To: Business, Economy and Enterprise Scrutiny Board (3)   11th September 2013

Subject: Advanced Manufacturing and Engineering Skills Analysis for Coventry, Warwickshire, Hinckley and Bosworth

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1   Purpose of the Note

1.1   Coventry and Warwickshire Local Enterprise Partnership (LEP) commissioned Ecorys to undertake primary and secondary research on the current and future skills requirements of Advanced Manufacturing and Engineering (AME) employers in the three spatial areas of Coventry, Warwickshire, and Hinckley and Bosworth. The study had a dual purpose. Firstly, findings were intended to inform a City Deal bid submission, led by the LEP and under preparation at the time of the research in early 2013. Secondly, the study aimed to serve a longer-term function by informing the development of a skills strategy for the LEP.

2   Recommendations

2.1   The Business, Economy and Enterprise Scrutiny Board (3) are recommended to:
1) Note the content of the report
2) Identify any further areas for the Cabinet Member (Business, Employment and Employment) to consider in her role as a representative on the LEP.

3   Key findings

3.1   The following sections summarise the key findings from the stakeholder interviews, survey of employers and in-depth employer consultation

3.2   <u>Stakeholder interviews</u>

3.2.1   There was widespread concern that difficulties in ensuring an adequate supply of employees with appropriate skills were negatively affecting the competitiveness and potential success of engineering companies in the locality. This was seen as an issue linked to the perceived lack of promotion of science, technology, engineering and mathematics (STEM) subjects in schools allied to a broader lack of promotion of engineering and associated professions to school aged children. There was also criticism of the quality and relevance of careers advice provided to school and college leavers. As a result of these factors, stakeholders commonly raised a number of suggestions to improve this situation. These included:

- Encouraging earlier and greater engagement with science and technology amongst pupils
- Encouraging local employers to engage with schools to provide presentations, practical activities and workshops for pupils.
- Offering work experience placements in local engineering companies for teachers.

3.2.2   Concerns were also raised in relation to post-school education and training. While there was support for the Apprenticeship Programme, the nature of the sector and its needs led some stakeholders to argue for the adoption of a different and/or additional delivery model that would facilitate the sharing of apprentices. More consistent issues and concerns were raised over a perceived lack of practical experience and associated skills amongst newly qualified graduate engineers - in particular, relating to the application of theoretical

knowledge to 'real life' problems. The importance of graduate engineers leaving their degree course with a strong understanding and knowledge of basic engineering principles and their applicability to a work environment was thus noted. This was seen by some as implying a need to re-consider course design to ensure a focus on these principles and their real world applicability, along with making sure that degrees have a strong (and possibly compulsory) work-placement component.

3.2.3 Given the issue of the sector having an ageing workforce, a number of stakeholders also raised the importance of considering succession planning as part of ensuring continued competitiveness and success. In part this reflected a concern amongst some that the importation of technical engineering skills from abroad could only provide a short-term and immediate solution to skills supply issues. As such, ensuring both the supply of new domestic entrants to engineering companies and providing training and development for the existing workforce were seen as important. The potential of mentoring programmes and of using experienced engineers in a teaching capacity were commonly raised in this context. In addition, it was felt that experienced individuals could be encouraged to engage with local education and training providers, facilitating awareness of the engineering profession and offering talks, presentations and sharing practical experience.

3.3 Employer survey

3.3.1 Almost two thirds of the 113 companies surveyed employ fewer than 10 staff, with a further 31% employing between 11 and 49 staff. Only 10.6% employed more than 50 staff. Despite this preponderance of micro- and small-firms, a high proportion of respondents reported a turnover in excess of £10million. Company occupational profiles were dominated by three classifications: Managers and Senior Officials (26.2%), Skilled Trades (21.2%) and Process, Plant and Machine Operatives (19.4%).

3.3.2 In terms of skills needs, almost one third (30.1%) of companies stated they were suffering from skills gaps and/or shortages. Respondents (particularly from firms employing less than 10 staff) were also quick to point out the lack of new entrants with multi-disciplinary skills; graduates were reported to focus on one discipline within engineering and to have limited knowledge of related activity. In line with this a lack of traditional engineering and trade skills among new recruits in the industry was commonly identified. Accepting this general picture around issues with skills supply, the relative importance placed on skills gaps and shortages appears to differ significantly between large corporates and smaller firms. For the former, recruiting highly trained and qualified engineers appeared to be an issue leading some to recruit from abroad. For smaller companies, skills issues more often related to leadership and management along with skilled machinists and operatives.

3.3.3 Overall, the main skills gaps identified were around leadership and management, particularly in relation to export markets; promotional activity; IT usage; product design and development; software programming and operating systems programmers. More technical skills gaps were identified within electrical, structural, mechanical and manufacturing disciplines with particular requirements in metrology and robotics. Amongst companies further down supply chains, requirements for Computer Aided Design (CAD) technicians and multi-skilled machinists were identified, with the latter being a significant issue for many. Echoing the views of stakeholders noted above, importance was placed on recruiting new graduates or industry entrants with a strong foundation in engineering and technical competence.

3.3.4 The survey also found that companies were taking action to address skills gaps and development needs within their workforce. Of the 113 firms surveyed, 85.8% had undertaken training activity in the last 12 months. Of these, the majority (78.4%) delivered

at least some training through internal staff. Accepting this it was clear that, compared to other sectors, a higher proportion of engineering companies utilise external training provision, reflecting the requirements of the industry. In terms of the nature of training, just under two thirds (60%) of firms had delivered or facilitated formal training, while for 37% the training involved was more informal or 'on the job'. Satisfaction levels with training were typically high across the firms surveyed. Respondents were also questioned on barriers to training. The most commonly cited were lack of local courses, lack of customised and responsive training and the cost of courses.

3.3.5 When asked about the future skills requirements for their company and for the wider local economy as a whole, the most common responses centred on five main areas:
- Technical and sector specific skills, including engineers, hardware and software designers, metrologists and robotics
- ICT, particularly within management and supervisory roles
- Management and Leadership with an emphasis on business acumen, market awareness, marketing and promotional activity and financial management
- Machine operatives (a particular issue for smaller firms)
- Practical industry experience

3.4 In-depth employer interviews
3.4.1 Informed by the findings of the earlier key stakeholder interviews and employer survey, the in-depth consultations with employer representatives were used to investigate current and future willingness to engage with schools, views on apprenticeships, perspectives on degrees and graduates, and skills needs. Representatives were also asked to suggest issues that they felt the City Deal should focus on.

3.4.2 In terms of school engagement, there was a fairly even split between representatives whose companies engaged and those that did not. Those that did typically provided work experience placements, gave talks or presentations and/or attended careers evenings. Smaller firms were less likely to engage with schools due to limited resources and capacity. There was also a concern that insufficient value is placed on manufacturing and engineering by schools and/or that teachers and careers advisers had limited knowledge of the sector. Wider cultural factors around the (low) prestige and value given to engineering in the UK were also acknowledged. Suggested improvements included: earlier engagement of pupils in 'hands-on' engineering activities; getting employers involved in teaching; more site visits to observe industry in practice; and greater value being ascribed to vocational qualifications and apprenticeships.

3.4.3 Despite this latter suggestion, experiences amongst companies taking on apprentices were mixed. This was largely due to some apprentices leaving prior to completing their full term and/or a perceived lack of commitment amongst those taken on. Employers who had taken on apprentices cited advantages such as an ability to train people 'on the job', addressing recruitment and skills needs, and providing cost effective 'instant labour'. Reasons for not taking on apprentices included the time required to train them, the expense involved, the specificity of the skill set required and a perceived lack of incentives to do so. The most common suggestion for increasing engagement with apprentices involved greater provision of financial incentives to firms and / or support with costs.

3.4.4 In terms of higher qualifications, perspectives were split between those who felt that degrees were not of the requisite quality, and those who were broadly content with the quality of degrees but who questioned their limitations in terms of providing practical skills. More broadly, there was widespread agreement that graduates lack the practical skills

required. Re-designing courses to include a more practical focus was seen as the key change required. Ensuring that qualifications required 'more time on the shop floor' was also seen as important, as was integrating a year in industry into more (or all) courses. The view that employers should be encouraged or incentivised to engage in the design and delivery of courses was widespread. However, willingness to provide work placements varied, with a slight majority unwilling to do so at the moment due to the resources required allied to the challenging economic times.

3.4.5 The primary weakness discussed in relation to firms' current workforce and that of the wider sector concerned gaps in the recruitment and retention of skilled manual / technical workers. Future skills needs tended to relate to the focus of the business concerned and included: machine operating skills (including automatic machinery skills), CAD, welding, software design, and the skills required to turn prototypes and designs into actual products. Where broader skills requirements were discussed, these tended to relate to problem solving, practical manufacturing ability and greater integration of computer and engineering skills. Mentoring and succession planning were widely seen as vital to the future growth of the sector. However, barriers identified to this included a wider lack of focus on, and valuing of, engineering as a career, relatively low pay, and the commitment and skills required for mentoring itself.

3.4.6 Other aspects raised for consideration in respect of the City Deal included: the development of a larger and more specialised technical college, a focus on promoting entrepreneurship, running schemes to engage young people in vocational courses, developing specific courses to prepare people to manage SME's in the sector, developing a sector based forum for local companies, launching a dedicated website advertising local jobs, and promoting the City Deal itself to a higher degree than at present.

4   Recommendations from the report

4.1   In light of the findings presented above, a number of key implications arising from the research for consideration by the LEP and other interested stakeholders can be summarised as follows:

1. A focus on ensuring the long term sustainability and competitiveness of the sector is required. This is likely to start from a concentration on enhancing the supply of future skills through improving the engagement of businesses in the sector with schools, colleges, training providers and universities.
2. Mechanisms to enhance employer input into the design of courses, training and qualifications at all levels should be examined. The focus of this is likely to vary but may include: support for forums bringing employers and training providers together to design and deliver provision; support for networks or umbrella bodies of SMEs to ensure that their specific needs are adequately articulated; and encouragement of companies to engage in the delivery of courses or provide related inputs.
3. Any influence to encourage the inclusion of more practical elements in degree courses should be used, in particular through longer term work placements or 'industry years'. Conversely, attempts should be made to influence employers to provide access to students to learn in a practical way about new technologies and the operation of more recently developed high-technology machinery.
4. Specifically in respect of schools, there is a need to utilise any possible leverage to ensure and enhance the quality and relevance of careers advice in respect of the sector. Amongst teaching staff, consideration should be given to the potential for industry visits or short term placements outside of term time (perhaps as part of Continuing Professional Development).
5. Given the issues highlighted around the ability to take on apprentices (particularly for SMEs), there is likely to be benefit in considering models which share placements

around with apprentices being formally attached to larger employers. This would enable smaller companies to engage in this area whilst reducing the costs and other burdens associated with doing so.

6. Evidence on the specific areas of skills gaps identified through the employer survey should be used to influence the provision offered by educational institutions and training providers, allied to a focus on encouraging flexibility and responsiveness in the delivery of provision.

7. Links should be explored with national programmes to access additional funding and inputs to address some of the issues raised by the research. Examples might include STEMNET in respect of engineering activities in schools and the leadership and management elements intended as a focus of the Department of Business Innovation and Skills activity under the Growth Review.

4.2   The full research report can be provided on request.

5   City Deal

5.1   The City Deal proposal, currently under development, looks to deliver support to the Advanced Manufacturing and Engineering sector through seven key strands. The Skills Strand builds on the findings of the Advanced Manufacturing and Engineering Skills Analysis report.

5.2   The Skills Strand proposal looks to address the research recommendations by developing the following activities:
   • Implementation of an AME 'skills programme' delivered by a team of seven
   • An AME apprenticeship scheme
   • A coordinated approach to STEM activity, AME sector profile raising and AME job opportunities in schools
   • To jointly develop, with Department of Work and Pensions and Job Centre Plus, an AME employment pathway for the (particularly young) unemployed.

5.3   To support the actions above, government will be requested for:
   • The flexing of existing SFA funding to pay individuals utilising the skills programme
   • The formal recognition and certification of the programme
   • The sharing of information on skills
   • A dedicated local fund to resource AME skill needs unmet by the defined programme
   • Match funding for the shared apprenticeship scheme

5.4   Therefore, the desired outcome from the Skills Strand will be:
   • Accessible advice on skills & support on recruitment
   • A new AME business driven skills programme
   • Simplified access to training providers
   • Support to develop undergraduate placements and real work experience
   • Access to apprentices

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