2020 Skills Vision

The Skills, Recruitment and Training Landscape

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A report prepared by:

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1. Introduction

1.1 About EAMA

The Engineering and Machinery Alliance (EAMA) is an alliance of independent trade associations which represent a broad range of companies involved in the manufacture and supply of machinery. Current EAMA members include:

- Agricultural Engineers Association (AEA)
- British Compressed Air Society (BCAS)
- British Fluid Power Association (BFPA)
- British Plastic Federation (BPF)
- British Turned Part Manufacturers Association (BTPMA)
- Gambica (Instrumentation, Control, Automation and Laboratory Technology)
- Gauge and Toolmakers Association (GTMA)
- Manufacturing Technologies Association (MTA)
- Printing Industry Confederation (Picon)
- Solids Handling and Processing Association (SHAPA); and

Membership of EAMA associations comprises predominantly SMEs and, in most cases, cuts across multiple sectors of engineering and manufacturing. Latest estimates put the membership reach of the associations at 2,000 companies with a turnover of circa £10 billion.

1.2 Aims and objectives

To deepen its understanding of the skills challenges and training activities currently taking place within member organisations, EAMA commissioned independent research consultants, Pye Tait Consulting, to undertake research to:

- gather evidence on what member organisations are doing to address skills and recruitment challenges;
- understand the recruitment and skills pinch-points faced by employers;
- examine what companies are currently doing regarding training, the extent to which it is meeting their needs, and the reasons for these;
- gather information on approaches to apprenticeships and trainees; and
- understand what support could usefully be provided by government, trade associations, and others.

The research provides EAMA with evidence on the skills challenges that organisations face and the areas where future assistance would be best focused. In addition, it provides an evidence-base for action for policy-makers and in support of future skills initiatives by government or industry.

To this end, a number of recommendations are provided at the end of this report.

Note: This research has been co-funded by Enginuity (formerly known as Semta) and The Gatsby Charitable Foundation (Gatsby). Enginuity is an employer-led skills body supporting the engineering and manufacturing sectors; Gatsby is a charitable foundation committed to strengthening the country's science and engineering skills. More information can be found on their respective webpages: www.enginuity.org and www.gatsby.org.uk

1.3 Methodology

As an initial step, desk research was conducted to gather background information on the size of the market and on the training landscape across the engineering and manufacturing sectors covered by the thirteen EAMA trade associations.

To build an evidence-base, views from employers were obtained via in-depth telephone interviews. To complement this, two online workshops with employers were also hosted. EAMA promoted the research to the EAMA member trade associations, asking them to circulate a message containing a link to a sign-up page for participants to express their interest. The research was also promoted via social media channels. To supplement this, Pye Tait Consulting also undertook a round of follow-up telephone calls with a random selection of employers from across the EAMA trade associations, booking in telephone appointments with appropriate staff members.

The job roles of those participating in this research include, but are not limited to:

- Business Owner;
- HR Manager;
- Managing Director;
- Organisational Development Manager; and
- Training Manager.

A total of fifty individuals – one each from fifty different employers – participated in the research. Depth interviews were conducted with forty-five participants in January and February 2020, and in addition five employers participated in online workshops in January 2020.

The topic guides for the depth interviews and the online workshops were co-developed between Pye Tait Consulting, EAMA, Gatsby, and Enginuity. Copies of these can be found in the report Annex.

Quotes used throughout the report are drawn from the depth interviews and have been used to provide a representation of the major themes arising from the research.

Note: The reader should bear in mind that the research involved 50 individuals, one each from 50 separate companies. Numbers of respondents, rather than percentages, have been given in this report and it should be noted that while the findings provide valuable indications of the weight of feeling and experience within the respondent group, they are based on only fifty respondents and should be treated as indicative.

1.4 Respondent profile

A range of employer views were gathered from across the spectrum of the thirteen EAMA trade associations. The highest proportion of responding employers are members of AEA, BCAS, and BFPA (each with six participants), while the smallest proportion of responses is from GTMA, Picon, and UKIVA (each with two participants).

Figure 1 Responding employers' membership across the EAMA trade associations
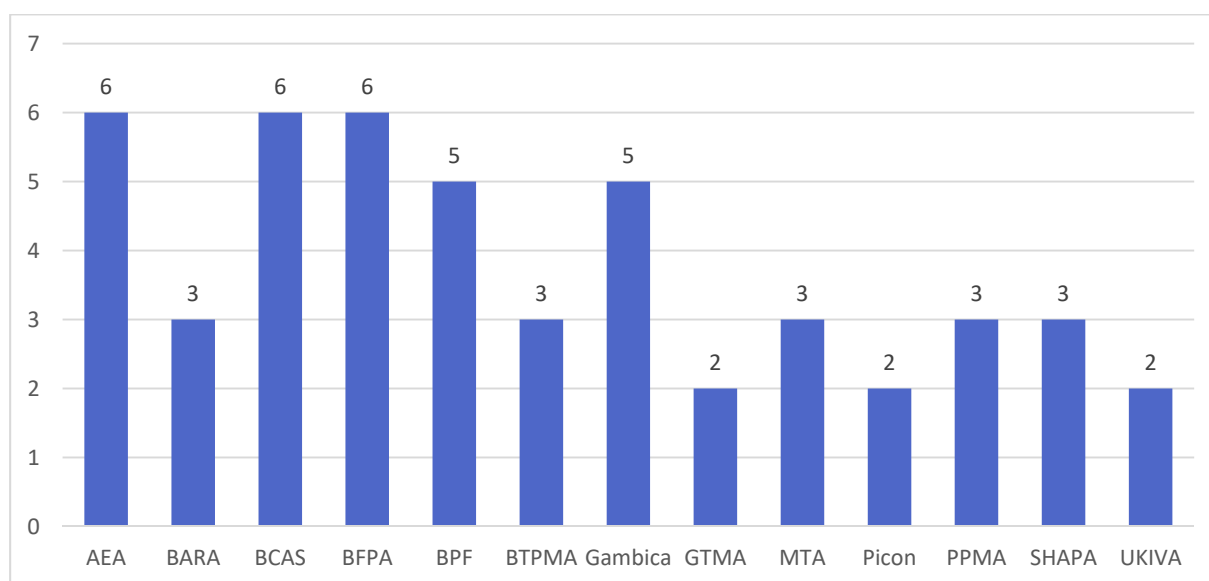
Base: 49 respondents. Source: Pye Tait Consulting research, 2020.

Firms participating in the research were asked in which nation(s) and which region(s) of the UK they are based/headquartered. The vast majority are based within England, with the South East and the East of England being the most common regions, with eleven and eight responding organisations, respectively. Of the employers operating in England, over half operate across the whole the nation.

Figure 2 Regions in which responding employers are based/headquartered
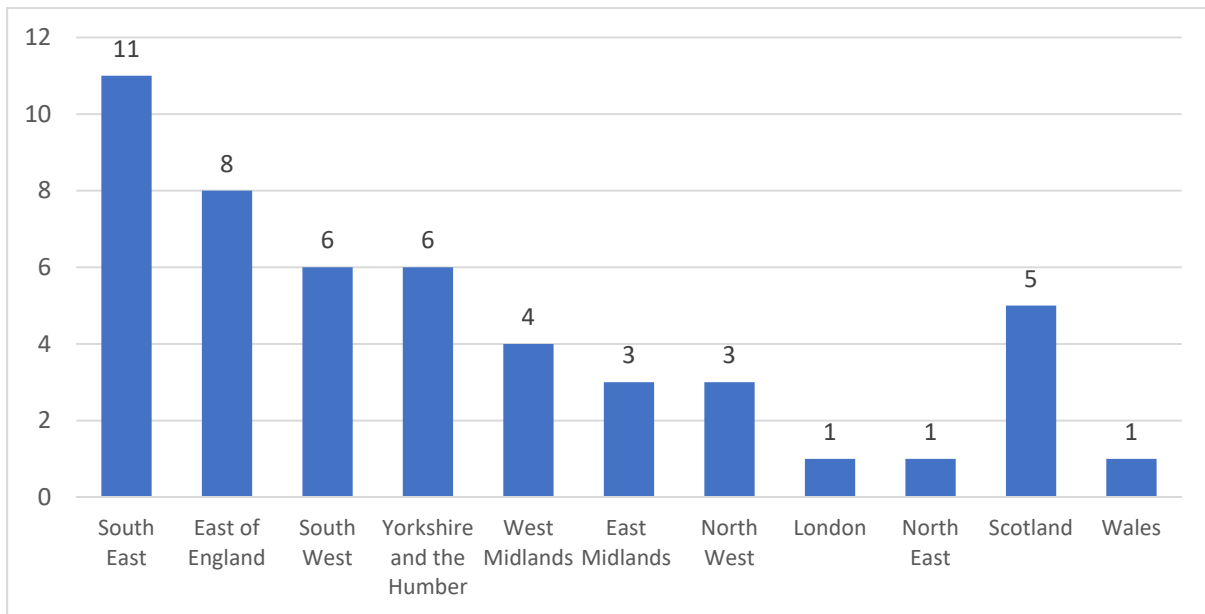
Base: 50 respondents. Source: Pye Tait Consulting research, 2020.

The majority of companies participating in the research are SMEs. A fifth are micro-sized firms (10) employing fewer than ten employees, while around half are small organisations (22) employing between ten and 49 staff. Large organisations, i.e. those with 250 or more staff, comprise a fifth of the sample (10 firms).

Figure 3 Size of organisations participating in the research
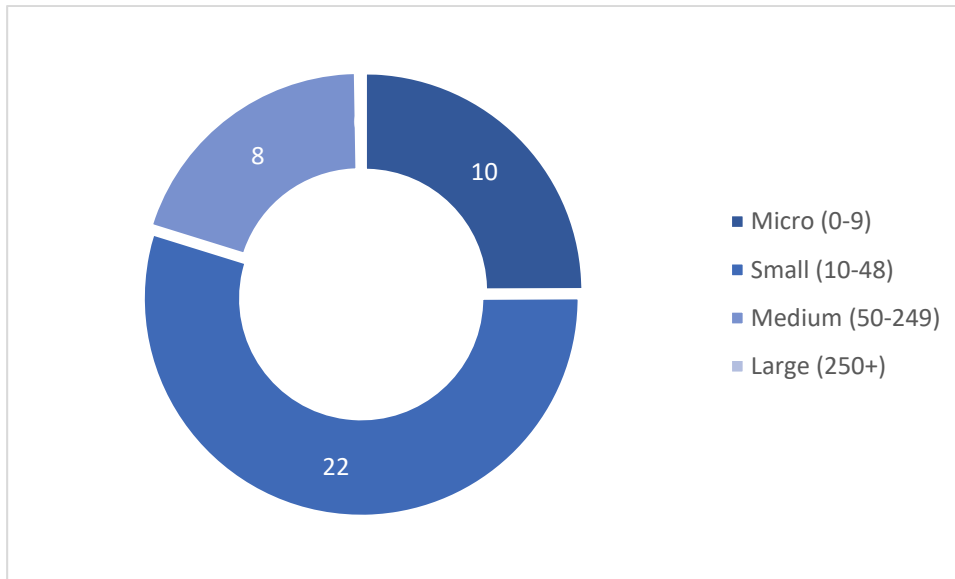
Base: 50 respondents. Source: Pye Tait Consulting research, 2020.

2. Background: Size of market and training landscape

2.1 The size of the market

Information about the size of the labour market and number of companies is usually organised by Standard Industrial Classification or SIC code. Almost all the companies which make up the 13 EAMA trade associations fall into SIC code C, Manufacturing. The associations which make up EAMA, however, are a broad selection of professional engineering and manufacturing bodies which cut across numerous divisions within SIC code C.

Many of EAMA's organisations specialise in the manufacture and supply of complex machinery and as such fall under the broad category "C28: Manufacture of machinery and equipment n.e.c[1]". Other member associations, such as the BPF, specialise in the manufacture and sale of specific materials, and so fall largely into distinct SIC code groups (C22.2: Manufacture of plastic products). Some associations, such as the MTA, however, represent such a broad range of manufacturers that they cover numerous groups within the C28 SIC code, while others, such as the BARA, represent the manufacturers of machineries that are so specialist that there exists no group, class or even sub-class that is granular enough to accommodate them. Manufacturers of the latter kinds of machinery tend to be placed together under the umbrella of "C28.99: Manufacture of other special-purpose machinery n.e.c.".

Table 1, overleaf, estimates the size of the broad machine manufacturing sector by aligning the 13 EAMA trade associations to relevant divisions of SIC code C. Bureau van Dijk's Fame database contains details of over five million companies in the UK. Searching this database by SIC code provides estimates on the number of companies falling under each. Data from the official Nomis business register and employment survey provide estimates on the number of employees within each SIC code.

It is important to remember that, while these member associations may fall into the SIC codes listed below, the figures included here provide a picture of the broader machine manufacturing sector, rather than a picture of the specific EAMA member groups. For instance, the 3,512 companies which manufacture "other special-purpose machinery n.e.c" comprise companies which manufacture printing machinery and robots, but also include companies which make aircraft launching gear, tanning beds and automatic bowling alley equipment.

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[1] "NEC": Not Elsewhere Classified

Table 1 Size estimates of the EAMA sectors

SIC code: "Manufacture of …"	Relevant EAMA member organisation(s)	No. of companies in each SIC code[2]	No. of employees in each SIC code[3]
C22.2: Plastic products	BPF	5,300	136,000
C25.73: Tools	GTMA	1,176	15,000
C26.5: Instruments/appliances for measuring, testing, navigation; watches and clocks	Gambica	3,080	56,000
C26.7: Optical instruments and photographic equipment	UKIVA	551	6,000
C28.12: Fluid power equipment	BCAS, BFPA	189	7,000
C28.13: Other pumps and compressors	BCAS, BFPA	633	11,000
C28.22: Lifting and handling equipment	SHAPA	1,210	18,000
C28.29: Other general-purpose machinery n.e.c.[4]	GTMA, PPMA, MTA	1,307	21,000
C28.3: Agricultural and forestry equipment	AEA	485	7,000
C28.4: Metal forming machinery and machine tools	BTPMA, GTMA	825	9,000
C28.95: Machinery for paper and paperboard production	Picon, MTA	159	1,000
C28.96: Plastics and rubber machinery	BPF, MTA	192	2,250
C28.99: Other special-purpose machinery n.e.c.[5]	BARA, Picon	3,512	8,000

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[2] Source: Fame database, Bureau van Dijk, accessed Dec 2019.
[3] Source: Nomis: Business register and employment survey, 2018.
[4] This includes the manufacture of packing and wrapping machinery.
[5] This includes the manufacture of industrial robots performing multiple tasks for special purposes, manufacture of printing and bookbinding machines and machines for activities supporting printing on a variety of materials, manufacture of dryers for wood, paper pulp, paper or paperboard and other materials.

2.2 Current apprenticeship standards

There is a range of apprenticeship standards on offer, at multiple levels, which provide the skilled labour which these advanced manufacturing sectors require. These range from engineering operative (Level 2) and engineering technician (Level 3) apprenticeships to more specialist apprenticeships focused on advanced metalwork, including the metal casting, foundry and patternmaking technician and the metal fabricator apprenticeships (both Level 3). There are also several degree apprenticeships on offer that would benefit EAMA group members and the machine manufacturing sector more generally. These include the Level 6 degree apprenticeship in control/technical support and the Level 6 degree in manufacturing engineering.[6]

There are far fewer apprenticeships which focus on manufacturing techniques, processes and technologies of specific industries. For instance, there is no apprenticeship specifically dedicated to the manufacture of plastic products.

However, there are signs that apprenticeship training is beginning to adapt to the new technological demands of the advanced manufacturing industry. The Level 4 automation and controls engineering technician apprenticeship, for instance, which was approved in July 2019, provides training in the installation, maintenance, fault-finding and optimisation of the hardware and software for automation systems. The Land-based Engineering Training and Education Committee (LE-TEC) is also working with the AEA to develop a 'land-based engineering' trailblazer apprenticeship, which is intended to develop the specialist suite of skills needed in agricultural engineering and manufacture,[7] and the BCAS is currently seeking feedback on its proposed apprenticeship standard for a compressed air and vacuum technician (CAVT).[8]

2.3 Employer engagement with apprenticeships

Research recently undertaken for several advanced manufacturing, engineering and science sectors in the UK has suggested that there is a lack of employer engagement with apprenticeship training.

In a series of reports commissioned by Gatsby from 2012 to 2017 Paul Lewis found evidence of skills shortages within the technician workforces in numerous science and manufacturing industries, including in the chemical industry, the composites manufacturing industry, and in the industrial biotechnology industry. Lewis reported that employers in these industries have typically attempted to address skills shortages in technician roles by recruiting skilled labour from other industries, and by providing additional, in-house 'top-up' training to equip these workers with the specific skills required by their industry. In addition, employers were found to be making increasing use of apprenticeships as a means of developing the skills needed for their specific industries rather than

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[6] https://www.instituteforapprenticeships.org/apprenticeship-standards/?routes=Engineering-and-manufacturing&includeApprovedForDelivery=true
[7] http://landbasedengineering.com/apprenticeships/
[8] https://hpmag.co.uk/news/fullstory.php/aid/2269/BCAS_seeks_industry_feedback_for_new_apprenticeship_standard.html

the constant effort to top-up existing staff. However, Lewis reported that only one industry – the aerospace sector – was making regular and consistent use of apprenticeships to develop the talent pipeline.[9] These reports argue that, in the past, apprenticeships have been an under-utilised resource for employers in the science and advanced manufacturing industries.

In 2016, research by Lynn Gambin and Terence Hogarth on behalf of Gatsby reported that there were multiple reasons why employers might be reluctant to fund apprenticeships. Not only are the costs of taking on an apprentice very high (especially for SMEs), apprenticeships also represent a considerable financial risk to employers, as there is no guarantee that an employer will see any return on their investment (apprentices are free to leave their employers at any time and certainly upon completion of their apprenticeships).

However, recent research by Pye Tait Consulting for The Electrotechnical Skills Partnership (TESP) found that companies in the electrotechnical sector that recruit apprentices can see a return on investment as soon as year two of the apprenticeship programme.[10] Cost and benefit scenarios of apprenticeship recruitment based on low, medium, and high charge-out rates and on unskilled and skilled work revealed that apprentices can deliver a net benefit of around £114,000 over four years and make a return in year three, or can even pay for themselves in year two at higher rates. Although it would be more difficult to calculate internal productivity values for apprentices in the manufacturing and engineering industries it is entirely likely that similar "pay-back" periods and benefits would be discovered.

Apprenticeships in the UK can be a high cost to employers who operate in a flexible labour market in which the apprentice can choose to leave their employer. This stands in contrast to Germany – where the labour market is less flexible and non-training companies have less scope to offer higher wages to attract skilled apprentices from their training company compatriots – and also to Switzerland, where employers are able to recoup financial losses by ensuring that a relatively high proportion of apprentices' time in the workplace is spent engaged in productive activity.[11]

2.4 Apprenticeship levy

One of the measures proposed in the research by Gambin and Hogarth to help reduce the financial risk of apprenticeships to employers was to "*equalise the risk to all employers – training and non-training ones alike – through a training levy of some kind or through group training approaches*". Essentially this was the argument put forward in the early 1960s for the establishment of Industry Training Boards of which only a few remain.

The apprenticeship levy was introduced in 2016 and came into law in April 2017. The apprenticeship levy obliges employers with a payroll over £3 million each year to pay a set proportion into a

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[9] Paul Lewis (2013), Skills and Training for Composites Manufacturing and use in the UK: an analysis (Gatsby Foundation); Technician Roles, skills and training in the UK chemical industry: an analysis (Gatsby Foundation)
[10] The Electrotechnical Skills Partnership (2019), Labour Market Intelligence
[11] Lynn Gambin and Terence Hogarth (2016), Employer Investment in Intermediate-level STEM skills: How employers manage the investment risk associated with apprenticeships (Gatsby Foundation)

government fund specifically designed to pay for apprenticeships. Levy-payers are then entitled to receive funds paid into the levy in order to fund apprenticeship training at their company.

Many of the companies which make up the EAMA trade associations are SMEs and smaller companies that may fall below the levy threshold. As such they are not: a) required to pay the levy, and b) eligible to receive funding from the apprenticeship levy. To assist smaller companies and non-levy paying firms, the government introduced a 'co-investment' scheme whereby employers share the costs of training and assessing apprentices with the government. In April 2019, the government changed the co-investment rate, which determines the percentage which employers have to pay for apprentices, from 10% to 5%, reducing the financial cost of apprentices to small businesses. SMEs not in scope of the levy are therefore eligible to recoup 95% of apprenticeship costs from government.[12]

Furthermore, as large companies may not always be in a position to take on sufficient number of apprentices to make use of all their levy allowance, it has been argued that these un-unused levy funds might be more usefully re-allocated for use by SMEs.

Partly in acknowledgement of this, changes were introduced to the apprenticeship levy in January 2020, enabling employers who do not pay the levy to reserve levy funds and arrange their own apprenticeships.[13]

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[12] https://www.gov.uk/government/publications/apprenticeship-levy-how-it-will-work/apprenticeship-levy-how-it-will-work#non-levy-paying-employers

[13] Department for Education, 2020, Apprenticeship funding for employers who do not pay the apprenticeship levy https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/856899/Apprenticeship_funding_for_employers_who_do_not_pay_the_apprenticeship_levy__reservation_of_funds_guidance__from_January_2020.pdf

3. Recruitment and skills gaps

3.1 Recruitment challenges

Respondents to our survey were asked to comment on roles which their business had struggled to recruit to in the past twelve months. Across the companies interviewed, the most difficult roles to recruit are field service engineer, design engineer, CNC operator and CNC machinist, each being mentioned by four respondents. Software development engineers and mechanical engineers are next most commonly mentioned, each by three respondents.

Figure 4 Roles struggled to recruit for in past 12 months

Role	Count
Field Service Engineer	4
Design Engineer	4
CNC Operator	4
CNC Machinist	4
Software Development Engineer	3
Mechanical Engineer	3
Apprentices	2
Electrical Engineer	2
Maintenance Technician	2
CNC Programmer	2
Quality Engineer	1
Process Engineer	1
Manufacturing Engineer	1
Production Worker	1
Engineering Manager	1
Project Manager	1
Directors	1
Quality Inspector	0
Welder	0
Systems Engineer	0
Mechanical Design Engineer	0
Maintenance Engineer	0
Electronics Engineer	0
Manufacturing Manager	0
Production Planner	0
Production Manager	0

Base: 39 respondents (multiple selections were permitted in the response). Source: Pye Tait Consulting research, 2020.

Over half of responding companies (22) report recruitment issues outwith the specified roles. The most challenging roles to recruit for mentioned by two or more companies include: technical sales; toolmakers; and suitably qualified and experienced engineers and technicians for the area in which the company specialises. For instance, one respondent notes:

> *"We have and always struggle (sic) for engineers with knowledge of hydraulic systems as it's a niche industry."*

When asked about the reasons for these recruitment difficulties, the most common reason, raised by over half of companies (19), is that there are not enough applicants available. Coupled to this point, just under half of responding organisations (17) comment that the labour pool for certain roles can be limited, with applicants not having suitable qualifications, skills or experience for advertised roles. Companies note that they typically advertise/recruit for roles using head-hunters and recruitment agencies, while some also employ more targeted recruitment, for instance via LinkedIn or university career fairs.

Figure 5 Reasons for recruitment difficulties
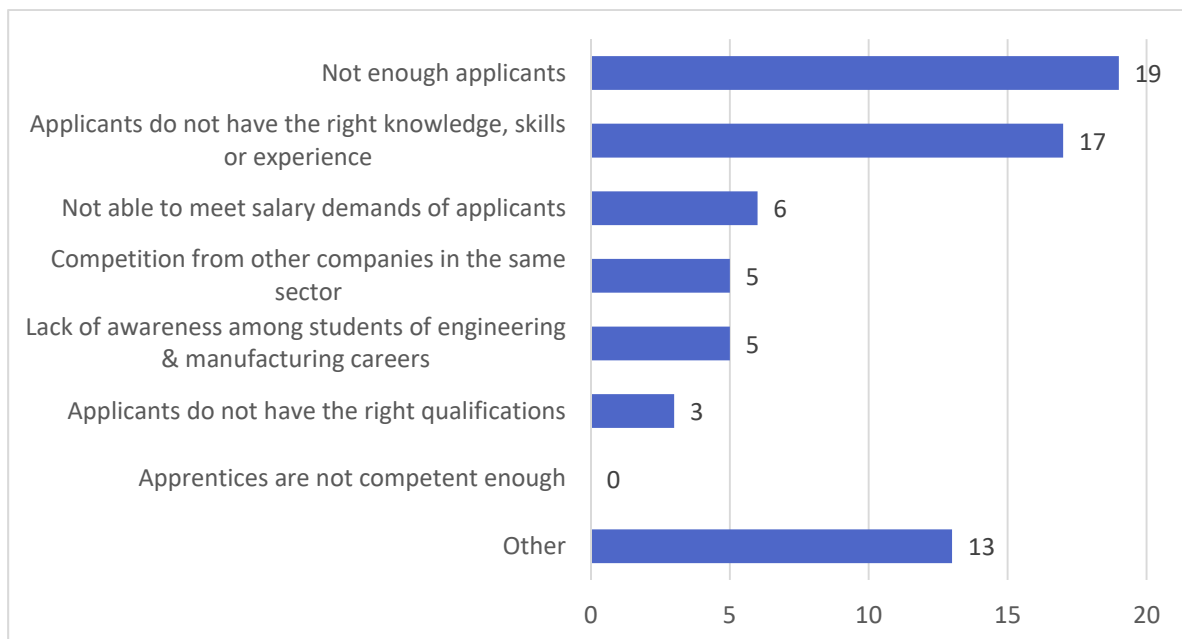
Base: 36 respondents (multiple selections were permitted in the response). Source: Pye Tait Consulting research, 2020.

Two main, inter-linked themes stand out among the 'other' reasons cited by 13 employers for the recruitment challenges they face. Firstly, respondents commonly note that they work in a very niche area, meaning that skills requirements can be very specialised to their business. The following quote, from a plastics manufacturer, illustrates this point:

"[There's] no-one in our area with that skillset, [and the] engineering skills that are around aren't good enough to facilitate our work, it's a very niche trade."

Secondly, due to the specialist nature of the work, the demand and the labour pool is limited geographically, with suitable staff typically being situated in central and high demand locations as a result of the bulk of the work being located within such locations. The result is a lack of suitable candidates within certain regions, made worse by the fact that candidates who are suitable are often unwilling to move from further afield.

"We're a niche business, the bulk of the industry is in Leicester, but we're in Bristol, so there's a lack of skills in our region."

3.2 Skills gaps

Respondents were asked whether any major skills gaps exist within their current workforce. Among the companies we spoke with, the most commonly cited occupation in which major skills gaps exist is CNC machinists, mentioned by four employers. Electrical engineers and maintenance technicians are next most commonly mentioned (each by three employers).

Around three in four employers (25) list major skills gaps in other roles. Occupations typically mentioned include engineers and technicians for specialised services, e.g. hydraulics, composites, agricultural, applications engineers, construction technicians, etc.

The remaining companies do not consider any major skill gaps to exist at present within their workforce; this was noted by ten responding employers. Such companies tend to be small firms: it is likely that such firms perceive that they cannot afford organisational 'deadweight' and that each staff member is critical to their business' function.

Figure 6 Roles in which major skills gaps exist
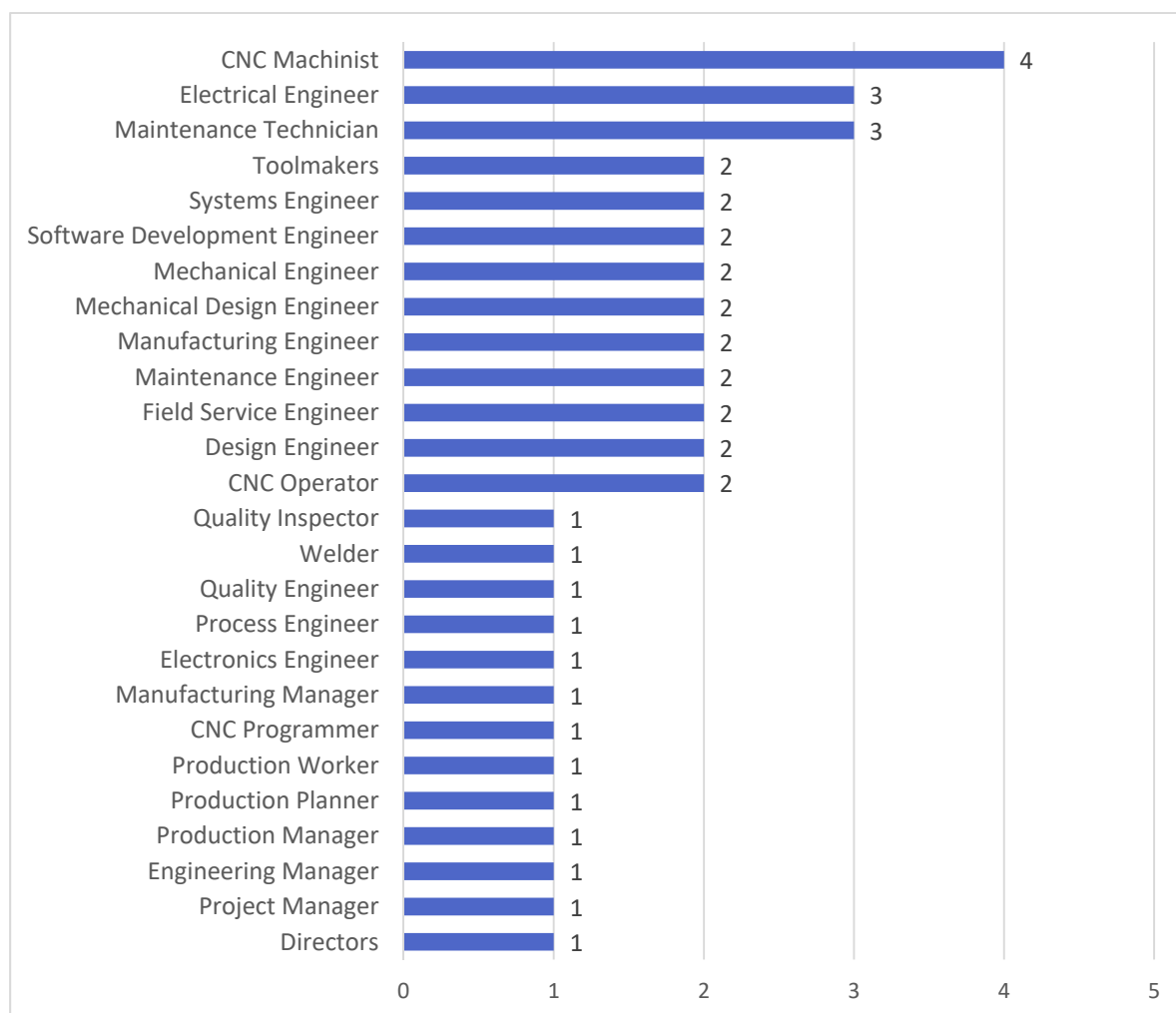
Base: 34 respondents (multiple selections were permitted in the response). Source: Pye Tait Consulting research, 2020.

Following on from this, employers were asked – for roles in which major skills gaps exist – which competences they consider most critical that require upskilling among current employees. The most commonly mentioned competence employers believe requires upskilling is quality assurance and control, mentioned by four organisations.

Other competences not listed but noted by more than one organisation as critical and requiring upskilling, include: technical skills (specific to equipment and machinery); and digital skills (around software and programming).

> *"Technical skills associated with the equipment that we're working on; most technicians we take on are used to working on smaller machinery, but larger machines like tractors are more complicated."*
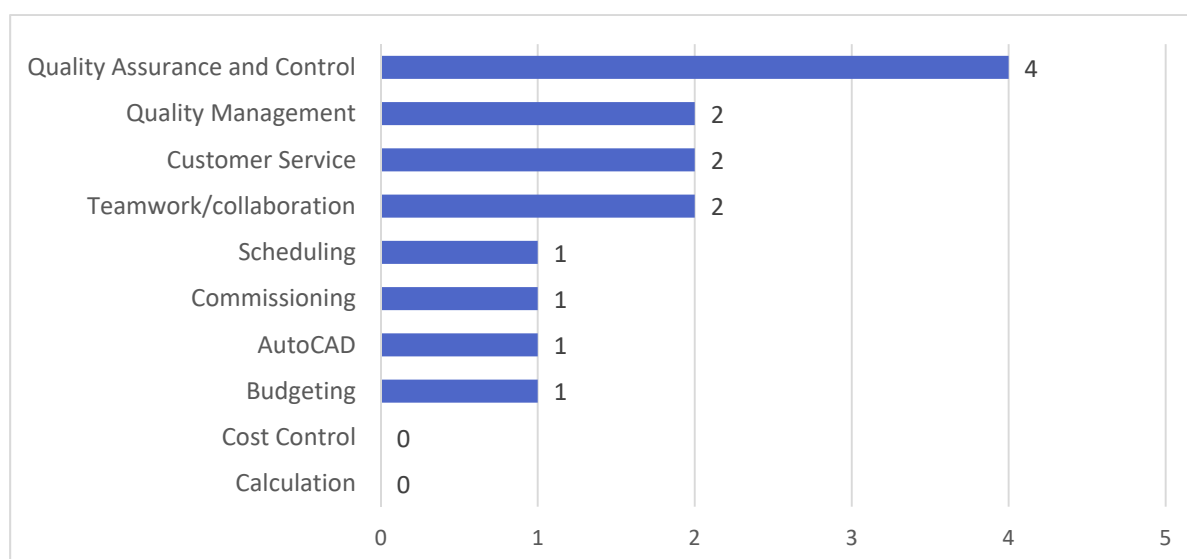
Figure 7 Competences most critically required to upskill

Base: 18 respondents (multiple selections were permitted in the response). Source: Pye Tait Consulting research, 2020.

Reasons for why major skills gaps might exist within the current workforce were suggested by employers. The most commonly mentioned reasons for these skills gaps are insufficient knowledge/skill in new digital technologies, and an aging workforce having difficulty in keeping up-to-date, both mentioned by around a third of responding employers (each by nine respondents).

Respondents note that it can take a period of adjustment for the workforce to adapt to technological advances, to understand their capabilities, and fully integrate them into their work on a daily basis. As processes become more complex, skill sets are constantly evolving, and employers note that, as a result, those who have worked in the industry for many years may no longer hold the skills required to undertake their roles and responsibilities and may lack the motivation to upskill further.

Pye Tait's recent research in the engineering construction sector revealed similar perceptions of skills gaps with respect to digital technologies and older workers. The speed and complexity of technological change is creating skills gaps across the board and within all age groups, but older workers may be less willing to upskill. One oil and gas HR executive notably commented that:

> 'You can teach an old dog new tricks but it takes longer and sometimes the dog simply doesn't want to learn.'

Other respondents note that the technological pace of change within their industry is increasingly rapid. These companies note that staying up-to-speed with new ways of working can be challenging, particularly so for firms with a small workforce whose main focus is on their daily workload and associated outputs. Such companies are unable to release staff for ongoing learning and development without a cost to the business in some form.

Other reasons for perceived major skills gaps among the current workforce provided by respondents tend to link back to education. Some respondents note that new entrants to their business often

require greater practical training, and that the younger generation have limited real-life experience of, and exposure to, niche areas of engineering and manufacturing, with more hands-on experience required throughout college. Employers commonly note that students leave education with basic skillsets which tend to be more 'generic' rather than meeting the specialist need of their business.

Figure 8 Reasons for major skills gaps
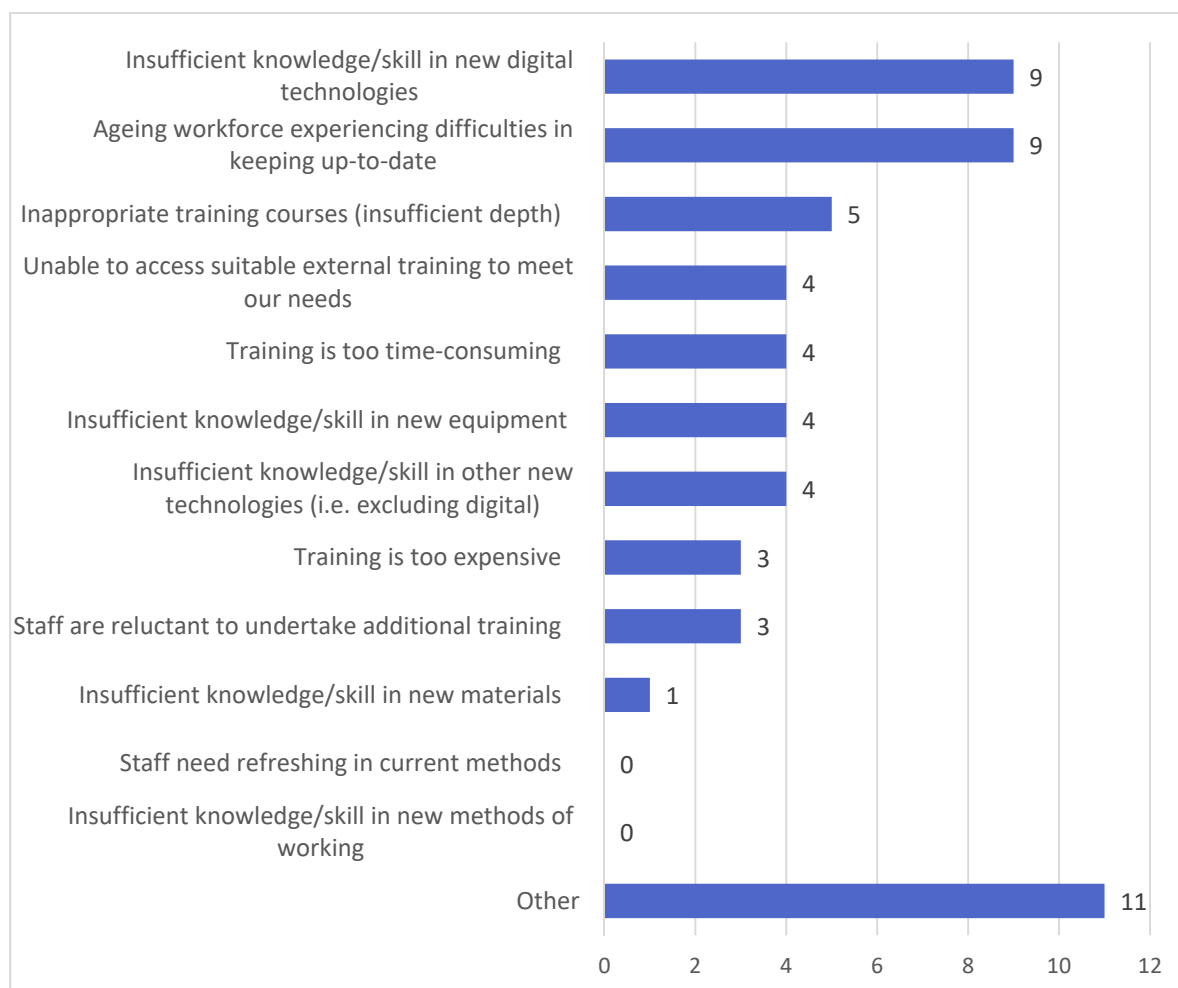
Base: 29 respondents (multiple selections were permitted in the response). Source: Pye Tait Consulting research, 2020.

Coupled to this, respondents note that currently there is insufficient funding and support specifically for technician support or product support roles. It would therefore seem reasonable that a specific course, e.g. at HNC/D level, might be appropriate to be developed to fill this gap in demand. In the meantime, however, companies struggling to fill vacancies with a 'perfect' candidate will tend to recruit individuals who may not have the complete skillset required, but who show potential to learn quickly on the job, meaning they can slot into the company and so maintain its productivity.

3.3 Impact and action

These recruitment difficulties and skill gaps impact organisations in different ways. Almost half of responding organisations (16) say that recruitment challenges and skills gaps result in an increased workload for other staff, and in reduced productivity within the workplace (15). These two points are often inter-linked by employers: productivity within organisations is key to running a successful business, and having increased workloads placed on some staff has the potential to hamper the efficiency and productivity of the overall staff group. It must be said that these issues, across all sectors, have often been mentioned by economists as contributors to the UK's own productivity deficiencies compared to other nations.
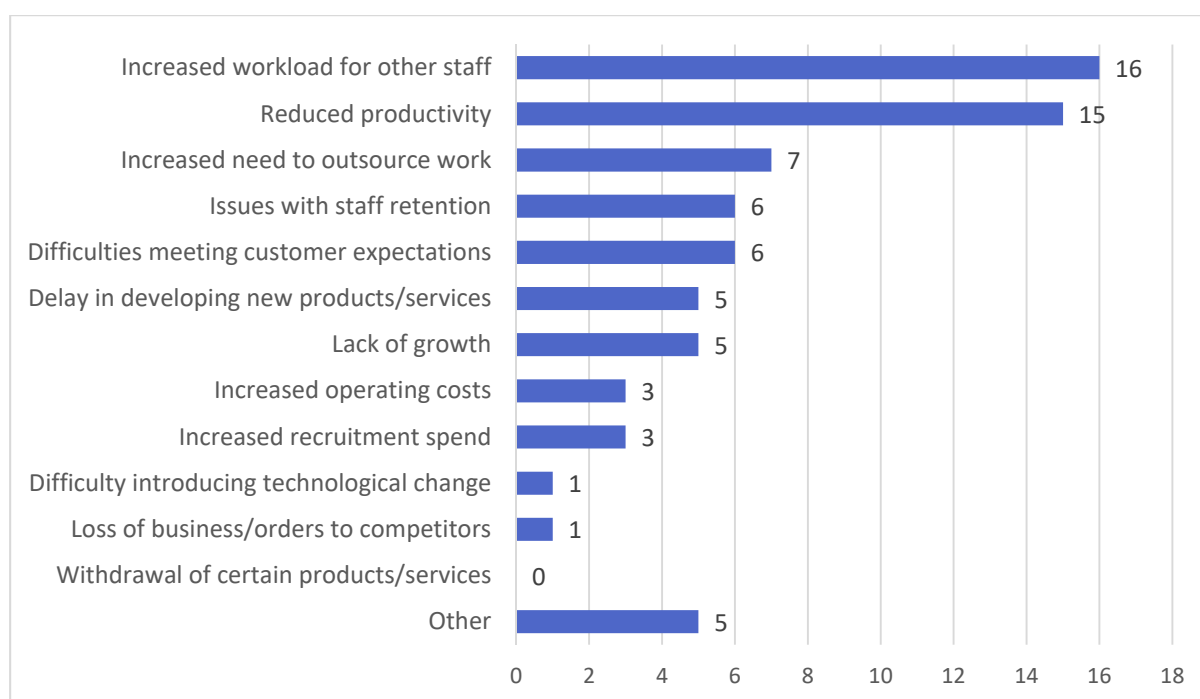
Figure 9 Impact of recruitment challenges and skills gaps

Base: 33 respondents (multiple selections were permitted in the response). Source: Pye Tait Consulting research, 2020.

Further compound effects of recruitment difficulties and skills gaps are an inability to meet productivity objectives and client requirements as fast and effectively as might be desired. This has in turn led to an increased need to outsource work to meet customer expectations.

Respondents further note that recruitment can often be a lengthy process; the knock-on effect of this can be increased workloads for other staff, slippage of project deadlines and an increased staff turnover.

"Recruitment time is extended which has a knock-on effect on the workload of current staff and projects deadlines tend to slip. This leads to a higher turnover of staff. It's cyclical."

One 'other' common issue mentioned by employers is the time and resource required to train existing employees. Coupled to this, employers note that staff coming into businesses might not have the exact required skill set, which in turn places pressure on other, more experienced staff to (for instance) service equipment, thus reducing productivity and increasing workloads.

Companies take a mixed approach to identifying skills gaps. Some employers – typically larger firms – conduct annual reviews for their staff and each individual has their own personal development plan or skills matrix against which their strengths and weaknesses can be measured and a plan developed. Other firms will rely on individuals to highlight areas where they believe further development is required. A third group of companies – typically micro and small employers – will typically rely on one or two people with the organisation to have oversight for skills gaps and training requirements.

Respondents were asked to comment on how they were addressing recruitment difficulties and skills gaps within their companies. The most common action being taken to overcome these challenges, mentioned by over half of responding businesses (18), is to grow their own staff by taking on trainees and apprentices and educating them in their specific processes and skills needs. Graduates, apprentices and other trainees are, broadly, considered extremely valuable to employers, as these new entrants can be moulded to the business and shaped to develop the skill sets required to meet the demands of their business.

"We're focusing on apprenticeships; we're training them to meet the needs of the business."

This 'grow-your-own' route is commonly taken by employers facing a local skills shortage: with no experienced workers available locally or willing to move to the area, companies instead look to recruit people to entry level positions and train them to meet the specific needs of the business.

Upskilling the current workforce (to overcome skill gaps and recruitment difficulties) is the second most common approach being taken, mentioned by around one in three companies. Multi-skilling also enables employers to overcome skills gaps and recruitment issues. The use of personal development plans by some employers to identify skill gaps using skill matrices allows them to identify skill gaps and training required.

Figure 10 How companies are addressing skills gaps and recruitment challenges
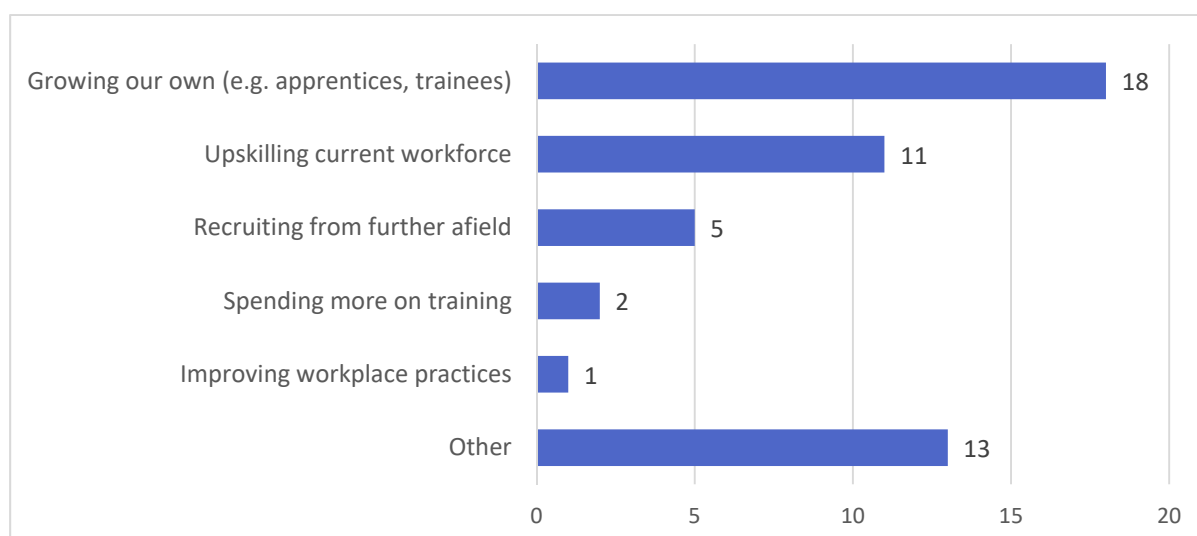
Base: 32 respondents (multiple selections were permitted in the response). Source: Pye Tait Consulting research, 2020.

Companies recruiting from further afield commonly mention the motor industry as a sector from which skilled workers can transfer, to then learn specific skills on-the-job.

Other approaches typically taken by employers are to engage recruitment agencies to find the right people with the specific skill set required by their company; respondents note that this approach has mixed success, and that some head-hunting firms do not fully understand the specific needs of the business. A small number of employers state that they look to engage with young people by going directly into schools, or by promoting themselves at HE/FE career fairs.

Sector Snapshot: Engaging with schools

James Maziak is Managing Director of Maziak Compressor Services Ltd, a small company based in the East Midlands and a member of BCAS. Maziak is passionate about educating children at a young age about engineering based on STEM subjects and the opportunities therein. Through the Primary Engineer Programmes, his service engineers have visited local primary schools where they work to educate young children through inspiring programmes and competitions. Maziak notes that young people cannot aspire to something they don't know exists and believes there are substantial long-term future benefits which can be gained from investing a very small proportion of his company's time and resources. Furthermore, whilst the impact of such initiatives is very difficult to quantify, he believes that the impact could be increased with greater involvement from engineers and engineering employers and urges more to become involved at a local level by partnering with the Primary Engineer Programmes.

One firm notes that, instead, they place a significant focus on staff retention and understanding workers' motivations.

Sector Snapshot: Investing from a young age and retaining staff

Rob Farrell is the Training Office at Reliance Precision, a medium-sized company based in West Yorkshire and a member of MTA. He notes that applicants often do not have the required depth of quality as the area the company works in is niche, requiring a high degree of precision and a high skill level.

Reliance has always taken on apprentices, up to six a year, and Farrell notes that this helps to feed into succession and growth planning with the business. Once trained, Farrell notes that Reliance takes employee welfare very seriously: understanding people's motivations helps keep employees engaged and boosts retention. Reliance therefore has a good pension scheme, a subsidised canteen and continues to offer training opportunities to all staff, all of which contribute to strengthening the business.

Farrell himself is an apprenticeship ambassador and works proactively with schools at Years 10 and below to help sow a seed of inspiration in young people's minds. Besides this, Reliance is continuously active on social media to raise awareness of their work and opportunities to engage. This proactive and innovative approach helps to drive people towards careers in engineering and manufacturing.

Working to individuals' strengths is also recognised as a way to engage and retain staff.

Sector Snapshot: A different approach to trainees

Andy Cook is Managing Director of FFEI, a medium-sized company based in the south east of England and a member of Picon. Cook acknowledges that FFEI appears to be in the constant process of recruitment as often experienced candidates are wary of stepping from the comfort of a large organisation to an SME. While continuing to recruit experienced hires, FFEI is placing increased emphasis on growing its own staff. Cook believes that apprenticeship standards can be overly structured and that forcing an individual into an academic framework can be restrictive. Instead, new entrants come with skills and experience in other areas and FFEI works to their strengths and enjoyments and allows flexibility to the individual thus also strengthening the business.

Following feedback from recent leavers, Cook understands that the younger generation place great value on being able to develop within their role, and also expect flexibility in their position (for instance in working hours). As such, training is very much targeted to and driven by individuals so that is tailored to their interests and the company's needs, and individuals are

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tasked with finding suitable training once a need has been highlighted.

FFEI has found that school leavers can often find the transition from education to the workplace difficult, and so recruits people at a slightly later stage who have gained workplace experience and maturity. For instance, one individual with a degree in film-making was hired for six months in a marketing role and is now flourishing as a product manager as FFEI has invested in the individual and played to their strengths.

One employer notes that they have tried to 'team-up' with other companies to go to training providers for collective training, however, the approach was not successful due to the small numbers involved, and the geographic spread of potential trainees.

It is clear that organisations – and SMEs, in particular – are each playing to their own strengths when it comes to addressing recruitment and skills challenges, with a variety of approaches being taken. Companies are dealing with skills and recruitment issues as best as they can with the time and resource available to them, although it is notable that some organisations take a more proactive approach than others.

Sector Snapshot: Influencing the influencers

Christine Tolley is the Head of Human Resources at HydraForce Hydraulics, a large company based in the West Midlands and a member of BFPA. Working in a niche industry, HydraForce has typically found it most challenging to recruit for specialised engineering roles, noting that there is no specific, structured training available for such positions and that the only option is for engineers to learn on-the-job. However, Christine Tolley sits on the employer board of the local Institute of Technology (IoT) and notes that it is working locally with FE and HE institutions to develop improved STEM training in the region. Initiatives being run by the IoT focus not only on inspiring young people into education, but also on changing perceptions among key influencers – such as parents – thus raising awareness of potential roles, pathways and opportunities available.

3.4 Future skills needs and impact of technology

Companies were asked to comment on new skills they perceive that organisations will need within the next few years.

There is a general agreement amongst responding organisations that digitalisation will have a significant impact on the skill sets required within their workforces. Companies report that further understanding will be required as technology becomes commonplace within businesses (for instance, robotics, artificial intelligence, virtual reality, Internet of Things, etc.). Employers anticipate that, as technology develops, it will act as an enabler as opposed to replacing job roles, with several firms noting that they will move with such changes in their workforce to ensure that staff have the

correct training, thus enabling them to be proficient in the roles they carry out. Several respondents note the type of skills required in workforces will be dependent upon how technology and legislation develop.

> *"Improved skills working with technology. As technology develops, this will be something staff will have to be more proficient in."*

A minority of respondents do not perceive that their business and workforce will require new skills over the next few years, rather they perceive that new skills will only be required if the nature of their business changes. Such changes might include, for instance, upgrading barcoding systems, or moving deeper into manufacturing as a result of buying relevant machinery.

While not necessarily new skills, employers comment that soft skills such as communication, people management, time management, team working, and interaction remain important. Businesses would like to see both colleges and universities place a greater emphasis on development of these soft skills for young people as well as focusing on technical skills. Companies note that, if required, they will send individuals on courses to develop in these areas, particularly for roles requiring management.

Specifically with regard to technology, respondents were asked to comment on which new technologies might impact their business over the next five to ten years. Several companies believe that, as technology develops, there will need to be greater emphasis placed on training and educating the current workforce as Virtual Reality, robotics/automation and Artificial Intelligence become more commonly integrated into workplaces. The Internet of Things is also anticipated to become widespread in the coming years, with smart devices linking up and speaking to each other and self-reporting faults to manufacturers.

> *"We're well aware of Industry 4.0 – if we invest in robots and co-bots we will need experts in those fields. It's all very well having the technology, but we need someone with that expertise. There's a fear of the unknown too about how technology will impact on current jobs, it's about how to integrate it all and remain competitive."*

Another process commonly mentioned by organisations is the increased use of 3D software which is envisaged to boost productivity within organisations. One respondent notes the significant potential yet to be realised, for example by linking up phone cameras and videos with 3D CAD software to reduce survey time.

A small number of firms predict that additive manufacturing/3D-printing will become increasingly prevalent, but are unsure whether this technology will bring widespread change imminently as materials are often ground, turned, or forged to generate their particular properties.

A minority of companies are yet to fully embrace digital, with two companies reporting that the scope of their work still falls into the 'handwritten category'. These employers note that they have taken steps to educate themselves on the shift in emphasis within the industry and are aware of the benefit a 'digitally literate' workforce would bring to their organisation.

In general, employers are broadly aware of and keep up to date with technological developments, however, they are not fully versed in the technicalities of such technologies until they become more prevalent. Many employers tend to be reactive to technology, rather than proactive; however, there is acknowledgement that change is happening so rapidly that it can be difficult to keep up to speed with developments. Respondents note that, by not moving forwards apace with technology, they will be left behind by competitors, ultimately at the detriment to the business. Typically, micro and small companies have less time and resource to be able to research and invest in technologies, and generally will only do so unless it is a proven game-changer.

4. Training and qualifications

4.1 Types of training

The most common kind of training undertaken by the companies interviewed for this research in the past 12 months is in-house training, with over three quarters of responding organisations (33) having done so. In-house training may either take the form of a structured programme of training – where typically more experienced staff train junior staff in technical skills over a period of months or even years – or it may be more ad hoc training where the workforce undertakes refresher training on equipment and machinery, typically for a day or a week.

The next most common method of training undertaken by companies in the past year is vendor/equipment supplied training, undertaken by almost half of surveyed companies (20) – this may either consist of manufacturers coming onsite to demonstrate new machinery, or staff going out to the suppliers to learn on their premises.

Regulated training (typically apprenticeships or vocational qualifications) and certified training (such as attendance on a certified course) have also been undertaken by similar proportions of firms (19 and 18, respectively). For this latter, two companies note they had sent electrotechnical staff on two-week external courses to develop multi-skilling capability with respect to mechanical and electrical engineering.

Figure 11 Types of training undertaken by organisations in past 12 months
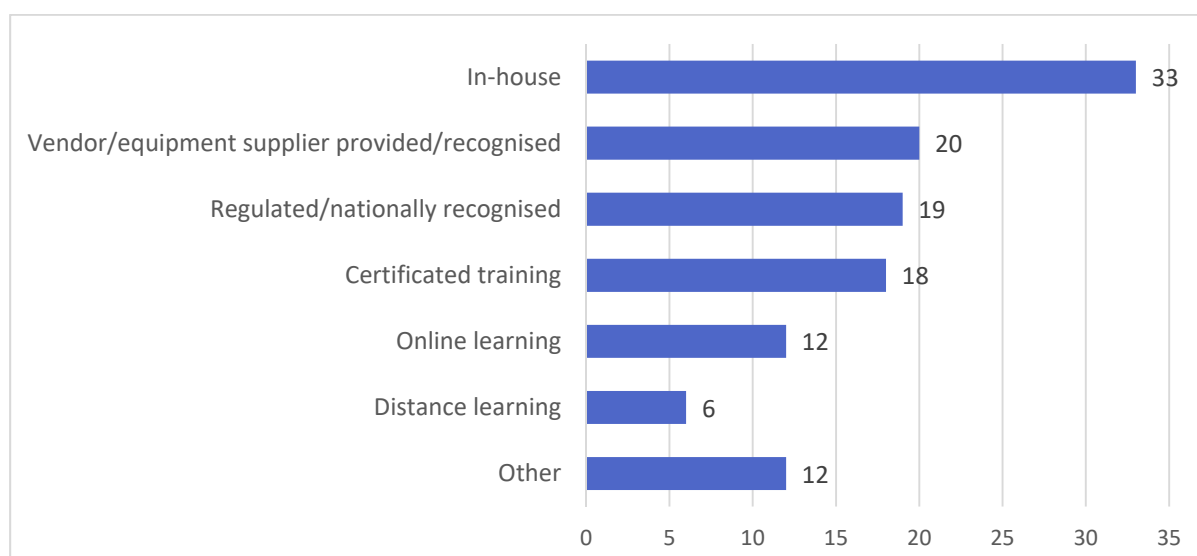
Base: 43 respondents (multiple selections were permitted in the response). Source: Pye Tait Consulting research, 2020.

Online learning (where student and tutor regularly interact) and distance learning (where student and tutor only interact on task submission/feedback) are the least prevalent forms of training, being undertaken by twelve and six organisations interviewed, respectively.

Companies generally undertake a blended approach to training. The split between the different kinds of training varies considerably from company to company, however, the most common split of training type is between in-house training and some form of external training. Firms generally use in-house trainers and resources – usually existing staff members – to train new employees in the procedures and equipment at the company, covering anything from technical training to customer service. However, many companies also balance this in-house provision with external training. Most typically, this external provision takes the form of manufacturer-supplied training to train staff on new equipment, or college-/private provider-based provision, especially to support apprentices or trainees.

A small number of organisations note that their parent company is based in Europe, and that staff are routinely sent abroad for technical training on the latest products.

4.2 Reasons for training preferences

The most commonly cited reason for the preference for in-house training is the perception that internal training best meets the specialist skills required within the company. Companies themselves believe that they have the best knowledge of the specialist skills and equipment required, and so internal training is most suitable in meeting their specific skills needs. Interviewees also emphasise that, in many cases, there are no suitable college or university courses in the specific area of manufacturing in which the company specialises, meaning that companies are obliged to provide training themselves. Employers commonly note that external provision can be at a more basic level, or more generalised, and would not meet their business needs.

It appears therefore that companies face two issues: firstly, in recruitment, that they are unable to find sufficiently skilled individuals with the correct competences and knowledge for certain vacancies; and secondly in training, that firms struggle to find specialist training available to them to develop skills for staff, and so end up having to train in-house.

Furthermore several companies, especially smaller firms, state that they cannot afford to regularly release employees to attend external training.

Employers who use manufacturer-based training emphasise the alignment of the training provided to the skills needs of their company. Those who use manufacturer-provided training point out that suppliers have the best knowledge of their products. This is especially important for health and safety reasons and when using hazardous equipment, with several employers emphasising the importance of supplier training to enable staff to operate equipment safely.

Some employers explain that they can favour manufacturer-provided training as manufacturers have superior facilities to undertake training.

Those that use certified or regulated training state that the qualification/certificate is an important proof of competence of the employee. Several employers also emphasise that this is important in meeting clients' expectations.

4.3 Barriers to training

Respondents were asked specifically about the barriers to training which companies typically face.

Several participants mention cost as a barrier. Cost is measured both in terms of paying for training for staff but also in terms of the cost to the company through losing members of staff who go on training. The loss of workforce for training is particularly problematic at busy times or in small companies which have limited resources to take up the slack of an absent member of staff. Employers also mention that having staff away from work on training can lead to loss of income for the company.

Participants note that finding quality training providers that can cater to the specific skills needs of their company is often challenging. One employer says that "it is trial and error to find people within your network" who might have had relevant training.

Employers further comment that the geographical availability of training centres can be problematic. Indeed, a handful of companies point out that the geographic availability of provision can be a bigger problem than the range of qualifications available. Specific comments from respondents in this regard include:

- "CNC training would be good in Kent"; and
- "A specific course in hydraulic power pack manufacturing, which covers design through to manufacture. There is no course which does this. There is a course in Hydraulics at University of Bath, which is closer to us, but feedback we have on that is not so good."

These specific comments potentially highlight two points. Firstly, that employers may misunderstand the training landscape and the courses and qualifications open to them and their workforce. Secondly, employers may indeed have a full understanding of the training landscape, however, the training which is available may not meet their needs (e.g. by being too generic, or basic) or may be of (perceived) poor quality.

This difficulty in finding relevant, high quality external training underpins the preference of many employers for in-house training.

Employers note that the process of selecting people to undertake training can be challenging as managers need to decide which members of staff are most in need of training and also who would benefit most from it. Respondents note that training should be given to those who want to upskill and who will advance most effectively with training, but that if training is allocated to the wrong staff member, then training can become "a tick-box exercise with no benefit for anyone".

4.4 Future training and qualifications

When asked about training or qualifications which they would like to see in the future, and despite the fact that many employers mention the absence of suitable college courses when justifying their preference for in-house training, the majority of respondents were unable to think of any necessary new qualifications which are not currently available. Indeed, several note that the current qualifications and training on offer to be sufficient.

A small number of employers, however, do note that training for specialisms in engineering could be improved. One respondent notes that a qualification focusing on how to diagnose problems with machinery (rather than design engineering) would benefit mobile and technical support engineers; another respondent mentions that a specific course in hydraulic power pack manufacturing, covering design through to manufacture, would suit fluid power engineering. One interviewee notes that a composites technician apprenticeship standard is currently in development, while another participant mentions the development of BCAS' proposed apprenticeship stream for service engineers in compressed air.

Participants state that a problem is not necessarily the range of qualifications available to them, but rather there is confusion and misunderstanding of relevant qualifications among employers. Employers can find the plethora of qualifications confusing and often do not know which qualifications to look for when recruiting and would like to see greater clarity on the range of qualifications available.

> *"I get confused about the different types of qualification, even apprenticeship qualifications with the terms and so forth. There are lots of things out there, we would like things to be clearer like apprenticeship training."*

It is possible that employers in these manufacturing sectors do not necessarily see qualifications as the solution to skills challenges. Two employers, in response to the question on possible new/future qualifications, state that the development of skills and all-round industry knowledge is a greater priority for them than the acquisition of formal qualifications, perhaps to the detriment of the individual's personal development, as these employers state they do not see the need for individuals to obtain a qualification/certificate if they have been trained in-house and can perform their role well.

In a highly competitive labour market this issue encapsulates the dilemma facing employers. On the one hand they wish their employees to be fully trained and skilled, while on the other they resist the formal certification of those new skills. Employers understandably see formal certification as adding to the individual's attraction for other employers. Whether in apprenticeships, upskilling courses, degrees, or professional qualifications employers object to paying for the training only to see the employee leave soon afterwards courtesy of their support and finances.

It is possible, of course (and many larger companies take this route) to employ "training agreements" which require the employee to work for a prescribed period for the employer after completing their training and qualification. But, as employment tribunals generally regard any

requirement longer than one year as "unreasonable", employers rarely feel that their investment has been worthwhile to the company.

4.5 Strategies for workforce skills development

Just over two in three responding companies note that there is someone within their organisation who is specifically responsible for workforce skills, training and qualifications. The job titles of these members of staff who are responsible for skills development vary from company to company, including departmental and HR managers through to managing directors.

Of those respondents that identify a member of staff within their company responsible for workforce training and skills, around one in three state explicitly that this person is able to focus on a long-term strategy for upskilling the workforce. While many respondents state that the staff member in question is not able to have a long-term focus, companies instead note that they have a shorter-term focus of skills development, spanning between six and twelve months. A small number of respondents also discuss that their longer-term workforce strategy specifically focuses on how to tackle the problem of an ageing workforce and succession planning.

For those companies which do not have a long-term focus, respondents mention time and financial pressures as factors which prevent this. In cases where the managing director is responsible for skills development, respondents state that they are usually very busy and have limited time to think about longer-term strategies for workforce training development. This is especially a problem for smaller companies where MDs take on a mixture of roles and responsibilities.

5. Apprenticeships and trainees

Apprenticeships include elements of on-the-job and off-the-job training, leading to industry-recognised standards or qualifications. Some apprenticeships also require an assessment at the end of their programme to assess individuals' ability and competence. Trainees, in the sense used in this report, comprise individuals undertaking training, but not through an apprenticeship. Such trainees could be on day-release courses, be sent on shorter courses, or even be undertaking full-time courses paid for by their employer.

When questioned on their approach to apprenticeships and trainees, employers were initially asked to rate on a scale of one (not at all valuable) to ten (extremely valuable) how valuable apprentices are to their organisation. Scores were received within the whole range from one to ten, with the most common (mode) score of seven given; the (mean) average is 6.5.

Employers providing a high rating (eight or above) explain that apprenticeships are critical to their organisation as they are the lifeblood of the company and of their sector to replace workers who are leaving or retiring, and to address skills gaps they face. Others note that apprentices can be less valuable in the short-term as they can be a drain on resource, but that the long-term benefit from the investment can far outweigh this.

5.1 Volume of apprentices employed

Of the companies we spoke to for this research, just over half currently employ apprentices. One in three companies employs between one and five apprentices currently, while around one in every twelve firms employs over 20 apprentices. To place this in context, in 2018/19 there were 60,000 starts in apprenticeships in engineering and manufacturing technology subject areas,[14] while analysis by ONS for EngineeringUK indicates that around 687,575 enterprises are in the engineering sector (either core or related)[15] – this equates to fewer than one in ten companies having apprentices at a national level.

Apprentices at the firms we spoke with typically tend to be young people, either coming straight out of school or college, or joining a couple of years after leaving education. However, businesses do also take on older apprentices, with one firm noting they recently took on an apprentice aged 44. In a similar vein, most apprentices – being young people – tend to be new entrants to the business, however, some employers do note that existing staff have recently begun their own apprenticeships, but in disciplines such as accounting or management, rather than in for technically skilled positions.

The number of apprentices at a firm typically scales to company size: no micro companies (fewer than ten staff) we spoke to have apprentices currently, small companies (between 10 and 49 employees) typically employ zero, one or two apprentices, while large firms employ many more. As a

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[14] Apprenticeship statistics, House of Commons Briefing Paper, 2020.
[15] EngineeringUK 2018, The state of engineering.

rough rule of thumb, apprentices in the companies we spoke with typically comprise c.10% of the total workforce.

Figure 12 Number of apprentices
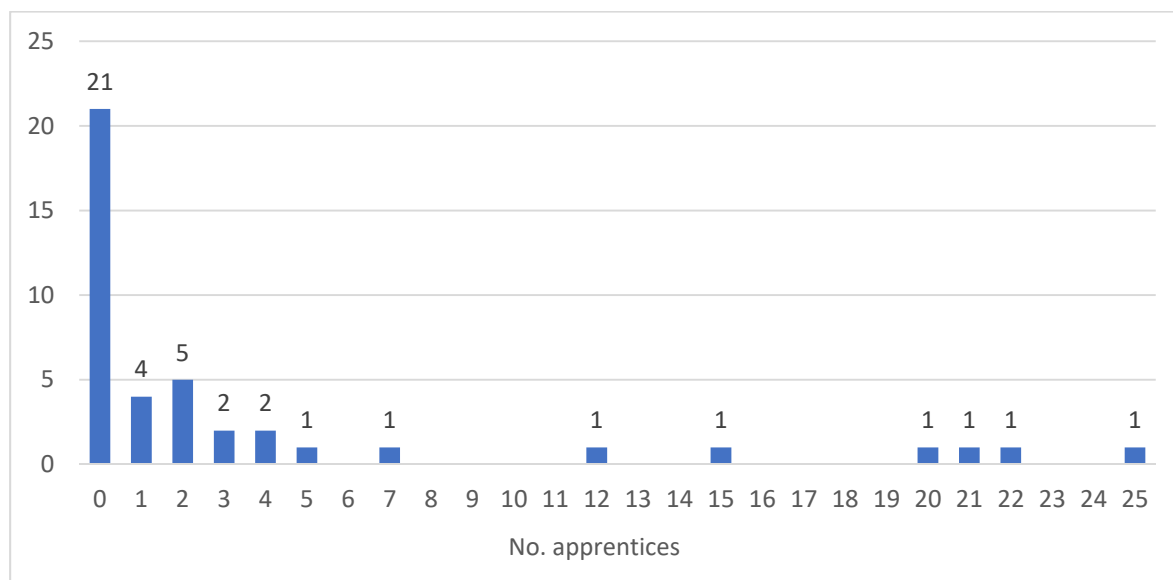
Base: 40 respondents. Source: Pye Tait Consulting research, 2020.

The most common level of apprenticeship within organisations are intermediate and advanced level, with just over half of employers with apprentices noting they had trainees at one of these levels. Higher and degree level apprenticeships were less common, both typically employed by around one in five of employers who taken on apprentices.

Of those who do not employ apprentices, three respondents had done so until very recently: one explains that they had two who recently completed their apprenticeship and have been retained in the organisation permanently; another let their apprentice go after they "turned up for work in an unprofessional manner", while the third company lost their apprentice trainer, thus restricting their ability to take on further apprentices.

The remaining respondents do not employ apprentices for a variety of reasons. Most commonly cited is that the business is too small to take an apprentice, and more specifically that they cannot offer the training, support and mentoring the apprentice would require to develop.

> *"For us as a small company we can't really do apprentices justice – they are demanding in terms of training and mentoring needs and we just don't always have the time and resource to do it."*

Other reasons cited for not employing apprentices are that:

- apprentices are not suited to the nature and level of the work carried out;
- they already have a trainee who is not on an official apprenticeship scheme;
- the quality of candidates has not been what they are looking for.

5.2 Challenges to taking on apprentices

Participants were asked if there was anything which would encourage them to take on some/more apprentices in the future; the dominant theme arising centres on the difficulty in having time to both find and consequently train/mentor apprentices. Respondents do, however, acknowledge the value of apprentices to their business both in the short and long term.

Funding and matters relating to cost frequently arise with employers noting that higher funding levels might persuade them to take on some/more apprentices. In addition, employers suggest that training providers could be better funded which might improve the quality of the college-based training on offer.

A small number of respondents comment on the (lack of) availability of strong/better quality candidates but note that they would give greater consideration to taking on apprentices if they were looking to expand and had confidence in the business to support a growing workforce.

Employers were asked to outline the main challenges they face in taking on apprentices and/other 'other' trainees. Providing sufficient supervision and mentoring is seen as the key challenge to taking on apprentices, being mentioned by nearly half of employers; this is closely followed by the availability of quality candidates. On the former point, employers typically note that – if they were to take on an apprentice – they would wish to do right by them, to be able to invest in the individual to make it worthwhile for both the business and the apprentice; often, however, companies do not have the time or resource to mentor/supervise apprentices. Our research in other, similar, sectors has consistently revealed that "quality of candidates for apprenticeships" is a common concern for employers. This concern centres on such issues as basic skills in English and maths, work ethic, and poor skills in self-discipline and application to both work and study.

When taking on 'other' trainees, the availability of quality candidates is the issue most commonly faced, with respondents noting that individuals can have poor application, or that trainees do not last long as they are drawn from an already-shallow pool of candidates. The next most common issue concerns health and safety restrictions for under-18s, as there is perceived to be increased risk, restrictions and red-tape for such individuals to work. While colleges and schools (increasingly now that T Levels are being introduced) are crying out for work experience for their learners. Similarly employers want recruits with reasonable levels of work experience. However, health and safety regulations for the under-18s are often regarded as too restrictive and as precluding either the way in which such young people are given experience or even being able to give them such experience at all.

With trainees, the issue of restrictions as a result of their age is further qualified:

> *"We can't send them elsewhere other than our workshop as they need lots of qualifications to get onsite and those add up in time and money."*

Figure 13 Perceived challenges to taking on apprentices and trainees
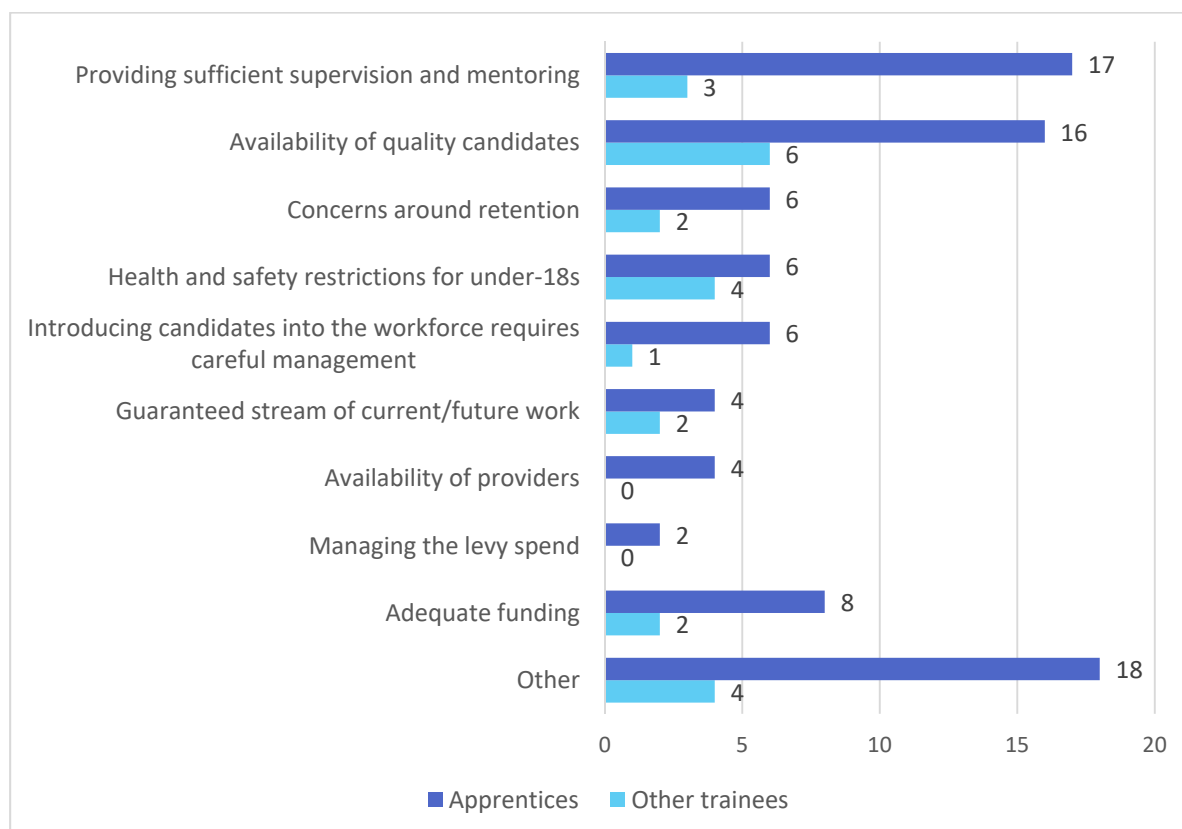
Bases: 38 (apprentices) and 9 (other trainees) respondents (multiple selections were permitted in the response). Source: Pye Tait Consulting research, 2020.

Some respondents note that large companies such as JCB or Jaguar Land Rover can 'suck up' local talent, further reducing the pool of candidates available to smaller employers.

A small number of employers also comment that, once fully trained, qualified apprentices can be 'poached' by other companies and note their frustration at not being able to realise their investment in the individual.

A further challenge mentioned by employers when taking on apprentices is that young people straight out of school or college often struggle with the transition from education to the workplace. Firms note that individuals can lack the necessary attitude and willingness to learn and engage with their role. Respondents further note that the move can be disorienting for individuals, that they require the right aptitude to be able to flourish in their new environment and can often require close mentoring by current staff.

This point is particularly pertinent given the forthcoming roll out of T Levels from September 2020, in which students are obliged to undertake a 45-day industry placement – as such, employers should be prepared to provide not just work, but also mentoring and support, to placement students. From students' perspectives, it will be a useful opportunity to gain experience of the workplace to prepare them for when they complete their course, and to begin the transition from education to work, in terms of developing their mentality and attitude as well as their technical skills. Employers however, as discussed above, will find it extremely difficult to provide the experience – and particularly sufficiently rounded and deep experience – within the constraints of existing health and safety regulations. The danger is, of course, that T Level work experience could be limited to the sort of superficial office and general work experience which has been subjected to so much criticism with existing qualifications.

Apprentices and trainees (anecdotally) tend to be predominantly male. One employer notes, however, that applications from females have increased recently, but that applications from those of BAME remain steady.

5.3 Apprenticeship levy

Around a third of responding organisations (12) are in scope of the apprenticeship levy. Over half do not fall within the scope of the levy (20), while the remainder are unsure.

Figure 14 Employers in scope of the apprenticeship levy
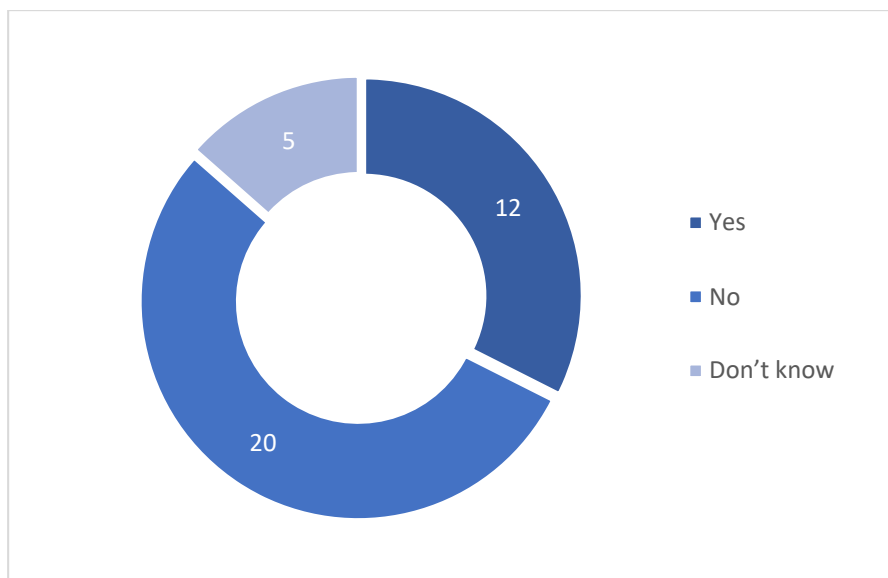
Base: 37 respondents. Source: Pye Tait Consulting research, 2020.

Unsurprisingly, organisations which are in scope of the levy scales to company size. Of the employers interviewed for this research, none with thirty or fewer staff are obliged to pay the levy, while those with over eighty directly employed staff all do so. Those companies whose size falls in between comprise a mix of those in and out of scope of the levy.

Many of those employers who are in scope to pay the levy express dissatisfaction and/or frustration with the system; in contrast, a minority state that it is easy to use. Dissatisfied employers would like to see improvements to the levy, for instance for it to be possible to use the levy to pay for training for current employees, or for increased clarity of the training which is available:

> "Contacting training providers can be challenging for us, our training provider/college near us is very good, but further afield for different courses it can be complicated, we don't know who's offering what."

Some respondents feel that they do not get good value from the levy as it does not cover what they need as a business and a small number of respondents state that it would be useful if it could be used for shorter courses:

> "…[it] would be good to use some of it for shorter courses, maybe day courses on soft skills and management."

Another employer highlights a direct link between the value gained from the levy and the number of apprentices they take on, stating that the more apprentices they have the greater value they get from the levy.

The quality and suitability of college training and trainers is also raised as an issue impacting the value employers gain from the levy:

> "Sometimes the quality of training at the college isn't to the standard we require; it could be a lot better. FE in general is struggling to retain good lecturers, they can earn far more in industry than in colleges, it takes a special type of person, so that's a big challenge."

Of those organisations which are not in scope of the levy but provided comment on how they fund their apprentices, the majority fully fund their apprentices themselves, with two stating they receive a grant or government funding to help. One notes that they pay more than the standard apprenticeship rates, claiming that apprentices would not otherwise stay.

6. Future actions

Employers were questioned on what actions (if any) are required to address skills and training issues in their sector. A broad range of answers were received which covered several themes.

Half of responding employers believe that greater promotion of engineering and manufacturing careers is required to tackle skills and training issues, while around two in five (18 respondents) believe improved technical education in schools is required. These points are often inter-linked by employers, who would like to see a greater focus on technical education routes (e.g. apprenticeships) rather than on higher education and university.

> *"The right kids need to be channelled sooner into the right careers for them. Young people need to better understand the opportunities available to them in the industry – they have no idea of the jobs out there and the career paths."*

Figure 15 Employers' suggestions for action on skills and training issues
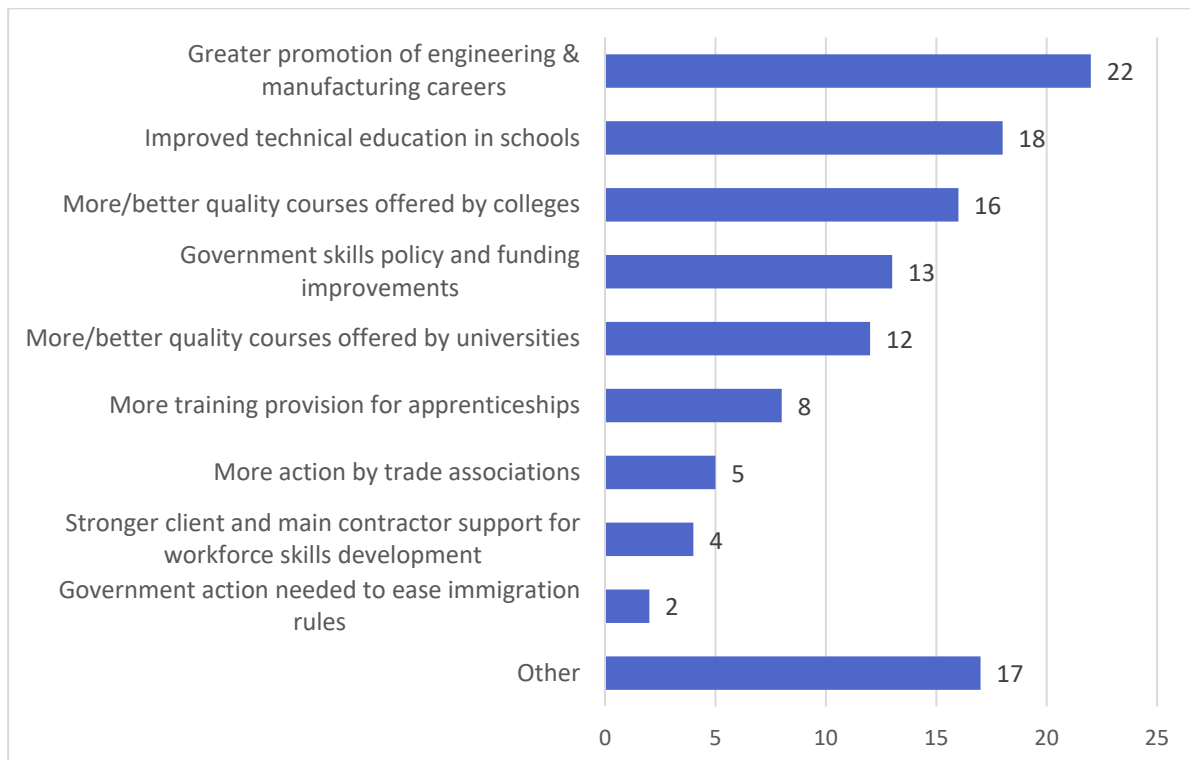
Base: 44 respondents (multiple selections were permitted in the response). Source: Pye Tait Consulting research, 2020.

Employers believe that the perception of the industry needs to be changed among young people, for instance, that working in the industry does not necessarily mean a 'greasy' job. Three respondents note that engineers in Germany and Austria are held in much higher esteem compared to in the UK,

and that they would like to see this image change here – such respondents typically collaborate with European partners who tell their UK counterparts of their surprise that the value, appreciation, and respect given towards engineering and manufacturing is low compared to abroad.

> "It's not [seen as] 'cool' to go into manufacturing and I don't think everyone should go to university."

Just over one in three employers (16 respondents) believe more/better quality courses offered by colleges would help address skills and training needs. They note that courses tend to be focused on more mainstream engineering skills and would like to see more sector-specific courses available for trainees. Coupled to this, around a third of employers (13) believe that Government support and funding would help resolve skills and training issues, with respondents noting such support could be directed towards specialist engineering and manufacturing courses.

> "Centralised support from government, dedicated training centres to be funded and set-up, specifically drawing from requirements of industry. We have various high-level provision, but there seems to be a gap in the middle of the market; there are colleges that teach fairly basic stuff, but we're left a bit high and dry looking for job-specific training for people who've done the basics."

Many employers have other suggestions for action to resolve skills and training issues. The most commonly mentioned idea is for a more joined-up approach between industry and education, such that teaching aligns to the needs of the industry. Employers would like to see greater communication between schools/colleges and the industry, and for curricula to evolve to reflect industry needs.

> "It'd be better if schools could work closer with industry and match our requirement to individuals, but it's been that way a long time, as they're focused on exams, rather than on individuals and skills. Greater alignment is needed."

Employers can be confused about the plethora of training and qualifications available. They note that this landscape can be bewildering, and that time and effort is required to fully understand what courses and initiatives are available, from whom, and the training outcomes for learners; they would like to see greater co-ordination and collaboration between schemes, with one respondent suggesting a 'one-stop shop' to provide such an overview would be beneficial.

In terms of the training itself, a small number of employers believe that more trainers are required within colleges to provide adequate training, while a similar number comment that trainees require more hands-on training during courses to reflect real-world requirements, believing learners to emerge from courses inadequately prepared for the workplace. In addition, a small minority suggest that more training by suppliers/manufacturers is required to improve workforce skills.

Two employers believe that no action around skills or training is currently required.

6.1 Employers' priorities for trade associations

Respondents were further asked what one change or improvement trade associations should currently be prioritising with regards to skills and training issues which employers are facing.

The most commonly mentioned priority for trade associations to focus on (cited by around one in three employers) centres on the need to promote engineering and manufacturing more, particularly to young people. Employers would like trade associations to take action to publicise the careers and pathways which are available within the industry, to ensure that young people are aware of the technical routes which are available to them (i.e. besides university routes), and to inspire people to want to pursue a career in the industry. Employers commonly mention in the same breath that this goal might also be achieved through closer links between education and industry.

> *"More needs to be done at school level. Younger people coming through are not as interested in technical roles nowadays. There needs to be more branding of technical subjects and technical roles, promoting and engagement."*

Around one in four employers would like trade associations to focus on ensuring that training is available for organisations working in the sector. There are two aspects to this. Firstly, employers are aware that the sector in which they work can be niche, and would like to see an increase in the volume (and quality) of specific, recognised training courses aligned to their needs; as such they would trade associations to make available skills training which meets their specific needs. Secondly, employers note that companies and training providers are geographically spread, and therefore recommend that training facilities should be available within easy reach for them to access.

> *"They could do more from training perspective – making training course more readily available across UK. Maybe a series of geographically well-placed training facilities, which provide hands-on experience."*

Linked to this point, two employers note that they would like to see trade associations prioritising the co-ordination and collaboration of industry schemes and initiatives, and to act as a point of information for employers to be able to refer to on skills and training issues.

Around one in ten employers suggest that trade associations should prioritise lobbying to Government on their behalf, to ensure that the importance of the sector is recognised and supported, and to minimise bureaucracy for employers.

A similar number of employers note that training can be a significant investment and would like trade associations to prioritise providing financial support for member organisations which require it most to fund the upskilling of the workforce.

It should be noted that there is no obvious trend between employers from any one of the 13 EAMA trade associations, rather views are split across all organisations, irrespective of trade association.

7. Recommendations

On the basis of the findings, we recommend a two-pronged approach of 'Strengthen and Support'. The flowchart below provides an overarching outline of our recommendations to address the skills and training issues faced by EAMA engineering and machinery sectors. The recommendations and action points are discussed in more detail thereafter.

Figure 16 Strengthen & Support
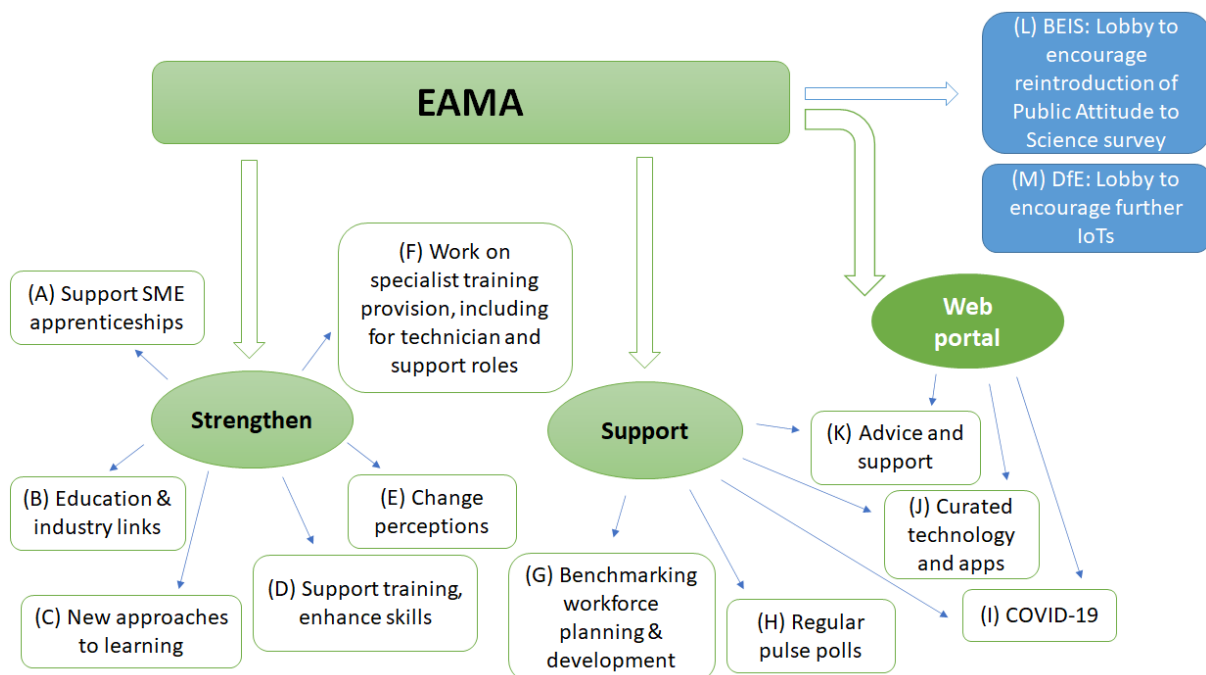
Each objective in this figure is labelled with a letter, and these are referred to at relevant points in the following text.

1. **Ensure apprenticeship applicants can enter the sector (A)**

Large employers including OEMs and Tier 1 contractors often receive significantly more apprenticeship applications than they have space for. Meanwhile, SMEs tend to observe that the best quality candidates undertake apprenticeships with large, well-known firms and may not necessarily have heard of smaller businesses in which similar workplace learning experiences may be available.

There is potential, therefore, for large employers to work more closely with smaller, local businesses in their region to ensure that more young people have the opportunity to gain apprentice places and

work experience, and that SMEs can take on willing, quality candidates, and ensure that potential trainees do not face unnecessary barriers to enter the sector.

We recommend that EAMA and its members work with larger companies to ensure that applicants who do not gain apprenticeship positions with such firms are able to be placed on similar schemes with smaller businesses in the local region to ensure that potential entrants are not lost.

It may be possible for EAMA and its members to promote a "clearing house" for surplus applicants.

It should be noted that a number of similar initiatives currently exist, such as Engineering Talent and STEM Exchange. Rather than complicate this landscape further, it is recommended that EAMA and its members work to promote these routes and initiatives so that young people and employers are aware of such options.

INITIAL ACTION

a) Establish a task group to design an approach.

b) Evaluate a few viable alternative means of "clearing" excess candidates and finding SME positions for them.

c) Select approach and implement a clearing process for a single region or sub-sector for a trial period of one year.

d) Evaluate and if possible roll-out to all sub-sectors.

2. Development of toolkit for companies to develop longer-term workforce skills plan and approach to training (G)

EAMA engineering and manufacturing sectors predominantly comprise SMEs which have little time to focus and reflect beyond their immediate needs. Their focus is very much on the short-term picture, and employers do not often have the luxury of time to plan and implement a longer-term skills and training strategy for their workforce.

We recommend that EAMA and its members develop a benchmarking toolkit, against which employers can measure their current position, and with which they can implement advice and actions contained therein to plan and upskill their workforce.

This toolkit could contain questions for companies to benchmark their current position against with regard to workforce skills and ongoing development and learning and their approach to training. The toolkit could contain advice for how develop staff and suggested approaches to training and staff development. It could be referred to at any time, but companies could benchmark themselves annually to track change on a yearly basis and ensure workforce can benefit from lifelong learning. As companies would be required to submit what might be regarded as commercially sensitive information, benchmarking should be hosted independently to offer employers necessary reassurances around confidentiality that information will be aggregated and anonymised.

INITIAL ACTION

a) Design a development project to identify key objectives for the toolkit and key metrics.

b) Develop KPIs and metrics.

c) Develop a toolkit based on the above.

d) Make available to companies who wish to measure their own progress.

e) If at all possible, use an independent consultant to receive toolkit data on an annual basis, and produce an anonymised report comparing results and best practice across sectors.

3. Regular Pulse Polls (H)

Regular 'pulse' polls (5 or 6 questions) should be undertaken – again independently – to provide EAMA with up-to-date information on attitudes, behaviours and motivations within its engineering and manufacturing sectors.

These short online polls, undertaken at regular intervals, would act as consistent measures of comparison, against which longitudinal change could be monitored.

INITIAL ACTION

a) Establish a task group to identify information and data which would be of greatest value going forward.

b) Identify short questions to gather the required data – to be standardised as much as possible over time.

c) Implement the polls online and analyse results in a brief report each half-year.

4. Strengthen specialist training provision (C/D)

Employers are often forced to undertake training in-house, with more experienced staff training those with less experience, as there is often no externally provided training which is available or relevant to their needs. In-house training takes experienced staff away from their roles and impacts on productivity and efficiency. If relevant courses are available externally, employers note that they may be of low quality, may not be available locally, or that the content may not meet their needs by being either too generic or too basic.

We recommend that EAMA and its members work to strengthen the training provision available for specialist engineers and technicians, to improve the volume of specialist courses available, and to ensure these can be accessed across the UK.

We recommend that the trade associations work to facilitate pooling of demand to improve the provision of appropriate training in specialist skills. Relatively low levels of specialist demand will require a regional approach with provision being created in relatively easily accessible centres.

Taking CNC machinists or operators as an example (being commonly mentioned by employers in this research as being difficult to recruit), trade associations could liaise with employers to gather ideas of demand and training need, before linking to local IoTs to develop and deliver specialist training which meets employers' needs. Such training could be flexible to work around small and micro firms' business needs, and could be delivered, for instance and where possible, via an online approach.

INITIAL ACTION

a) Identify the top five or ten priorities for specialist course development.

b) Establish a joint task group to agree ways in which new or amended courses could be best developed and to identify regions or locations best suited to the sectors in question.

c) Use internal staff or external resources to monitor course development and delivery.

5. Strengthen links between education and industry (B)

Employers take their own approaches to recruitment and engagement, with some companies significantly more proactive than others. Those who have time and resource available can engage with schools and colleges directly, while others may not. This engagement helps to raise awareness of engineering and manufacturing among young people, helping to spark their interest in a potential career. It also helps to dispel myths around engineering and manufacturing of what work and roles involve.

Several of EAMA's members already promote schemes to help employers engage closely with schools and colleges to promote themselves and their sector.

We recommend that EAMA and its members expand that activity, to raise awareness among employers of the significant benefits to be gained, and of the support material that is available, and establish a database of relevant contacts.

INITIAL ACTION

a) Establish a Task Group whose remit will be to take forward this recommendation.

b) Develop a comprehensive paper on the costs and benefits of liaison and identify any resources which do not already exist that would assist employers.

c) Identify ways of making employers aware of the advantages (and the means) of getting closer to education.

d) Monitor progress via pulse polls and occasional larger surveys.

6. Support and advice on upcoming technology (J/K)

Companies within the engineering and manufacturing sectors tend to be reactive, rather than proactive, when it comes to technological change, and this is particularly so among SMEs. Smaller organisations tend not to invest in new technology or processes until it has been proven to be game-changing for their sector, otherwise the risk appears too great to small businesses.

To guide employers through the latest technological developments, we recommend that EAMA and its members review how they work with government and others to increase companies' awareness, understanding and effective adoption of appropriate new technologies, to ensure this work is as effective as it can be. Regularly updated information and advice about the latest technological developments, and accompanying support and advice could be made available, or signposted to, on the EAMA website and in regular electronic communications.

This is an extremely important way in which EAMA can assist its member organisations and help to grow their sectors.

INITIAL ACTION

a) Identify the most relevant technologies for the near term, medium term and long term and develop explanatory material with case studies (UK and overseas).

b) Develop a web portal to carry a discrete technology and digital segment of information and support materials.

c) Ask member organisations to make their members aware of the resource.

d) Enhance and improve the resource on a constant basis.

7. Development of specific training for technicians and support roles (F)

Employers note that there is often insufficient training and support for technical support and product support roles in their engineering and manufacturing sectors. They note that this lack of courses and qualifications means that staff in such roles now are either older, experienced workers, or new entrants who can only be trained on-the-job.

Related to recommendation 4, we recommend that EAMA and its members ascertain the demand for training for such positions and understand what content and at what level(s) would be most useful to support the development of relevant and useful training. Again, local IoTs could be involved in the delivery of these courses, and/or hubs or Centres of Excellence could be established across the country to deliver this training.

INITIAL ACTION

a) Identify the top five or ten priorities for technician training and course development.

b) Establish a joint task group to agree ways in which new or amended courses could be best developed and to identify regions or locations best suited to the sectors in question.

c) Use internal staff or external resources to monitor course development and delivery.

8. **Deeper understanding of perceptions towards engineering and manufacturing sectors (E/L)**

Employers told us that people, especially those in education and key influencers, have a perception of engineering and manufacturing sectors as being dirty or greasy jobs, and as being held in poor regard compared to their high esteem in other countries.

Until 2014, the triennial Public Attitudes to Science tracker monitored people's attitudes towards science (and engineering) and help inform areas where BIS should take action, and areas of success. This national research has since been discontinued and the UK no longer has a true grasp of UK's perceptions towards science and engineering.

We therefore recommend that BEIS reinstates the Public Attitudes to Science tracker survey to regain a true understanding of the UK's attitudes towards science and engineering. This research should be adapted to focus on both engineering and manufacturing (in addition to science) as these are critical sectors to the UK economy. By understanding people's perceptions towards engineering and manufacturing, BEIS can develop regional and country-wide initiatives and collaborations, helping to 'myth-bust' any misleading perceptions and to drive interest in such careers.

INITIAL ACTION

a) Develop a lobbying brief with supporting data and evidence.

b) Use the resources and contacts of stakeholders, member organisations and EAMA to lobby BEIS

9. **Expanded support and development of local training hubs for businesses (M)**

Engineering and manufacturing employers commonly mention that courses do not meet their business needs and that they are required to undertake specialised training in-house, which can take away resources from delivering outputs.

Meanwhile, IoTs have been established at twelve locations across the UK to offer higher technical education to assist closing skills gaps in STEM areas, each with training specialisms in particular areas. Applications for further centres are currently open.

We recommend that the Department for Education backs the establishment of significantly more IoTs in forthcoming months to ensure that specialist training is available to companies across all parts of the UK. A significant barrier to training can be distance to travel, so it is critical that centres are opened that can be accessed locally and offer courses of high quality to meet business training needs.

INITIAL ACTION

a) Develop a lobbying brief with supporting data and evidence.

b) Use the resources and contacts of stakeholders, member organisations and EAMA to lobby BEIS.

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10. Support businesses through the recovery of Covid-19 (I/K)

The fieldwork for this research was undertaken in January and February 2020, and only during analysis and reporting did the scale and impact of coronavirus become clear. During March 2020, 'non-essential' businesses have been told to close by government and many companies have had no choice but to furlough workers.

It is critical that businesses can return to normal as soon as possible once the government moves towards recovery and exit strategy. To do so, EAMA and its members need to understand what businesses are doing and planning, what procedures and policies they have in place, how the situation has impacted on skills and training needs, and how companies might have altered their priorities in response to the lockdown. With the situation evolving rapidly, skills gaps and training needs may have changed, or new ones emerged.

We recommend that EAMA and its members engage with key companies to understand the situation which companies are facing and what actions are being taken. A virtual group, for instance a small selection of senior people, could be convened to answer these questions quickly and in a sensitive manner to help businesses recover.

In the meantime, increased utilisation of the website and electronic communications and updates would allow EAMA trade associations and member companies to have, or be signposted towards, up-to-date information.

INITIAL ACTION

a) Urgently implement (if it has not already been established) a Task Group to consider all COVID-19 matters – current events, advice and support, future possibilities, etc.

b) Use pulse polls to establish events, attitudes and priorities across sectors (again, if these are not already being undertaken by individual membership bodies).

c) Attempt as far as possible to gather results on a very regular basis so that best practice can be shared across the wider EAMA membership.

d) Begin to consider how recovery can be assisted in the sector.

Annex A: Topic guides

A.1 Depth interview topic guide

Depth Interview Topic Guide

Introduction

We are currently carrying out research on behalf of EAMA[16] (The Engineering & Machinery Alliance) who wish to deepen their understanding of the skills and training currently taking place within their member organisations.

This research, also co-funded by Enginuity[17] and Gatsby[18], will provide evidence on the skills challenges that organisations face and where future assistance would be best focused. In addition, the research will provide evidence for action for policy-makers, uncover possible knowledge-sharing initiatives for organisations, and opportunities for future skills initiatives.

The information and feedback you provide will be treated confidentially by Pye Tait and the findings reported anonymously under the General Data Protection Regulation and Market Research Society Code of Conduct. Please be aware that calls may be recorded for quality and training purposes. Your identity will not be revealed in any way unless you give us specific permission to report anything directly back to EAMA, Enginuity or Gatsby.

Internal note: where bullet point options are provided, these should be used as prompts only where necessary (i.e. not read out as part of the introduction or the question)

Section 1: Participant information (pre-populate where possible)

Name:	
Email:	
Phone:	
Organisation:	
Job role:	

1. In which nation(s) do you operate? *(tick all that apply)*

   - England
   - Northern Ireland
   - Scotland
   - Wales

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[16] The Engineering & Machinery Alliance (EAMA) is a group of thirteen independent trade associations spanning a wide range of sectors.

[17] As an employer-led skills body supporting the engineering & manufacturing sectors

[18] Gatsby is a Charitable Foundation committed to strengthening the country's science and engineering skills

2. *[If operate in England]* In which regions of England do you operate? *(tick all that apply)*

- North East
- North West
- Yorkshire & Humber
- West Midlands
- East Midlands
- East of England
- London
- South East
- South West

3. Approximately how many staff are directly employed by your organisation?

4. Which EAMA trade associations(s) is your organisation a member of? *(tick all that apply)*

- Agricultural Engineers Association
- British Automation and Robot Association
- British Compressed Air Society
- British Fluid Power Association
- British Plastics Federation
- British Turned Part Manufacturers Association
- Gambica (Instrumentation, Control, Automation and Laboratory Technology)
- Gauge and Toolmakers Association
- Manufacturing Technologies Association
- Printing Industry Confederation
- Processing and Packaging Machinery Association
- Solids Handling and Processing Association
- UK Industrial Vision Association

Section 2: Recruitment and Skills Gaps

5. Are there any particular roles which you have struggled to recruit for in the past 12 months? *(If clarification required: "struggle" = unable to fill an identified vacancy. Tick all that apply.)*

- Directors
- Project Manager
- Engineering Manager
- Production Manager
- Production Planner
- Production Worker
- CNC Machinist
- CNC Operator
- CNC Programmer
- Manufacturing Manager
- Maintenance Technician
- Design Engineer

- Electrical Engineer
- Electronics Engineer
- Field Service Engineer
- Maintenance Engineer
- Manufacturing Engineer
- Mechanical Design Engineer
- Mechanical Engineer
- Process Engineer
- Quality Engineer
- Software Development Engineer
- Systems Engineer
- Welder
- Quality Inspector
- Apprentices
- Other *(please specify)*

6. What are the reasons for these recruitment difficulties? *(tick all that apply)*

- Not enough applicants
- Applicants do not have the right knowledge, skills or experience
- Applicants do not have the right qualifications
- Apprentices are not competent enough
- Lack of awareness among students of engineering & manufacturing careers
- Competition from other companies in the same sector
- Not able to meet salary demands of applicants
- Other *(please specify)*

7. Among your current staff, in what roles (if any) do you believe major skills gaps exist?

- Directors
- Project Manager
- Engineering Manager
- Production Manager
- Production Planner
- Production Worker
- CNC Machinist
- CNC Operator
- CNC Programmer
- Manufacturing Manager
- Maintenance Technician
- Design Engineer
- Electrical Engineer
- Electronics Engineer
- Field Service Engineer
- Maintenance Engineer
- Manufacturing Engineer

- Mechanical Design Engineer
- Mechanical Engineer
- Process Engineer
- Quality Engineer
- Software Development Engineer
- Systems Engineer
- Welder
- Quality Inspector
- Apprentices

Other *(please specify)*

8. In the roles where skills gaps exist, which competences do you think are most critical that require upskilling? *(tick all that apply)*

- Budgeting
- AutoCAD
- Teamwork/collaboration
- Commissioning
- Scheduling
- Customer Service
- Calculation
- Quality Management
- Quality Assurance and Control
- Cost Control
- Other *(please specify)*

9. What are the reasons for the existing skills gaps within your company? *(tick all that apply)*

- Ageing workforce experiencing difficulties in keeping up-to-date
- Inappropriate training courses (insufficient depth)
- Insufficient knowledge/skill in new <u>digital</u> technologies
- Insufficient knowledge/skill in <u>other</u> new technologies (i.e. excluding digital)
- Insufficient knowledge/skill in new equipment
- Insufficient knowledge/skill in new materials
- Insufficient knowledge/skill in new methods of working
- Staff are reluctant to undertake additional training
- Staff need refreshing in current methods
- Training is too expensive
- Training is too time-consuming
- We're unable to access suitable external training to meet our needs
- Other *(please specify)*

a. Of these, which is the biggest challenge you face in terms of workforce development?

10. How are these recruitment difficulties and skills gaps affecting the business?

- Increased workload for other staff
- Increased recruitment spend
- Loss of business/orders to competitors
- Difficulties meeting customer expectations
- Lack of growth
- Reduced productivity
- Issues with staff retention
- Delay in developing new products / services
- Withdrawal of certain products/services
- Increased operating costs
- Increased need to outsource work
- Difficulty introducing technological change
- Other *(please specify)*

11. What are you currently doing to address these challenges?

- Recruiting from further afield *(please specify)*
- Upskilling current workforce
- Spending more on training
- Growing our own (e.g. apprentices, trainees)
- Improving workplace practices
- Other *(please specify)*

12. What NEW skills do you think your workforce will need in the next couple of years? *[INTERVIEWER: stress NEW, not just enhanced current skills]*

13. What new technologies do you think are going to impact your business over the next five to ten years? *(Probe: impact of technology)*

Section 3: Training and Qualifications

14. What type of training has your company undertaken in the last 12 months? *(Specify percentage of total days for each option)*

   a) Regulated/nationally recognised (e.g. Apprenticeships/Vocational Quals/Degree)
   b) Certificated (i.e. attendance on a course for which a certificate is awarded)
   c) Vendor/equipment supplier provided/recognised
   d) In-house
   e) Distance learning
   f) Online learning
   g) Other *(please specify)*

15. What are the reasons for this approach/balance? *(Probe: does it meet your needs?)*

16. What training and qualifications would you like to have, but aren't currently available, for your business in the future?
   a. Please could you specify which roles these relate to?
   b. Please outline your reasons for the above answers?

17. Do you have a specific person in your company who has responsibility for workforce skills, training and qualifications? *(Y/N)*

18. *[If yes]* Please can you outline the extent to which they are able to focus on the longer-term strategy of upskilling the workforce?

Section 4: Apprenticeships

19. On a scale of 1 to 10 (where 1 = not at all valuable and 10 = extremely valuable), how valuable are apprenticeships to your company?

20. How many apprentices does your organisation employ? *[Quantity required]*

    a) *[If zero]* Could you please say why you do not employ any apprentices?
    b) *[If greater than zero]* What level of apprentices do you employ? *(tick all that apply)*
        • Intermediate Apprentice
        • Advanced Apprentice
        • Higher Apprentice
        • Degree Apprentice

21. Is there anything that may make you take on some/more apprentices in the future? *(Prompts if required: closer support from providers, improved funding arrangements, economic upturn, business expansion)*

22. What are the main challenges to taking on apprentices and 'other' trainees (i.e. those that aren't on formal apprenticeship schemes)? *(tick all that apply)*

	Apprentices	'Other' trainees
Adequate funding		
Managing the levy spend		
Availability of providers		
Guaranteed stream of current/future work		
Providing sufficient supervision and mentoring		
Availability of quality candidates		
Introducing candidates into the workforce requires careful management		
Health and safety restrictions for under-18s		
Concerns around retention		
Other *(specify)*		

23. I'd now like to get your thoughts on the apprenticeship levy. Are you in scope to pay the levy? *(Y/N)*

24. *[If yes]* How easy or difficult is it to use?

25. *[If yes]* Do you feel you get good value from it?

26. *[If you don't use it]* How do you fund your apprentices? *[Prompt: Are you aware of the recent changes to apprenticeship funding for non-levy payers?[19]]*

Section 5: Future action

27. What actions (if any) do you think are needed to take to address skills and training issues in the sector? *(tick all that apply)*

    - More action by trade associations
    - Government skills policy and funding improvements
    - Government action needed to ease immigration rules
    - Stronger client and main contractor support for workforce skills development
    - Improved technical education in schools
    - More/better quality courses offered by colleges
    - More/better quality courses offered by universities
    - Greater promotion of engineering & manufacturing careers
    - More training provision for apprenticeships
    - Other *(specify)*

28. What one change or improvement do you think trade associations should currently be prioritising with regards to the topics we have covered today?

29. Finally, is there anything else you'd like to say on the topic of training, skills, qualifications and apprenticeships?

If interesting/unusual case: Would you be happy to be contacted by EAMA/Enginuity/Gatsby for them to discuss your approach in more detail? There is potential that individual company's initiatives could be shared as best practice across industry.

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[19]

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/856899/Apprenticeship_funding_for_employers_who_do_not_pay_the_apprenticeship_levy__reservation_of_funds_guidance__from_January_2020.pdf

A.2 Online workshop topic guide

EAMA / Enginuity / Gatsby

Online Workshop Guide

Section 1: Introductions and background

- Brief introductions: Round table

- Purpose: As you are aware, we are currently carrying our research on behalf of EAMA[20] (The Engineering & Machinery Alliance) who wish to deepen their understanding of the skills and training currently taking place within their member organisations.

- The research, co-funded by Enginuity[21] and Gatsby[22], will provide evidence on the skills challenges that organisations face and the areas where future assistance would be best focused. In addition, the findings from the research will provide evidence for action for policy-makers, uncover possible knowledge-sharing initiatives for member organisations, and provide evidence to support future skills initiatives.

Please be assured that Pye Tait Consulting operates strictly to the Market Research Society's Code of Conduct and any information you provide will be anonymised by us in all subsequent reporting. The session is being recorded purely for our analysis purposes, but please be assured that your identity will not be revealed in any way unless you give us specific permission to report anything directly back to EAMA, Enginuity or Gatsby.

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[20] The Engineering & Machinery Alliance (EAMA) is a group of thirteen independent trade associations spanning a wide range of sectors.
[21] As an employer-led skills body supporting the engineering & manufacturing sectors
[22] Gatsby is a Charitable Foundation committed to strengthening the country's science and engineering skills

Section 2: Recruitment and Skills Gaps

1. Are there any particular roles which you struggle to recruit?

2. What are the reasons for these recruitment difficulties?

3. Do you perceive that major skills gaps exist in any particular roles?

4. What do you believe are the reasons for these skills gaps?

5. How are these recruitment difficulties and skills gaps affecting companies?

6. What are you or your competitors currently doing to address these challenges?

7. What NEW skills do you think your workforce will need in the next couple of years
   [INTERVIEWER: please stress NEW not just enhanced current skills]
   (Probe: impact of new technologies)

Section 3: Training and Qualifications

8. What type of training has your company undertaken in the last 12 months?
   (Probe: balance of in-house vs certificated vs regulated training, and reasons for approach.)
   (Probe: Examples of good and not so good practice.)

9. What are the barriers to training for companies?
   (Prompt if needed: cost, staff time, lack of providers, lack of willingness)

10. What training and qualifications would you like to have, but aren't currently available?
    (Probe: which areas, and which roles this relates to, and reasons)

11. What form might this training and qualifications take?
    (Probe: how will they be developed, delivered and funded)

Section 4: Apprenticeships

12. Have you taken on any apprentices in the past 3 years?
    (Probe: why/why not)

13. What are the main challenges to taking on apprentices?
    (Probe: funding, availability of providers, guaranteed stream of work, availability of quality candidates.)
    (Probe: compare and contrast companies' experience with apprentices and 'other' trainees)

14. Are you aware of any initiatives or practices which other companies are using to overcome any of the challenges associated with apprenticeships?

15. What are your thoughts on the apprenticeship levy?

(Probe: is it easy or difficult to use? If you don't use it, how do you fund your apprentices? If don't use: Are you aware of recent changes to apprenticeship funding for non-levy payers,[23] and will this help?)

Section 5: Future action

16. What actions (if any) do you think are needed to take to address skills and training issues in the sector?
17. Finally, is there anything else you'd like to say on the topic of training, skills, qualifications and apprenticeships?

If interesting/unusual case: Would you be happy to be contacted by EAMA/Enginuity/Gatsby for them to discuss your approach in more detail? There is potential that individual company's initiatives could be shared as best practice across industry.

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[23]

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/856899/Apprenticeship_funding_for_employers_who_do_not_pay_the_apprenticeship_levy__reservation_of_funds_guidance__from_January_2020.pdf