Executive Summary

Skill Needs Assessment for the Metals, Mechanical Equipment and Electrical Equipment Sectors

UK

SSA Stage 1 Executive Summary

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Preface

Sector Skills Agreements (SSAs) are designed to deliver action to meet priority skill needs that will drive improved business performance. They provide a means whereby employers and employees in each sector can identify skills and productivity needs, the action they will take to meet those needs, and how they will collaborate with providers of education and training so that skills demand can directly shape the nature of supply. The focus of the agreements will be on national sector issues, although we expect delivery to involve a regional and local dimension.

Operationally, an Agreement will put in place a framework which allows employers to sign up to a key set of sector skill priorities with the main funding and delivery agencies. This framework will allow all parties to agree what actions will be taken collectively to meet the identified priorities by:

- Employers leading the identification and implementation of priority actions.
- Putting in place a mechanism for identifying shared objectives and contributions between employers and agencies.
- Establishing a clear set of accountable actions.

The SSA project is being led by the Sector Skills Development Agency (SSDA) in partnership with the Sector Skills Councils (SSCs), the Department for Innovation, Universities and Skills (DIUS), the Department for Children Schools and Families (DCSF) and the Department for Business Enterprise and Regulatory Reform (BERR), key delivery partners including the Learning and Skills Council (LSC), the Qualifications and Curriculum Authority (QCA), Regional Development Agencies (RDAs), higher education institutions as well as other key partners including the Trades Union Congress (TUC), the Confederation of British Industry (CBI) and trade associations.

This document covers Stage 1. It is designed to provide an assessment of current and future skill needs through analysing sector trends; drivers of productivity and the consequent workforce as an agreed starting point for the development of a costed action plan involving employers, training providers, educationalists and other stakeholders, to ensure that the flow of skills needed to allow the sector to compete globally is available.

The Stage 2 report will assess the effectiveness of education and training provision to meet these needs.

An analysis of the nature of, and solutions to, the gaps will be presented in Stage 3, to enable a wide-ranging discussion to take place, leading to a concerted, and UK wide action plan encompassing the good practice that already exists and the policy issues that must be addressed.

Executive Summary

Sector profile

Based on the Annual Business Inquiry 2005 there are an estimated 800,000 employees and 55,000 establishments in the UK Metals, Mechanical and Electrical (MME) sectors[1]. The MME sectors represent 3% of total UK employment and 2% of total UK establishments. The UK MME sector represents 61% of total UK engineering employment and 76% of total engineering establishments.

The metal products sector accounts for half of all MME establishments and nearly half of total employment. Mechanical equipment makes up a third of total MME employment.

The majority of UK MME establishments are very small, with 94% employing fewer than 50 people. These small firms are vital to the MME sector nationally as they account for 45% of all MME jobs. Only 1% of establishments are large (250+ employees), yet they make up a quarter of total MME employment.

The West Midlands has the greatest concentration of UK MME employment (18%). The West Midlands also has the greatest concentration of employment across all MME sub-sectors except electrical equipment where employment is concentrated in the South East (17%) and North West (11%). Wales has a greater proportion of basic metals employment when compared to employment in other MME sub-sectors in Wales.

The West Midlands has the greatest concentration of MME establishments (16%), followed by the South East (13%). The English regions account for 88% of total UK MME establishments. Northern Ireland (3%) and the North East (3%) have the smallest proportion of total UK MME establishments.

Workforce demographics

About 93% of employment within the UK MME sector work on a full time basis, compared with about 70% in the UK economy as a whole.

The UK MME workforce is heavily dominated by males. While 81% of the UK MME workforce is male, the respective proportion for the UK economy as a whole is about 56%.

The age profile of the MME workforce is an ageing one when compared to all sectors in the UK economy. 46% of the UK MME workforce is aged 45-64 compared with 39% in all sectors in the UK.

The three occupational groups of skilled trades (craft), managers and process, plant and machine operatives account for about 66% of employment in the sector.

[1] The Annual Business Inquiry figures on employment excludes those self employed and casual labour, so is likely to under-estimate the total number of people working in the sector.

Employment trends

The UK MME sector has experienced a period of major restructuring over the last two decades. Over the period 1984-2004 there has been a net loss of jobs about -577,000 (or -37%) across the UK MME sectors. However, this compares with an average net employment gain of 17% across all UK sectors.

Bespoke economic projections commissioned by Semta point to a forecast net decline in employment in all three MME sectors over the period 2005-2014. Measured in terms of annual rates of growth these vary from -1.0% in the case of mechanical equipment to -0.6% in relation to metals and -0.7% for electrical equipment.

The projections indicate that although a net decline in employment is likely in all MME sectors over the period 2005-2014, significant numbers of staff will be needed in all MME sectors in order to replace those who leave their jobs because of retirement or other reasons. The projections point to the need for about 296,000 employees within the UK MME sector as a whole over this period to replace employees leaving, implying a net requirement for labour over the period 2005-2014 of about 235,000.

In relation to each individual MME sector the projections point to a net requirement for labour of about 132,000 within the metals sector, 67,000 within mechanical equipment and over 36,000 within electrical equipment over the same period.

The most significant positive net requirements for labour are expected to be in relation to managerial occupations (an estimated 45,800 people) and skilled trades (an estimated 45,300 people). Even in the case of both skilled trades and process plant and machine operatives, although a net decline in overall numbers is expected, the scale of expected replacement demand exceeds this, implying a positive net requirement.

Direct feedback from employers via the Semta Labour Market Survey (LMS 2007) point to significant optimism in future employment prospects over the next 2-3 years. The analysis indicates that in relation to expected employment change over this period, a positive net balance of employment change is evident in relation to all occupational groups in the UK MME sector.

Competitiveness and productivity

The UK MME sector is very important to the economy with a turnover of over £117 billion, about 4.5% of total UK turnover.

Analysis of Gross Value Added (GVA) provides one measure of productivity. It is also an important indicator of economic prosperity. It measures the contribution to the economy of each individual producer, industry or sector. GVA per employee measures this as an average contribution per employee.[2]

[2] GVA is the difference between gross output and intermediate inputs. Gross outputs of a production unit or service during a given period is equal to the gross value of the goods and services produced during the period recorded at the moment they are produced, regardless of whether or not there is a change of ownership. Intermediate outputs refer to the value of goods and services used in the production process/service provided during the accounting period.

The MME sector accounts for nearly 5% of total UK GVA. The average GVA per employee for the UK MME sector was just over £45,300 in 2006, significantly higher than the figure for all UK sectors of just over £33,300.

The key strategies employed by the industries to maintain competitiveness include: promoting innovation and improving business planning and processes. Benchmarking of productivity for the UK MME sector against key international competitors shows that the gap is closing slowly but significant skills upgrading needs to occur to reach best in class.

In 2005, R&D expenditure for the UK MME sector was £1.26 billion, equivalent to 12% of total manufacturing R&D expenditure. However, R&D expenditure by the UK MME sector was only 6% higher in 2005 than in 1997. This compares unfavourably with the all sectors average of a 40% increase in R&D spend over the same time period. Some MME sub-sectors do not compare well with other engineering sectors and the manufacturing sectors as a whole, in terms of expenditure on R&D as a percentage of sales (R&D intensity).

Skills issues

Key drivers of skills

MME employers highlighted the key drivers of skills change in their sector. In order of importance, these included:

- The introduction of new technologies or equipment.
- Development of new products and services.
- New legislative or regulatory requirements.
- Introduction of new working practices.

A slightly lower proportion of MME establishments are expecting skills to change in the next 2-3 years compared to the past 2-3 years (54% of establishments compared to 59% of establishments). Establishments in the electrical equipment sector report that they are most likely to see a skills change in the next 2-3 years due to all of the drivers listed and wholesale metals and scrap the least change.

31% of MME establishments had seen no real skills change over the last 2-3 years and did not expect any skills change over the next 2-3 years. This perceived lack of skills change ranged from 37% of micro MME establishments to only 15% of large MME establishments.

Current skills and qualifications

A relatively high proportion of those working in the UK MME sector have no qualifications. An estimated 12% of the UK MME workforce has no qualifications (121,600), which compares with an average of 10% across all UK sectors. This figure increases to 14% within the metals sector.

A lower proportion of those working in the UK MME sector (22%) have attained S/NVQ Level 4 and above compared to the average for all UK sectors (32%). This figure decreases to 17% within the metals sector. By contrast, the proportion of those working in the electrical equipment sector that have attained S/NVQ Level 4 or

above is 29%. However, this is still below the average for all UK sectors and underlines the need for continued upskilling within the UK MME sector.

Recruitment

Half of all UK MME establishments recruited in the previous 12 months. It is estimated that just over 62,000 people were recruited in the last 12 months, representing 7.5% of total employment.

Of those MME establishments that recruited, 10% recruited a recent graduate, 40% recruited a worker aged over 45 years old and just over half recruited a young person (aged 16-24 years old). Nearly half of large MME establishments recruited graduates.

17% of all UK MME establishments reported hard to fill vacancies and it is estimated that these establishments had over 13,000 hard to fill vacancies in total. When taking into account the lost GVA per employee related to these 13,000 hard to fill vacancies, it is estimated that the total GVA loss to the UK economy would be in the region of £570 million.

Hard to fill vacancies vary by MME sector and sub-sector. While 20% of mechanical equipment establishments reported hard to fill vacancies, the figure for electrical equipment was 14% and only 6% for wholesale metals and scrap establishments.

Amongst those UK MME establishments reporting hard to fill vacancies, the most frequently cited occupational groups were skilled trades (46% of such establishments), process plant and machine operatives (26%), professionals (11%), technicians (9%) and managerial staff (8%).

Hard to fill vacancies were mainly due to a lack of applicants with required qualifications and skills, a lack of applicants with required work experience and a general lack of applicants.

Specific skills lacking in applicants included experience (21% of those establishments with hard to fill vacancies), job specific skills (7%), specific qualifications (7%), welding (4%), basic skills (3%) and CNC machine operation (3%).

Employers with a general lack of applicants felt that this mainly due to not many applicants, poor image of sector and that there were only a few people left in trade/ small pool of skilled worker.

Nearly half of those employers with recruitment difficulties had to increase their recruitment efforts. Other remedies included retraining existing staff, subcontracting work and starting to look at foreign applicants/overseas.

Although nearly a third of MME establishments felt that recruitment difficulties would have no or little effect on their business, other establishments were suffering from a loss of business orders, increased work in progress, restrictions to business development and missed deadlines. All of these factors will have a negative impact on productivity and ultimately profitability of MME establishments.

Skills gaps

20% of UK MME establishments reported a gap between the skills of their current workforce and the skills required to deliver their business objectives in 2007.

The incidence of reported skill gaps ranges from 23% of mechanical equipment establishments to 18% of electrical equipment establishments. Within the metals sector much wider differences are evident, ranging from 23% of metal products establishments reporting skill gaps to 13% of wholesale metal and scrap establishments.

Skills gaps occurred across all size of MME establishment, ranging from a fifth of micro establishments to nearly half of large establishments.

The main skills cited as lacking in employees were technical and engineering skills at all levels (70% of those UK MME establishments reporting skill gaps).

The most frequently cited technical and engineering skill cited as deficient was CNC machine operation (13% of UK MME establishments reporting skill gaps). Other technical skill gaps reported by at least 2% of such establishments were:

- Tool Setting
- Welding skills
- General engineering skills
- Fabrication
- Metal workers
- General machining
- Computer Aided Design (CAD)
- Assembly line/ production robotics
- Materials Requirement Planning (MRP11)
- Computer Aided Manufacture (CAM)
- Computer Aided Engineering (CAE)

The main generic skills that were lacking were key or core personal skills (10% of those UK MME establishments reporting skill gaps), management skills (5%), IT/computer skills (5%) and marketing or selling skills (3%).

MME establishments were asked to identify those occupations with skill gaps that would have the most significant effect on their business and these included craftspersons (24% of such establishments), professionals (20%) and technicians (19%).

Table ES.1 provides a summary of key skills and workforce employment indicators.

Table ES.1: Summary of skills and workforce employment indicators for the UK

	% workforce that are female	% workforce aged 45+	% workforce that are Non-White	Gross Value Added per employee	% change in employment 1984-2004	Projected annual average % growth rate in employment 2005-2014	Projected net requirement 2005-2014	Projected annual net requirement 2005-2014	% workforce with highest qualification S/NVQ Level 4 or above	% workforce with no qualifications	% establishments reporting hard to fill vacancies over the last 12 months	% establishments reporting skill gaps over the last 12 months
Metals	18%	49%	4%	£44,510	-38%	-0.6%	131,600	14,600	17%	14%	16%	20%
Mechanical Equipment	19%	45%	5%	£47,300	-39%	-1.0%	67,000	7,400	24%	12%	20%	23%
Electrical Equipment	26%	43%	5%	£44,160	-33%	-0.7%	36,700	4,100	29%	9%	14%	18%
MME	19%	46%	5%		-37%	-0.7%	235,300	26,100	22%	12%	17%	20%
All sectors	44%	39%	8%	£33,340	+17%	+0.7%			32%	10%		

Sources: Annual Population Survey 2006, ABI 2006, Semta LMS Survey 2007, Semta/IER employment projections 2007

Conclusions

Key themes

This evidence of the demand-side issues has been shown to employers at a number of consultation events and they have identified a number of priorities to address these issues:

Key Theme 1: Leadership & Management

Rationale: If managers are not interested in upskilling then the rest of the organisation will not do it. Specific leadership and management training is considered to be a foundation stone of good management practice required for any company to build a more robust and competitive business. Effective leadership and management are also essential to stimulate R&D and innovation.

Large MME establishments are most likely to cite skills gaps for professionals and managers as having the biggest impact on their business.

Various skills indicators suggest that managers have a positive impact on productivity levels and that investment in management and leadership and improvements in management structures, resource planning and staff training and development can have a positive impact on 'bottom line' business performance. Some MME employers (particularly SMEs) do not currently have a business plan, training plan or assess their employee skills gaps.

Key Theme 2: Process Improvement (Productivity and Competitiveness)

Rationale: Just over half of UK MME companies appear to be using Process improvement techniques. This has to change over the next five years. It is essential that all MME companies are utilising accredited process improvement tools and techniques to compete in a Global Economy to survive, grow and sustain their position. Implementation of Lean manufacturing processes will enable companies to create quality products, high productivity and excellent customer service. This will directly improve bottom line performance.

The introduction of lean manufacturing techniques and skills, and increased use of automation technology has given some manufacturers substantial productivity gains enabling them to compete with overseas manufacturers. Other than with large MME establishments, the concept of lean is not as well advanced in the MME sector compared to other engineering sectors such as automotive and aerospace. A greater understanding and uptake of process improvement must occur within SMEs in the MME sector to drive productivity improvements for the overall sector.

Key Theme 3: Technical Skills

Rationale: 70% of skills gaps reported by MME companies are in core technical, engineering, craft and production skills.

Hard to fill vacancies are concentrated in technical roles, particularly craft, operator, professional and technician occupations. The main reasons cited for these difficulties were lack of skills and qualifications and specifically a lack of NVQ-qualified applicants and applicants with GCSEs, A-levels and HNDs.

MME employers felt that skills gaps for those currently working in these occupations will have the most significant effect on their business.

Key Theme 4: Apprenticeships

Rationale: In light of technical skills gaps in the current workforce, difficulties in recruiting technical occupations and the large numbers required to fill replacement demand requirements it is vital that employers within the MME sector, particularly those in SMEs, look at introducing or increasing the number of apprentices they have.

This will ensure that the MME sector has a steady stream of appropriately qualified and experienced workers, with the actual technical skills required by sector. The theme of apprenticeships is covered in greater detail in the SSA Stage 2 document.