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Germany - Mittelstand Best Practice Study Visit

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Images courtesy of Heller, Mahle and Komet

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## Introduction

During the global economic crash of the mid 2000's there was much media attention paid to the German economy. In particular the UK media and manufacturing companies examined why German economy failed to "crash and burn" as other economies such as the UK had. The German economic and social partnership model was given much of the credit and the media and manufacturers began to recognise that German manufacturing in particular protected itself and its strong manufacturing base via Mittelstand companies.

Mittelstand companies are described as highly focused, achieving unprecedented efficiencies by designing a business model with a razor-thin focus and learning to do the one thing really well then to compensate for their razor-thin focus they diversify internationally and enjoy great economies of scale. Mittelstand companies benefit extensively from Germany's apprenticeship system, which provides highly-skilled workers and there is a recognized collaborative spirit that generally exists between employer and employees. Many Mittelstand companies are export-oriented with a focus on innovative and high-value manufactured products, and they occupy worldwide niche market leadership positions in numerous business to business segments.

Many of the most successful Mittelstand companies combine a cautious and long-term-oriented approach to business with the adoption of modern management practices, such as employing outside professional management and the implementation of lean manufacturing practices and total quality management. The Mittelstand emphasis on long-term profitability stands in contrast to the public corporations of many countries (including German public corporations) which face quarterly or annual pressure to meet expectations. Typically, Mittelstand companies work closely with universities and researchers and cluster themselves around big manufacturers.

This report of a short visit by Unite shop stewards and Ian Waddell National Officer in early 2015 provides background information on the Mittelstand model; it is aimed at complimenting the work Unite has been doing to support and defend UK manufacturing, engineering and science and to inform Unite union reps and activists of an alternative and highly successful model which provides Germany with a strong manufacturing base.

## Background - Information provided by Stirling Media/True North Excellence.

The Study Tour was organised in co-operation with Stirling Media and True North Excellence. The programme involved four site visits to companies in the Baden-Württemberg region of Germany, which is characterised by engineering companies. In 2013 the region's GDP (Gross Domestic Product) was €407.24 billion – an economy bigger than Thailand and just behind Austria.

Central to the wealth of Baden-Württemberg is the cluster of high technology companies, located around the industrial city of Stuttgart. Manufacturing made up 31.7% of the Baden-Württemberg economy in 2012, and unlike many industrialised countries this is the highest proportion in 12 years – manufacturing in the region is growing, although this has followed a long period of de-industrialisation across all European countries and the US since 1970.

Global brands, many of which are linked to the automotive sector, like Bosch, Daimler, Mahle, Mercedes, Porsche, Siemens, Voith and Würth, have their global headquarters and/or large manufacturing plants located in the Stuttgart environs. Automotive and components manufacture made up 27.5% of all manufacturing in 2012.

Total exports from Baden-Württemberg in 2012 were valued at €176.26 billion, of which €77.4 billion came from motor vehicles, auto parts and machinery. As well as machines, equipment and components for machines, the region has a high density of automation, measurement and software companies.

As well as the proliferation of large engineering companies, both privately, publicly and employee owned, there are a very high number of small and medium sized companies – the original 'Mittelstand' – in this region. Many of these are independent, family owned businesses. The largest native people in Baden-Württemberg, the Swabians, are known in Germany for the importance they place on family values and business giving something back to the community.

Baden-Württemberg has a heavy density of prestigious, engineering-centric universities; Stuttgart, Karlsruhe, Heidelberg, Freiburg and Tübingen. The world-famous Fraunhofer Institute is located in Stuttgart, a well-funded institution devoted to application-based research, dominated by engineers. The Fraunhofer has an annual budget of around €2 billion, generates on average two patent applications a day and generates about €350 million in revenue from 4000 contracts in industry every year.

Baden-Württemberg is also the region of Germany best known for the Dual Education system. This is where young people are taught partly in the classroom and partly in a company, rather like an apprenticeship but during their normal schooling.



## Site Visits - Day One

### Komet Group

Komet is a typical Mittelstand company, founded in 1918 by an inventor. In 1927 the company moved into the production of tooling. In the 1970s the company invented an indexable drill system that led to a world leading position in the machine tool market with consequent growth of the company in the 1970s and 1980s. Family ownership of the company was passed to a Foundation which sponsors research and development. Management of the company is carried out by a supervisory board.

The company faced difficulties in the 1990s as the companies they supplied started to shift production to the Far East. Komet were not geared up for international production and started to lose customers as a result. Profits dipped and this acted as a "wake-up call" for the company.

Their response was to open production centres around the world. Initially, the German management and workforce believed that no-one else would be able to match the quality of German production, but this proved to be a false assumption. Production centres around the world were soon producing high quality products and the company took the view that the Komet brand should mean the same quality of tool whether it was produced in Germany, Mexico or China. This posed challenges for the German site, which was in a high cost economy. The company's response was to invest €100 million in the site to create a modern and efficient plant. They also created an "idea space", or IDEEN FABRIK, for customers and employees to foster innovation.

The company operates lean manufacturing techniques and continuous improvement, which they see as a seven year journey of small but incremental steps. They say they are half way through this journey. Komet has 65 apprentices currently in a workforce of 450 people. They see this as a key component of the Mittelstand approach.

The company also sees innovation as a clear market differentiator and it is seen as the duty of all employees to generate ideas for new products or improvement of existing products. Komet has a system called the "Fuzzi Front End" which is about generating ideas that are then put through a "funnel" of evaluation, analysis, clustering into speedy or technical routes and then implementation. This is supplemented with joint research programmes with local universities. The company invests €15-20 million every year in new machinery, technology or products. Komet turnover is about €130 million, so this represents a significant level of investment.

## **Mahle**

Mahle is a global multinational company, employing 65,000 people in 150 locations worldwide. It is an automotive supply chain company, producing engine systems, components, engine filtration systems and engine peripherals. The company is expecting to post €10 billion sales for 2014. They say they are not a Mittelstand company anymore, but have the DNA of a Mittelstand company. When asked about this, the HR Director said that his view was that the Mittelstand was typified by a cautious, long-term approach; that companies look after their people; and that Mittelstand companies stay away from the banks – "you earn before you spend".

Originally family owned the business was passed to the Mahle Foundation in 1964. This Foundation owns 99.9% of the shares, but has no voting rights. The Foundation receives a dividend from the profits of the Mahle GmbH – the plc. Meanwhile the MABEG or "club" owns 0.1% of the shares, but has 100% of the voting rights. It receives nothing from the company profits, but is there to guide the co-determined supervisory board in their management of the Mahle GmbH. The MABEG is formed of seven experts – former CEOs or managers with years of experience in manufacturing. The Mahle Foundation uses its share of the profits to support local hospitals, sponsor youth education, organic farming and other charitable functions in Germany and increasingly abroad.

The plant we visited employs 1,150 people and is a supplier to the German automotive industry. Like many manufacturing plants, the site was hit hard by the financial crisis in 2008/9. However, they did not make anyone redundant. The metal industries in Germany have a form of social insurance – Kurzarbeit – which means the state pays up to 80% of the wages of employees put on short time working. This was used at Mahle to keep people employed during the downturn, with the result that when the upturn came at the end of 2009, the company was able to quickly ramp up production and return to profitability.

The company says that skills are vital to their success. They are in competition with other German companies for skilled people. The HR Director told us that they wait until Daimler, Porsche, Bosch and Stihl have filled their apprenticeship positions before they advertise their posts as they recognise that these are the premium companies' young people will want to join. However, Mahle offer 450 prenticeships every year in 17 professions in Germany. This represents an apprentice rate of 4.4% of the workforce at Mahle. Their experience is that when people join, they stay for the whole of their working lives. Most of the Mahle plants in Germany have their own vocational training centres.



In addition, the company also offers dual study places with the co-operative state university, the DHBW of Stuttgart. This involves 50% theory and 50% practice for a three year course, resulting in a degree level qualification. The students are Mahle employees and are paid during their study. It is possible for young people to join as apprentices, complete a three and a half year apprenticeship and then later move on to study under the dual system to gain a degree. Many managers follow this route and Mahle also has a corporate management training programme which identifies and develops managerial talent in a structured way.

On the site visit, it became clear that wherever possible routine or repetitive tasks were being automated. The plant manager repeatedly pointed out jobs which were soon to be replaced with robots. When we asked about the impact on employment, the plant manager told us that he had reached an agreement with the union that employment numbers were guaranteed until 2019. This would be achieved by moving people from routine tasks into more demanding, higher skilled roles. One interesting feature is that Mahle has a long service recognition scheme, people with 40 and 50 years of service have been recognised, demonstrating the longevity of employment and the loyalty of employees once recruited.

Day One ended with a dinner where delegates met managers, union reps and work council reps from the companies involved in the tour. It was an opportunity to further understand the way in which a consensus exists over the importance of apprenticeships and the long-term nature of employment in the Mittelstand. It was explained that in Germany a strong consensus exists that school leavers will either go to University or into an apprenticeship. Currently, 35% go to University and around 55-60% enter into an apprenticeship. This means 5-10% fall through the cracks, but many companies offer places to young people who have not achieved basic levels of qualifications.

Whilst the value of apprenticeships is recognised, it is almost always the case that to progress into senior management an employee needs a University degree. However, it is a clearly accepted route for apprentices to later go on to complete a degree through the dual system.

## Site Visits - Day Two

### Heller

Heller was founded in 1894, originally to produce bench vices. It has since grown to be a global brand employing 2450 people worldwide, engaged in the manufacture, installation and servicing of complex and highly flexible machine tool systems. The company is still family owned, with the current Chairman, Berndt Heller, being a direct descendant of the founder.

The company has an annual turnover of €533 million and has production centres in Germany, the UK, USA, Brazil and China. As well as being family owned, the company has a tradition of employing families and there are numerous examples of two or three generations of the same family working for the company. This is encouraged and current employees often put their sons or daughters forward for apprentice positions.



Of the 2450 employees, 150 are trainees and the company states it has an apprentice rate of 8.6%. The company has an apprentice training school on site and uses this to train 30 people each year. Of these, six are actually not Heller employees but are apprentices from other companies in the area. They offer training in a variety of trades covering mechanical fitter, electrical fitter, mechatronics and so on. It is a three and a half year apprenticeship and they have a 100% completion rate.

The company also offer places in the Dual System in conjunction with the DHBW University of Stuttgart. The company has a strong social commitment and the apprentices run charity fund raising events every year under the Heller Apprentice Initiative. In Brazil, the company offers education to street children.

The company produces 4 and 5 axis milling and turning machines. They also produce customised production systems and specialist equipment for producing crankshafts and camshafts. 60% of their supply goes into the automotive industry, but they also supply systems into aerospace, energy and the production of industrial equipment.

The German plant is vertically integrated with manufacturing of components right through to final assembly of the whole product range. The assembly line uses a flow line system. The UK plant assembles machines using components and sub-assemblies manufactured at the German plant. In 2013 orders were slow in the first half of the year in the UK, so workers from the UK plant were sent to Germany to keep them employed. A similar approach is being taken in Brazil and 15 workers are being sent to the US plant. In addition, work from the German plant is being sent to the Brazil site. Since 2012 the company have actively tried to balance workload across their 5 sites so that they do not have a situation where one plant is slack while another is working overtime.

## **Balluff**

In the afternoon, we visited Balluff, another family owned business which was founded in 1921 as a mechanical repair business. The company grew to around 150 employees in the 1920s. In the 1950s Balluff were approached by Heller and asked to produce a mechanical limit switch for their machine tools which were beginning the process of automation. This marked a move into sensor technology, the area the company now specialises in. Balluff now employs 900 people at their German plant, part of a global workforce of 2842 people. Of the 900 German employees, 90 are trainees, an apprentice rate of 10%.

The company has a clear focus on sensor systems and automation in tough environments such as industrial production lines or in offshore wind turbines. The company has a strong drive towards innovation, but ironically the markets they supply are quite conservative. This means products have to be backwards compatible so that new sensors can directly replace older sensors. The company still manufactures the original mechanical limit switch ordered by Heller in the 1950s.

Balluff are leading advocates of Industry 4.0 (i4.0), a production system that aims to create faster and more flexible production systems through harnessing a combination of sensor technology, IT networks and controls. This can lead to greater degrees of automation and self-managing systems. Balluff produce RFID sensors, imaging technology and track & trace sensors that are key parts of i4.0.

The company produces over 50,000 items and therefore logistics is a big issue for them. They have invested in a robotic warehousing system and have a conveyor system that takes hand assembled sensors into the warehouse directly. The production of sensors is divided into production for stock, which is around 80% of output and has a higher degree of automation, and production to order, around 20%, which relies on highly skilled workers hand soldering and assembling complex sensors.

Balluff told us that they see people as central to their vision and values. They offer 6 categories of occupation on their apprentice schemes and also offer a dual programme with DHBW Stuttgart for BA, BSC or BEng type degrees. The company sends its trainees to one of its global locations for 3 month placements during their training.

The current Global Sales Director is the great-grandson of the founder. He told us that Balluff is characterised by global thinking of a modern, family run company. Their financial independence led to long-term business plans; they strived to keep the balance between a healthy company and rewarding the owners; they want the company to be attractive to new talent. The company is run as a GmbH and has an advisory board. This puts the interests of the company first, not the whim of individual family members. The company shares success through a bonus system, which last year paid €300 into every employee's retirement fund. In 2008/9 Balluff used the state short time working support to keep people employed during the downturn so no-one was made redundant and production quickly ramped up when the economy recovered.

## **General Impressions**

Whilst all the companies we visited said that they used lean manufacturing techniques and continuous improvement, there was little that we saw that is different to the way UK manufacturing operates. In some cases, the application of lean techniques is more advanced in UK plants. At Mahle, there was a clear strategy to automate as many processes as possible, but this was not at the expense of employment.

At each of the site visits it seemed clear that there was a preference, wherever possible, to control production in-house and an aversion to outsourcing or off-shoring work. Where jobs were routine or low-skilled they were more likely to be replaced by automation than outsourced. This vertical integration gave companies much more direct control over production.

Across all the sites, the importance of the co-determination system and relationship with the trade unions was evident. This is built into the fabric of the companies, with seats on the supervisory board for the union, utilising a relationship based on the sharing of information and joint understanding and commitment to the future of the company. The system brings different challenges to trade union reps, as they are jointly responsible for management decisions and often have access to highly sensitive information. However, the trade union reps and managers we met told us that the system helped companies take a long term perspective.

It was made clear to us that salary levels and employment costs are higher than in the UK. It was also made clear that capital investment and apprentice training costs are important factors and are borne by the employers. In addition, there are higher social costs in the form of short-time working insurance, for example. This meant that the costs of employment ranged from €40,000 a year for semi-skilled people through to over €100,000 a year for skilled engineers.

There were some cultural differences that became apparent to us on the study tour. Firstly, there is a different approach to health & safety and we saw numerous examples of unguarded machinery and poor use of personal protective equipment including safety glasses, ear defenders and safety shoes, all of which would be mandatory in the UK. This was common across all four factories and caused some surprise to our delegation. Secondly, absentee rates seem much higher in Germany and figures of 10% were mentioned as being the norm. Absentee rates are much lower in the UK, and the delegates reported that in their workplaces absentee rates were at around 3-4%. Balanced against this, there was strong evidence of a more paternalistic approach to employees with excellent working conditions and good canteen facilities shared by management and workers alike. Working hours are based on a 35 hour week, often utilised in a three shift system with working hour “corridors” to smooth out peaks and troughs of workload.

Overall, it was clear to us that the costs of operating in Germany are a lot higher than the UK, and yet these companies seem to succeed and grow in a global market.

This presented a conundrum – how could German Mittelstand companies win against low-cost economies? We found a number of answers to this question that have implications for the way we do business in the UK.

Firstly, innovation is a critical component for success. All the companies we visited committed significant time, money and effort to research and development. Staying ahead in a technology race was seen as crucial to success and all employees were encouraged to play a role in this, generating ideas for new products, applications or processes.

Secondly, the importance of people could not be over-stated. At every company we visited we were told that people were at the centre of the way the company operated. This was clear to see from the way in which each of the companies had handled downturns and difficult market conditions. In every case, the companies found ways to retain staff rather than resort to redundancies. It was also clear from the fact that several generations of families worked for the companies and parents actively put their children forward for apprenticeships. Each of the companies, whether family owned or run by foundations, put great store in their community and charitable work, seeing this as a fundamental part of the way they do business.



The third area of distinction was highlighted by the approach to training and development. Even at the smaller companies apprentices were a key component of the workforce, with up to 10% of the total workforce being in training. The companies all had on-site training schools and some also trained apprentices from other surrounding companies in a collaborative effort. All of the companies participated in the Dual System for graduate training and worked with the DHBW Stuttgart, offering placements for students and payment while they learnt. There is a consensus in German society about the importance of training and while University education is seen as superior, 55-60% of school leavers are expected to take up an apprenticeship.

Fourthly, the regional and state governments support industry in difficult periods. Employers pay into a form of insurance for short-time working. In the metals sector this pays up to 80% of the wages of employees. It was very clear that all the companies we visited had suffered in the financial crisis of 2008-9, but using the short-time working insurance meant that skilled people were retained and this meant the companies were very quickly able to ramp up production when the recovery came.

Finally, the approach to company ownership and use of resources demonstrated a fascinating difference. Two of the companies were family owned, but control of the company did not lie with the family, but with a supervisory board. The interests of the company were put above the interests of the family at these companies. The other two had previously been family owned, but the family had given the company to a Foundation which owned the vast majority of the shares. Meanwhile, a "Club" oversaw the operations of the supervisory board, to offer advice and the benefit of experience. In all cases, we saw clear evidence of long-term decision making and planning being the way business was done. There is a cautious approach which means taking calculated risks to make money. The philosophy of staying away from banks means that companies are in charge of their own destinies and minimise financial risk by earning before they spend.

## Campaigning Goals For Unite Manufacturing Sectors

Learning the lessons from this short study tour, there are some goals that Unite should campaign for in Manufacturing in the UK:

1. We should refuse to accept that high costs automatically lead to offshoring or outsourcing. Germany's Mittelstand demonstrates that embracing improved efficiency and automation, coupled with innovation and investment does not undermine employment. Our members can be upskilled and retained.
2. We should look to campaign for 'short-time working insurance schemes' to be set up in the UK so that the country can retain a skilled workforce during downturns.
3. The UK needs to increase the number of high quality apprenticeships, and employers need to collaborate to offer places at training schools. We need to capitalise on the emerging consensus.
4. Our University system needs to embrace the concept of the Dual System, reintroducing sandwich courses and work placements. Meanwhile, employers should be encouraged to take on graduates on a "pay as you learn" basis.
5. We should campaign for a change in corporate culture and company law to encourage the use of foundations as a means of building long-termism into the fabric of the UK economy.
6. We should fully utilise the UK Information & Consultation Regulations and the re-cast European Works Council Directive to set up information and consultation structures in the UK with rights that mirror those in Germany.

**Others attending the study tour included: Will Stirling and Jon Tudor: Study Visit Organisers; Andrew Buckley: EEF; John Cadman and Bernard Waldron: MBDA; Will Carleysmith and Nigel Saffrey: Brompton Bicycle; Sul Sahota: Brigam; Stewart Gedrin: Oleo/Savery.**

A copy of this report is being made available to Unite reps in manufacturing, employers, MPs, MEPs, Sector Skills Councils and is open for comment discussion and debate. Comments can be sent to [ian.waddell@unitetheunion.org](mailto:ian.waddell@unitetheunion.org)