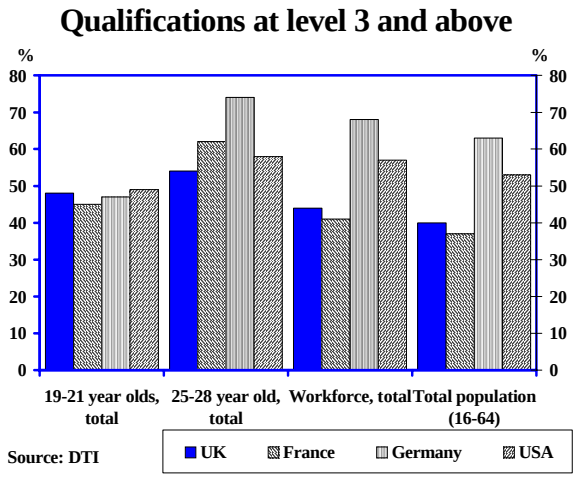


Figure 4-4



Part of the UK's problem is illustrated in the charts above. The most recent data, taken from the "International Comparisons of Qualifications: Skills Audit Update" produced by the DTI and the Foster Report, show that, among the youngest part of the workforce, the proportion of those reaching each level of attainment is comparable across the UK, France, Germany and the US. This was not true when the decision to build Hams Hall was being taken – the UK has seen the fastest growth in Level 2 skills between 1993-2003. But it is still true when looking at the more mature segment of the labour force, that the UK lags behind, particularly when compared to Germany. Overall, only 65% of the UK workforce is qualified to Level 2, compared with 77% in France and 85% in Germany. Moreover, only 40% of the workforce in the UK has Level 3 skills (which include "traditional" academic qualifications as well as vocational achievements), compared to 68% in Germany. Although the UK economy has outperformed that of Germany in recent years, this type of statistic is still a worry – the older members of the workforce remain an under-used resource.

At the outset it was assumed that a significant proportion of the workforce at Hams Hall would be drawn from employees of the former Rover Group, including those working at the Longbridge site. But most of the workers there were not apprentice-trained and were used to performing single repetitive operations in a well-defined production process. Skills acquired on the job were usually very specific to the individual worker's role and not easily transferred to other parts of the plant. Training was carried out without an eye on how individual tasks fitted into the overall manufacturing picture. And workers were confined to their own narrow functions – the ability to resolve any problems and improve processes was limited. In a modern operation, the role of operating the machinery and dealing with any problems that might arise is combined. Fast-forward to 2005, and this is how Hams Hall now operates. The realisation that the skills gap was perhaps even

greater than first perceived has more than justified the decision to invest in skills, qualifications and personal development programmes – a route that was determined well before the plant was even built.

At the heart of the BMW Group approach is the Apprenticeship, the formal training programme (formerly called the Modern Apprenticeship) run by the Learning and Skills Council (LSC). The government's aim in promoting such a scheme is to provide 16-24 year-olds with a mixture of on- and off-the-job training while they are being paid. But the money the government provides is limited to the youngest part of the workforce. In June 2005 the LSC announced plans to target state support at the under 19s, although this seems to contradict the plans outlined by (then) Education Secretary Charles Clarke in 2003 to end age discrimination in the workplace and lift the ban on public funding for training for those over 25.

Consequently, BMW Group has taken the initiative and introduced its own Mature Modern Apprenticeship (MMA) – this is the real innovation at BMW Plant Hams Hall and an area where BMW Group leads the field. Recognising both the skills shortages it faced, the fact that demographic trends implied a more mature workforce, and the fact that there was plenty of potential to acquire new skills among more mature workers, BMW Group set about building a MMA programme.

Putting together this programme meant starting from scratch. With the help of the sector skills council for Science, Engineering and Manufacturing Technologies (SEMTA), and the chosen partners in higher education - Sutton Coldfield College and City College, Coventry - BMW Group produced a full-time training programme delivering vocational educational training tailored to the company's needs and also offering a path to nationally recognised qualifications such as the City and Guilds Parts 2 and 3 and an NVQ Level 3 qualification in Engineered Systems Maintenance. BMW Group chose these colleges because of their technical expertise, capability, quality standards and facilities. But although they were judged the best to do the job, time and money was spent training the lecturing and management team at the colleges the specific needs of BMW Plant Hams Hall and the use of the cutting-edge technology used at the plant. In practice, this involved appointment of coordination managers from the colleges who, with their staff, have undertaken training placements at Plant Hams Hall. This allowed them to familiarise themselves with the company's culture, processes and manufacturing facilities.

Of course, all this comes at a cost, not least the payment of workers on full salary while they train. Candidates for the MMA programme are selected from the existing workforce on the basis of their commitment, desire to learn and technical ability. Acquiring this qualification requires a great deal of time and effort.

The Mature Modern Apprenticeship

Year 1 - A year off the job spent at one of the partner colleges. During this period the skills learned are both practical and theoretical. At the end of the year, the standard of NVQ Level 2 in Performing Engineering Operations and Maintenance should be reached.

Year 2 - This is mainly spent at Hams Hall, where effort is concentrated on allowing workers to acquire maintenance skills. By augmenting this with days spent back at college, employees work towards a City and Guilds Maintenance level 3 qualification. At the same time, there is in-house training on specific maintenance issues at Hams Hall. The culmination of this process is a NVQ 3 in systems maintenance.

The first batch of 20 candidates – who were aged between 23 and 45, graduated from the MMA programme in 2003, another ten in March 2004 and a further six at the beginning of 2005; this in a directly employed full-time workforce of 662 in 2004. BMW

Group's stated policy is that 3% of the site population should be Modern Apprentices, so with around 5% already graduated, that target has been easily surpassed.

The success of the programme is vindicated by a 100% completion rate, with the course typically being completed six months faster than planned. The drop-out rate in Apprenticeships in the economy as a whole runs at around 40% for young people.

The MMA programme is certainly one of the most significant vocational initiatives at Hams Hall. However, BMW Group also requires all of its associates to have achieved appropriate qualifications in their specific discipline of at least NVQ 2 or equivalent. This level of attainment cannot easily be obtained via normal recruitment, especially when it comes to associates required in engine production. The largest training and assessment programme on site is therefore the NVQ 2 Performing Manufacturing Operations (PMO). To date, around 300 associates have succeeded in obtaining NVQ 2 PMO; starting with off-the job classroom training, covering subjects such as quality, engine technology and health & safety, and then moving to an on-the-job assessment programme. Similarly, associates in the logistics function have completed an NVQ 2 programme in Distribution and Warehousing. Again, the partnership with the local colleges is important, but the major investment and the core training has all been conducted "in house". The commitment to the NVQ scheme is illustrated by the presence of a permanent NVQ Manager and the fact that Hams Hall itself is a fully accredited NVQ assessment centre, with the assessment being done during the course of the associate's normal job.

Together with the innovative MMA and the large scale PMO initiative, Hams Hall has supported the recent government-initiated Foundation Degree programme. Fourteen associates are currently studying Automotive Engineering at this level, with six of their colleagues already having achieved this qualification in 2005.

Once workers have acquired these formal qualifications, along with what are usually transferable skills, there is obviously nothing to prevent their pursuing careers elsewhere. So, BMW Group's training has lifted the general skills level in the West Midlands and clearly has the potential to produce benefits for other companies in the region, though turnover of associates is actually remarkably low. Average employee turnover in the UK motor vehicle industry as a whole is 9.5%. Only two of the 36 Plant Hams Hall associates completing the MMA programme, however, have left the company. BMW Group is happy to acknowledge that their efforts will benefit the West Midlands economy as a whole through the partner colleges; the knowledge transfer on the latest production technologies and industrial practices will no doubt filter through to other students at these institutions. The same can be said in the specific fields covered by the NVQ Level 2 qualifications discussed earlier.

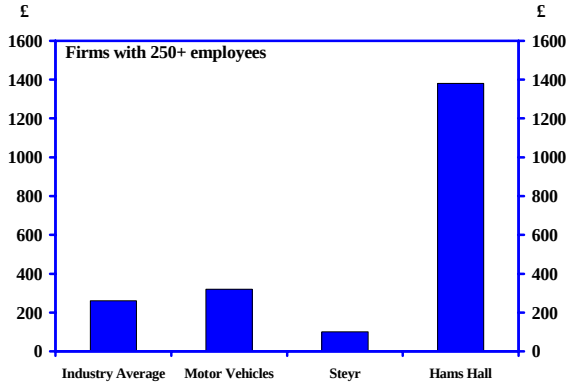
The test of whether the commitment to training has paid off is in the performance of the company itself. The signs are encouraging. In 2003, 125,000 engines were produced at Hams Hall. This number rose to 146,000 in 2004 and annual production output in 2005 increased significantly once again, rising to approximately 184,000 engines. In the view of Harald Krüger, Hams Hall's managing director: "Following the launch of the plant in January 2001, we were quickly able to reach the high standards of quality, flexibility and efficiency set by the much-longer established BMW engine plants in Germany and Austria, despite having difficulty in identifying suitable candidates for some of the skilled jobs that needed to be filled". Many workers are clearly extremely enthusiastic about the training they have received. Some wish to continue their studies towards a degree, beyond the level asked of them by BMW Group. There is also an opportunity for associates to spend time at Ham Hall's sister plant in Austria and other BMW Group locations in the UK and abroad, helping to promote the acquisition and transfer of

knowledge and best practice within the company as well as improving inter-cultural skills and language abilities.

In terms of skills, the associates at Hams Hall are now on a par with those elsewhere in the company's international production network and are playing a significant part in the plant's ability to contribute to the profitable growth of the BMW Group.

Figure 4-5

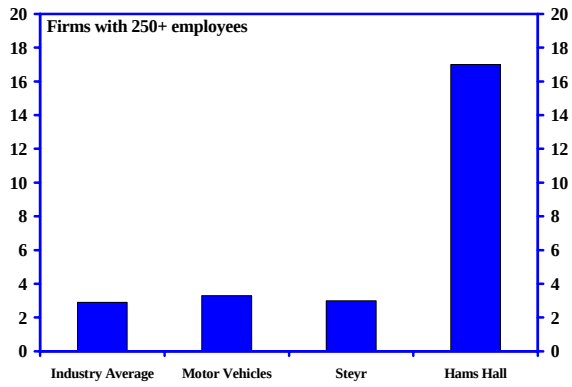
Off the job training spend per employee



Source: Semta 2003-2004 People skills scoreboard for the engineering industry/BMW

Figure 4-6

Off the job training days per employee



Source: Semta 2003-2004 People skills scoreboard for the engineering industry/BMW

4.2.2. The BMW Group Academy UK

The BMW Group is also investing in employees in the dealer network to cope with the forecast increase in MINI and BMW sales in the UK – BMW Group expects to increase the number of employees in the dealership network by 2,000 over the next three years. Construction work started in 2005 on a new £17 million BMW Group Academy UK at Wokefield Park, near Reading. The training and development centre, due to open in 2006, will provide all technical and non-technical training for the BMW, MINI and BMW Motorcycle dealer networks and will also be available to BMW Group's employees throughout the UK. It is anticipated that the number of training man-days will rise to 62,000 by 2010 from the current 45,000.

The BMW Group Academy UK will incorporate a workshop with 32 bays, 25 training rooms and a BMW, MINI and Motorcycle showroom to simulate a working dealer environment. The centre will also feature a dedicated apprentice training area with its own accommodation facilities and clubhouse for the current intake of 60-70 apprentices per year.

While the focus of the training programme will be to ensure high standards of customer services in the dealership networks, the centre could be a blueprint for the whole industry. Currently, there is no officially recognised qualification for employees of the car dealership networks and BMW Group's formal training structure is leading the way in this area.

5. BMW Group – promoting corporate responsibility

Key Points

- BMW Group has forged strong links with the local community, contributing to the Lydiard Park Project in Swindon and supporting arts and culture in Oxford.
- Corporate responsibility also implies greater environmental awareness and BMW Group's approach is to use technology to use resources more efficiently, cutting down on waste at every opportunity.
- By planning ahead at the design stage, new production facilities like those at Goodwood and Hams-Hall make a minimal impact on their surroundings.

One of BMW Group's core philosophies – applied worldwide – is the principle of corporate responsibility. This extends beyond employees, to society as a whole and the environment. BMW Group regards the safeguarding and creation of jobs and commitment to society and the environment as an essential accompaniment to the traditional focus on corporate profits and shareholder value. The commitment to this goal is mirrored in BMW Group's membership of the "Dow Jones Sustainability Index", the stock market benchmark for firms leading the way in terms of sustainable development. In the UK, the BMW Group puts resources back into local communities to improve the environment and other leisure facilities, as well as trying to use energy efficiently. Indeed, BMW's Plant Hams Hall received a special achievement award in 2005 from the British Quality Foundation for "demonstrating excellence in Corporate Social Responsibility" through a "commitment to improving the environment and becoming involved in the local community".

5.1. Connections with the community

BMW Group is a keen member of the local communities in which its business units operate, and in all the places in the UK where it has a major presence, BMW Group has forged strong links with the local community. For example, in Swindon, home of the body pressing plant, the company is a partner in the Lydiard Park Project. This country park and Palladian house is one of Swindon's leading attractions, with over of a quarter of a million visitors a year. The park is the remnants of a once-great country estate – now it is in the hands of the local council, the effort to restore the house, its contents and the grounds to their former glory, is underway. The project is backed by £3 million from the Heritage Lottery Fund, with the BMW Group itself agreeing to contribute £74,000 during 2004. In addition to the donation, during 2005, BMW Group associates from Plant Swindon are assisting in the efforts to restore the 18th Century coach house and stable building for use by local schools and community groups. A party of volunteers is assisting in some of the clearance work of the Grade 2 listed stable, which had fallen into disrepair. Eventually the building will provide a classroom for school visits and facilities for community volunteers and horticultural apprentices working in the gardens.

Elsewhere, the BMW Group has a successful partnership in Oxford with the Creation Theatre Company. During 2005 Plant Oxford has embarked on a long-term relationship with the city's cultural agency, Oxford Inspires, and during the summer season the plant sponsored full-price 1,000 tickets for the "Ticket for a Fiver" offer aimed at getting a

broader range of local people to experience theatre. And more practically, for the last four years, Plant Oxford itself has been the location for the company's winter programme – 2005/06 seeing back-to-back productions of "The Snow Queen" and "King Lear".

Overall, the BMW Group donates significant sums to a diverse range of organisations. One of the organisations that benefits from the success of the BMW brand is the BEN Charity (the Motor and allied trades benevolent fund). For every car sold, 54 pence is given to former and current employees of the motor industry that need help.

Table 5.1: Major charitable donations in 2004 from BMW Group in the UK

BEN	£78,700
Lydiard Park Project in Swindon	£78,000
Macmillan Cancer Relief	£50,000
St Wilfred's Hospice	£30,000
Weston Spirit	£20,000

5.2. Minimising the impact of activity on the environment

The BMW Group's philosophy is to leave a positive imprint on the rest of society and this includes minimising the environment impact of driving cars. This means that at every juncture – car production, fuel efficiency and car disposable – there is a continuous search to improve environmental friendliness. This begins at the design stage of a new vehicle, when much thought has already gone into the materials that should be used, with a view to recycling them at the end of a car's life. BMW Group has been involved in the recycling of cars since the 1990s – being the first car manufacturer in the world to launch a Vehicle Recycling Network. European legislation has since caught up; the European Union directive on recycling has recently been incorporated into UK law. The legislation requires producers and those in the vehicle disposal industry to dispose of old cars in an environmentally sound manner. And the law now also requires the quantity of scrap destined for recycling to be stepped up. It is hoped that the new rules will mean less pressure on landfill sites and more responsible disposal of damaging materials like oil and brake fluids.

The company's national sales organisation, BMW UK Ltd., already takes its responsibilities seriously. When a BMW is serviced in the UK, these materials are disposed of through the BMW (UK) Dealership Waste Management Programme. Meanwhile, when a vehicle reaches the end of its life, BMW UK Ltd. plans to take responsibility for the disposal of the car through its End of Life Vehicle Recycling Network. This network will take back BMW and MINI cars from the final owner, regardless of their age and place of purchase/service. The site taking in the car will then remove batteries, drain fluids from the engine and air-conditioning systems before carefully disposing of these waste materials. In many cases cars will be then be stripped of useful components that can be sold again as spare parts. Subsequently, the cars will be shredded in such a way that the different types of metal, and other materials, can be recovered and recycled.

The aim is to use recycled material where possible in the manufacture of new cars. Some of the composite materials (such as plastics) that are recovered are taken back into the production process – of course this means setting up systems to allow this to happen efficiently. This helps conserve scarce resources – it is estimated that 15% (measured by weight) of the materials going into a BMW are recycled.

Rolls-Royce at Goodwood – planned with the environment in mind

The manufacturing plant and head office of Rolls-Royce Motor Cars Limited was built over a two year period and completed in 2003.The British architectural firm, Nicholas Grimshaw & Partners (creators of the Eden Project in Cornwall) designed the site. From the beginning, the design brief was to create a facility that would harmonise with its rural surroundings. The result is a distinctive manufacturing plant that blends into the natural landscape and encourages increased biodiversity. The main buildings cover less than 20 per cent of the 42 acre site. A total of 22,500 square metres of the roof are planted with thousands of low maintenance sedum plants. The contours of the roof also help it to blend into the natural landscape surrounding the facility, helped by the building being sunk one to two metres below ground level. The 'living roof' provides some very practical benefits – thermal insulation in the winter and evaporative cooling in the summer as well as slowing the flow of storm water into the drains from the roof areas. The roof also provides an unusual habitat for birds and insects and in the summer swallows take up residence. The landscaping of the site was designed to allow space for natural 'coppice' areas, which grow without any human intervention. Alongside the coppice areas a more formal landscaping approach was taken and a traditional 'English Garden' feel has been given to the courtyard that leads up to the headquarters building. Around 400,000 plants and trees representing over 120 species have been planted around the site, encouraging a rich mix of flora, fauna and animal species, including foxes, badgers, bats, owls and squirrels, to make the area their home. The use of pesticides at the facility has been largely eliminated by Rolls-Royce Motor Cars Limited as the local area has many organic farms. Instead traditional, non-chemical techniques are used to maintain the small areas that require it. Visitors to Rolls-Royce Motor Cars Limited will notice the striking lakes on arrival at the main entrance to the site. They are a key part of the water management system and are used as a heat sink for the climate control system in the headquarters building. Rainwater is managed through a sophisticated system involving the lake and broad ditches, to minimise any impact on the groundwater in the local area. The lakes, which are stocked with a variety of fish, attract significant numbers of wildlife, with swans and ducks regularly observed there.

While recycling is clearly good news for environment, using the resources properly that go into production is also vital. And of course, not only is this good for wider environmental issues, but it improves profitability as well. At all of the BMW Group's plants, the use of energy and other resources is continually monitored. Measures implemented range from the simple and obvious to detailed audits of each plant's energy usage:

- Both Bracknell and the Vehicle Distribution Centre at Thorne were made more energy efficient through initiatives such as using more energy efficient light bulbs in a number of areas – this yielded gains of around 20% - and encouraging workers to take responsibility for turning off equipment and lights when not in use.

- At Plant Hams Hall a number of measures have been introduced to in order to make electricity use more efficient. These include a computerised management and monitoring system introduced to more effectively control temperature settings in the plant, a concerted move to use more energy efficient machinery and an energy awareness campaign to ensure workers turn off lights, photocopiers and other office equipment when not in use. The results of the energy saving measures at Plant Hams Hall reveal that 176.8 KwH (Kilo-watt hour) less energy is used to make each engine produced in 2004 than was the case in 2003.

- BMW Plant Hams Hall has also carried out a comprehensive audit of where water is being used, drastically reducing the amount of water needed to produce each engine

– in 2003, consumption was 203 litres per engine, but by June 2005, this was down to 165 litres.

- At the body pressing plant in Swindon, energy savings have focussed on efficient use of gas and a third-generation radiant gas heating system was implemented when the new tool maintenance department moved location. This directs heat energy to working areas (conventional heating means highest temperatures are at roof, rather than ground level) and cuts down on waste. The new system provides a better environment for workers and also significantly reduces carbon dioxide and costs. The savings in terms of CO2 emissions are estimated at 950 tonnes (around 75% of the previous level).
- At Plant Oxford, despite the massive increase in production over recent years, targets to reduce consumption of water and improve the quality of wastewater have all been met. Checking quality of used water allows relatively clean water to be used again in the production process, rather than being discarded. Innovations at the treatment centre mean the cleanliness of water leaving the plant is also much better. Over the last year, the concentration of oil and grease in the water leaving the plant has halved.

6. Conclusions

Key Points

- While focused on a small number of premium market segments, BMW Group makes a substantial contribution to the UK economy, accounting for around 0.2% of the UK's total GDP.
- BMW Group employs 8,700 people as a direct result of these activities and another 10,900 in the dealer network.
- The goods and services the company buys in support another 25,600 jobs in the UK, while the "induced" jobs created by these workers' spending adds another 11,300 to the UK's workforce.
- In total, the BMW Group supports over 55,000 jobs in the UK, equivalent to 0.2% of all UK employees in employment.
- The quality and innovation the BMW Group brings to UK manufacturing brings many intangible benefits. It helps "raises the game" of the companies BMW Group deals with and boosts the level of skills in the economy.

For a carmaker perceived to be a relatively low volume producer of quality cars at the upper end of the market, BMW Group punches above its weight in terms of its contribution to the UK economy. And at a time when activity in UK manufacturing seems to be permanently stagnating, the increasing production of MINIs and Rolls-Royce cars, and engines from Hams Hall, bucks this trend.

The numbers presented in this report illustrate the significant role that the BMW Group plays in the UK economy. But the less measurable impacts are just as impressive. In two key areas where the UK lags the continent, namely skills and productivity - both big causes for concern for the current government - BMW Group is helping raise standards. Its flagship training effort at Hams Hall meet the company's own stated goal of lifting the ability of the whole workforce to at least the NVQ2 level. And the knowledge gleaned from working closely with BMW Group is absorbed by the partner colleges and benefits their other students. Furthermore, the emphasis on training older workers looks far-sighted given worries over a looming pension crisis and the possible moves to lift the retirement age.

On productivity, the BMW Group's commitment to innovation and its customers' demands mean suppliers have to be as flexible and willing to change as the BMW Group itself. The complexity of modern cars, and the particularly large number of choices a customer can make as they build their car to order, means cooperation between car company and supplier is paramount. The BMW Group's methods of managing the quality of components and the logistics of ensuring the right parts arrive in the right order at the right time helps lift standards across its suppliers. This benefits UK productivity outside the confines of Plant Oxford.

Finally, the BMW Group recognises that it is part of the wider community. Efforts are constantly being made to minimise environmental impact, both by saving energy and water, but also by building plants in Goodwood and Hams Hall that promote biodiversity and wildlife protection.