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Advanced Manufacturing & Engineering



Dorset Local Skills Improvement Plan

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Dorset LSIP Stage 2 Qualitative Research Findings: Advanced Manufacturing and Engineering Sectors

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Introduction

The Dorset Local Skills Improvement Plan (Dorset LSIP), led by the Dorset Chamber, is a three-year initiative aimed at aligning skills provision with the current and future needs of local businesses. Funded by the Department for Education, the plan seeks to ensure that the workforce has the right skills at the right time, focusing on health and social care, advanced manufacturing & engineering, construction, digital tech & creative, agriculture agri-tech & aquaculture, and net zero sectors. The LSIP process involves collaboration with employers, educational institutions, and other economic development stakeholders to develop a strategy that addresses skill gaps and prepares for future demands.

Stage 2 Research Aims

In stage one extensive primary data was gathered from local businesses through various methods including interviews, surveys, measures of satisfaction with skills provisions, this was analysed alongside secondary data analysis to inform the Dorset Local Skills Improvement Plan. The focus for the primary research in stage one was on businesses often overlooked in skills research, especially small companies in less populated areas, to ensure a more representative sample. This approach effectively identified skills gaps and needs across key sectors. However, pinpointing specific, detailed skill needs (granular skills) was challenging due to the wide-ranging employer perspectives. These granular skills are crucial for training providers to tailor curriculums closely to employer needs. Therefore, the objectives for the LSIP's second stage primary research with employers include:

- Identifying current & future (granular) skill needs of employers.
- Verifying whether the-stage 1 findings are-still being experienced.

Qualitative Methodology

The second stage of the LSIP continues to utilise multiple data sources. Including national and regional quantitative employment data, stakeholder and FE/HE provider engagement, employer surveys, focus groups, and comparative analysis of regional LSIPs. This report details the findings from the qualitative methodologies used.

In preparation for a new round of employer research, a comparative analysis was conducted to examine findings from LSIPs across the Southwest. This helped determine the similarities and unique aspects of Dorset's regional skill needs and challenges compared to other areas and is published separately 'SW LSIP findings'. The outcomes of this comparative analysis informed

the creation of a discussion guide for sector-specific employer focus groups. Groups of employers were presented with the findings from the stage one research and the comparative study of other LSIPs to allow discussion, validation, and refinement of the findings.

The focus group was held in November 2023. Local employers were recruited to join the focus group via social media, Dorset Chamber invitations and sector contacts. Most had not contributed to stage 1 research. Recruitment was very challenging and latterly Chamber relationships were utilised for direct approaches in order to gather a group of employers. The group who attended included small, medium and large businesses with local presence.

Key Regional Findings

A comparative analysis of South and Southwest LSIPs conducting research in the Advanced Manufacturing sectors was undertaken. The full report “Literature Review: South and Southwest LSIP’s Key Findings for the Advanced Manufacturing and Engineering Sectors” is available on Dorset Chamber’s website. The comparative analysis found the following recurring themes.

Skills Gaps: A shortage of key engineering roles, and the need for advanced technology skills such as machinery skills, automation, programming, and trade skills. Additionally, it highlights the importance of design engineering skills.

Non-technical Skill Needs: The literature review emphasised the importance of people skills, work readiness, basic computer literacy, skill flexibility, and critical thinking and problem-solving abilities in the manufacturing and engineering industry.

Challenges Facing the Manufacturing and Engineering Sector: Issues such as ageing workforces, sector communication challenges, the rurality of businesses and its impact on training availability, and a lack of understanding and guidance on Net Zero.

Proposed Actions to Help the Manufacturing and Engineering Sector: The review suggests developing better employer-provided collaboration, creating short modular courses proactive towards industry needs, and funding and developing Net Zero-specific training.

Dorset Skill Gaps in Advanced Manufacturing & Engineering: Focus Group Findings

This section presents the skill gaps identified in the advanced manufacturing focus group. The discussion focused on various levels and types of skills ranging from Level 2 training to specialised engineering and digital design skills. It highlights findings from employer focus groups and literature reviews, emphasising the challenges faced in recruiting individuals with practical skills and advanced technical knowledge.

Level 2 skills

All employers in the focus group observed a shortage of Level 2 training options. Employers believe this shortage is negatively affecting the availability of crucial trade and production skills in the manufacturing sector. All employers stated they needed production operatives, and field engineers that had practical hand skills.

Notably, a shortage of Level 2 engineering skills was seen in the Dorset LSIP stage one employer research and observed in the literature review of other LSIPs in the Southwest region.

Large manufacturers need modern skills as well as more traditional 'trade skills' to produce their products.

“What we're not seeing is that generation of skills in the marketplace...And that's, that's the big challenge we have got.”

Software Design Engineering Skills L4-7

The literature review of LSIPs in the Southwest region frequently identified a shortage of design engineering skills. Employers also highlighted this shortage in our focus group. The focus group delved into the challenges employers face in recruiting individuals with design engineering skills and the strategies they use to fill these roles.

One employer shared that out of more than 140 software engineers in their company, the vast majority were recruited from outside the Dorset area. Furthermore, the group noted that it is extremely challenging to find apprenticeships at the degree level in Dorset or to fill vacancies that require skills at Levels 4-5.

“So, of the design type engineering skills, the software is probably the hardest to fill, then probably electronic... We're lucky enough we've got a variety of engineering fields they can kind of go-between, some theoretical, some pure mechanical, some field manufacturing. But, yeah, none of them are local! If we want a level one or two apprentice kind of production, we could probably find that locally. But when you're looking degree level... finding people at the level that are capable as well as wanting to do a degree apprenticeship is challenging.”

The employer went on to state they had no problem finding individuals who were well-qualified in HR, marketing, sales, and service-based roles in Dorset.

Digital design skills

Employers identified a significant gap in digital design skills, especially in proficiency with various computer-aided design (CAD) programs such as AutoCAD, Siemens NX, CATIA, and SolidWorks. This need for CAD skills was also noted during the first stage of interviews with Dorset employers and in the literature review of other LSIPs in the Southwest.

In the focus group, smaller companies stated they used a variety of CAD software to cater to diverse industry requirements. It was common for a professional to use multiple programs across the working day to cater to different clients' preferences.

Training the workforce to be adept at using a range of CAD programs was reported as an ongoing challenge. Learning different CAD software was compared to learning to use different office software suites; the foundational skills remain the same, but the interface, commands, and features vary. This requires adaptability and continuous learning.

“Yeah, we use every CAD package because we work for all industries. We use all of them, so we use Solid Works, Solid Labs, and Siemens NX... we have to match our customers if it's marine it's one program, if it's innovative work for Rolls Royce's then it's NX. If we're working for some American customers, it's SolidWorks...”

Fundamental Engineering Skills

During the discussion, employers shifted from digital design skills to the quality of engineering design. One employer emphasised that while knowledge of CAD programs is important, it cannot replace fundamental engineering skills. They explained that teaching CAD is feasible, but imparting the skill to manufacture something correctly is far more challenging. Another employer agreed, sharing an anecdote:

“So we don't design, we make to our customer's drawings, we often get the drawing in and think, yeah, that's not how you make that part [group laughs]. That has been designed by someone who hasn't made anything. Come on really, does it need to be that tied down? It doesn't need to be done that way, we commonly go back to our customer and say, look, that drawing has been basically made by a degree student who's never been in a factory.”

Employers also discussed that while a design might be technically feasible, it could lead to inefficient production, increasing labour, material, and time costs.

The focus group findings echoed what was discovered in Stage One employer interviews: the importance of hands-on and fundamental engineering skills. Employers consistently pointed out that academic engineers often possess extensive theoretical knowledge but lack practical skills crucial for machine shop work or real-world problem-solving. The highly similar viewpoints from employer interviews and the focus group are seen in the below quotation.

“How do I lift a jet engine? Everything is a problem that we're solving! And of course, we have academic engineers who can tell you it's the chemical composition of the material, that is great, go point to it on the shelf in a machine shop, and then tell the guy how to make it. And it's that stuff that you can't, you always can't teach until you've had exposure to it... we're not able to give our engineers that because I can't go knock on a customer's door and say can I bring 12 people and we just sort of an entire day kind of thing. So, it's really hard to get that exposure until they're more senior level where one at a time we go and see a customer problem.”

Quote from stage 1 Employer interview: *“ Transcript 17 What we've got is we've got some very very clever engineers who can design things on the computer, but they've lost touch of actually what the material feels like and how the material sort of feels and looks and works when it's being worked. So, it's just like basic engineering”*

Machine Shop Skills are Essential

There was a feeling among some of the participants that traditional shop floor skills are lacking in the modern workplace. Although there was an uptake in what might be termed 'hobbyist' production such as 3D printing – one participant highlighted that this doesn't reflect real-world manufacturing. Overall, there was a worry that there is a lack of knowledge about the hands-on practicalities of the design-to-manufacturing production process.

To improve these hands-on skills, another participant talked about sending some of his team on a welding course to get an appreciation of what is involved in the manufacturing processes. They went on to explain that they looked for an external provider because although the local college has got welding facilities, they no longer offer the course due to lack of demand.

Composite Skills

The group discussed the need for further education programmes in composite manufacturing to address the skills gap and to attract more competent manufacturers to the area. One participant highlighted the fact that the only composite course available in Dorset is an apprenticeship with a large manufacturer. The problem appears to be compounded as it was perceived there is a low awareness among school leavers as to what composites actually are as well as a feeling that manufacturing as a sector isn't promoted by schools.

“Composite skills is that is the biggest gap. But there is a lack of further education courses available. The only course you can do currently in Dorset it is if you're an employee of X!”

Whilst there is a growing need for composite technology in the future there's a perception that the marine industry (one of Dorset's most important sectors) is less advanced than other sectors such as aerospace and F1 Motor racing.

“On a scale of one to 10 one being the most basic technology 10 being the most advanced, you could probably argue that the Formula One industry or the aerospace industry, is that sort of nine or 10. But the marine industry is at one and two... what we find with most training available <in composites> is that then we're not training for the future.”

Skills Needs are Location Dependent

In the focus group, it was found that success in recruiting lower-level operatives is highly variable. For example, a participant from a large, Poole-based manufacturer mentioned struggling to find operatives with level two and three QCF skills. In contrast, a Weymouth-based participant found lower-level skills easy to recruit but faced difficulties finding design engineering, including software skills.

Another participant from the Bournemouth Christchurch and Poole area described the challenges of finding suitable candidates for engineering apprenticeships, particularly at the higher levels 4-5. Recruiting degree-level or higher is less challenging. This group, mainly made

up of design and engineering professionals, is smaller in numbers. However, as the majority of the workforce are operatives, these individuals seem difficult to attract.

One participant noted that local sources tend to supply more corporate 'white-collar' skills, while senior engineering positions can be filled by candidates from outside the area. For instance, one participant's head of engineering resides in Norfolk and commutes to Dorset.

Another participant mentioned successfully hiring 145 engineers from Hungary by actively engaging with them. Yet another participant employs over 26 different nationalities through visa sponsorship. These approaches are used to counter the limitations of recruiting solely from the local area or broader UK locations.

Basic Computer Skills

In other Local Skills Improvement Plans (LSIPs) and the initial research for the Dorset LSIP, a common perspective is found. Although many young people are comfortable using smartphone apps, employers report them finding it challenging to work with traditional desktop applications like MS Word and Excel. This becomes a problem when they need to do tasks like data entry, write letters or emails, or create things like instruction manuals or Excel calculations.

“Where everyone’s IT skills are great, but give them basic Office tools, it’s amazing that they couldn’t probably write a letter, they can’t create an Excel calculation sheet. Or they can’t do the sort of what I would call the basics of making an operation manual, put chapters put figures in and do a table of figures. Never, Never, done that before.”

On this point there was agreement, most employers stated that younger entrants to the workplace lacked basic Outlook and calendar competencies. However, some employers also recognised they needed to play a more active role in training staff on basic routines, such as checking their email first thing in the morning. Employers also recognised they needed to adapt working practices to suit younger workers, such as using instant messaging rather than email for communication. However, as is seen in the below quote, even though employers recognised the changing nature of communication preferences, proficiency was still expected

“My generation likes to email, it’s quite a formal process. The generation below me, WhatsApp, the generation below that was Snapchat. I think it’s also about using the right technology for the right thing. But for the new people coming into the world of

work, I think there's still a requirement for those people to be trained how to use the technology that you're using, you know."

Developing Skillsets

This section of the report delves into the dynamic and often complex relationship between training providers, employers, and the evolving needs of the workforce. At its core, the discussion revolves around how employers believe the aforementioned skill gaps should be addressed. This section sees a particular focus on the alignment of training programs with both the practical realities of employers' operations and the resources of training providers.

Applicable training

A recurring theme was the application of learning. The key point is that while training providers may emphasise good candidate experience and facilities, the crucial aspect of training from the perspective of the employer is the application of learned skills in the workplace. This desire for more applied skills was also reported in Dorset LSIPs stage 1 employer interview research.

In the focus group, one employer made the analogy with the construction sector, the CITB (Construction Industry Training Board), stating this model is highly effective at blending theoretical and practical learnings. This model includes a process where individuals initially receive a red card as they are trained, signifying their participation in a course. Subsequently, they earn a blue card, indicating competency, which is only granted after they demonstrate their skills over time and are assessed.

In the Advanced Manufacturing sector training courses were criticised for lacking an emphasis on demonstrated competency. It was suggested that training providers often disengage after the completion of a program, leaving a gap in ensuring that the trainees are competent in their field.

Course Designs That Work for Training Providers and Employers

The focus group conversation then moved to a discussion of training that meets employers' needs. Whilst employers recognised the commercial pressure local colleges were facing, and that courses needed to have sufficient demand to be financially viable for them, it was also stated that releasing employees for large periods was inconvenient for employers. As one employer stated:

"I think there's a culture of training providers put on the course and wait for people to purchase it... I think training providers do need to think about how they assimilate those training programmes to meet the busy lives of individuals, and also employers who are generally under-resourced and struggling to recruit. So, the answer can't always just be well, we'll release people for big blocks of time to participate in training."

There was agreement in the room that shorter courses tended to work better for employers. The group agreed that it was regrettable that night schools and evening classes were in decline.

"If you went to college and said, well, I want to do a short module for ten of my people on how to manage performance in their teams, right? I think maybe 10 years ago that I reckon the college would have had a night school for that you would have gone to an evening class, and you could have sat and done that course in three hours or a couple of evenings a week."

Lack of Further Education Tutors

At several points in the group it was recognised that there was a lack of college tutors available. The group recognised there was insufficient incentive for many people to teach, as tutors could earn much more working in Industry. This point has been made by employers in all sectors of the LSIP research. Employers were sympathetic to the difficulties colleges faced in finding skilled teachers. One proposed solution was for businesses to engage in better collaboration with local colleges, as one participant stated:

"The college might as well be sat here talking about the skills gap in tutor provision. So that's why I think it all comes down to leadership and coaching. I think it is massive because maybe the collaboration is around how can we utilise the skilled people who we already have got in organisations to help them teach the next generation or the new people."

Promoting Manufacturing

When exploring solutions to address skill gaps, employers emphasised the importance of promoting careers in manufacturing within schools. The discussion on how to enhance the visibility and appeal of the manufacturing sector in educational settings is summarised in the below points:

- **Factory Visits and School Engagement:** The group discussed initiatives like opening factories to school visits as a means of exposing students to manufacturing. However, they face challenges such as insufficient funding for schools to transport students to these sites, limiting participation.
- **Parental Perceptions and Career Advice:** A significant obstacle identified is the negative perception of manufacturing and engineering among parents and career advisors. It was felt that parents preferred children pursuing careers in Professional Services. The group suggested the need to change these perceptions and potentially involve parents in educational activities.
- **Resource Constraints in Schools:** Schools were described as being under considerable pressure with limited budgets and time, making it difficult for them to focus on external collaborations. The suggestion was made that providing schools with "easy-to-use toolkits" for careers in manufacturing and engineering could facilitate more interaction between industry and education.
- **Collaborative Events and Reducing Isolation:** The group explored the idea of organising large-scale events to bring together schools and manufacturers. Such events could reduce the administrative burden on individual companies and schools and provide a more unified approach to career exposure in manufacturing and engineering.
- **Manufacturing as a Viable Career Path:** The group were in agreement on the need to demonstrate to both students and parents that manufacturing can offer rewarding and well-paying careers. It was suggested employers needed better pay data to allow benchmarking against other sectors, enabling the manufacturing sector to remain competitive.

Placements

For degree-level engineers, placements were represented as highly valuable for two reasons: Firstly, they led to a greater level of skill development; secondly, they helped with recruitment.

"We've got a chap from Nepal, and he recommends a friend. because he's come back after uni, bam that's two fully qualified engineer vacancies out of a placement."

Work Experience

The value of exposing students to various engineering industries to help them understand what the job entails was a recurring topic of conversation in the focus group. This exposure can assist students in making informed decisions about their career paths.

"I think it's really important as part of any study, whatever it is, that you get an idea of what job it actually is...often you only see one side of it, you don't realise that there's any number of different industries within engineering is immensely broad kind of thing"

This point was referred to several times in the discussion and other employers believed the issues they faced with apprentice staff were because they had not had adequate exposure to different jobs at school, leading employees to try out several apprenticeship courses.

Short Practical Courses

When discussing their training needs, employers emphasised the value of brief, hands-on courses. These courses were seen as effective for building essential skills and fostering a practical understanding of engineering fundamentals. For example, employers highlighted the benefits of short, focused courses like one-day welding workshops. These sessions provide students with direct, practical experience in welding, offering a real-world perspective on the skills being taught.

One employer stated they currently benefited from day welding courses where the students were given an appreciation of practical hands-on welding. Evening classes, and Saturday courses, were seen as valuable by employers, but it was stated that local colleges were often not interested in providing these courses. On this point, the call from one employer to the local training providers was

"You have the facilities, you have the resources, make them available at evenings and weekends!"

Leadership Training

Employers in the focus group recognised a significant shift in the employee experience and expectations. This change in employee expectations requires a new approach to how employees are managed and engaged, emphasising the importance of effective leadership. This focus group discussion underscored the importance of leadership not just in task management but also in people development. There was an acknowledgement that employees require ongoing development and nurturing, challenging the notion that employees come 'ready-made' regardless of their prior training or educational background.

A prominent challenge highlighted by the employers is the difficulty in finding suitable leadership training programs. The existing courses often lean too heavily towards academic theory, lacking practical relevance, especially in specific industries like manufacturing or

engineering. This gap indicates a need for more practical, flexible, and industry-specific leadership training programs that can effectively address the real-world demands of various sectors.

The conversation also delves into the challenges associated with apprenticeships and funding for leadership training. The current apprenticeship framework is seen as rigid and protracted, not aligning with the urgent need for quickly upskilling leaders. Employers suggest transitioning from an apprenticeship levy to a more inclusive 'skills levy', which could finance a variety of short-term, practical courses, including leadership training.

Employers expressed a strong preference for training programs that are practical and can be directly applied within their businesses. They advocate for training solutions that are tailored to the specific needs of their organisations, as opposed to generic, theoretical courses. This desire highlights a need for more accessible leadership development opportunities, particularly for smaller businesses.

Employers also desired financial support to help cover the costs of leadership training, suggesting this could be part of the proposed skills levy. This point was expressed by employers as follows:

“At the moment, the apprenticeship numbers are declining. And people can't access their funds. Now we're just about spending our apprenticeship Levy. But I think the feedback for the LSIP has got to be that that the government needs to try and think about making that apprenticeship levy into a skills Levy because they're already saying, if you're not paying into the apprenticeship Levy, you have access to funds. And if you've spent your levy, you get 95% extra, so they have got surplus funds available. But it's really skills they need to transform. So, if I need a welder, I can use my apprenticeship levy for a short course. At the moment, it can be a 12-month programme, and to find the training provider you'd have to go to Bristol!”

In summary, employers in this focus group were seeking more practical, industry-relevant leadership training that is financially accessible and adaptable to the changing workforce dynamics. They advocated for a shift in funding structures to better support leadership development and emphasise the importance of leadership in employee development and business growth.

Barriers to Upskilling

This section details the critical challenges and limitations faced by employers in the realm of workforce upskilling. A key theme centres on the perceived gap between training programs and their relevance to industry demands. Employers express concerns over the quality of local training, often citing a lack of practicality and insufficient industry experience among tutors. This gap between theoretical knowledge and practical application in the real world is a recurring point of discussion. Employers argue that real-world application is crucial for embedding learning effectively, a view reinforced by observations of new graduates rapidly acquiring practical skills on the job.

Training lacks industry Relevance

When asked about the quality of training locally employers state that it lacked quality and practical basis, with the experience of the tutors being a key factor leading to lower quality training.

“I would usually say not great, I’m really genericising, the whole of CAD teachers across the whole county, but a lot of them have not worked the industry and therefore, they’ve been on a training course, they might even be a certified trainer. But if they’ve never actually used it in industry,”

“Like every skill, you can do academia, unless you take it outside of the real world, you don’t kind of know... a recent graduate said I think I’ve learnt as much in these three weeks as I did in my entire three years of studies just because I’m applying it... Give it a real-world application. And of course, that application is everything we’re talking about today, that kind of thing for manufacturing design electrical software... it’s how you make it relevant to the industry. I think that’s the challenge of it.”

After this perspective was shared with the group, another employee joined the conversation and stated in their experience, that when students applied theoretical knowledge to practical applications, the result was the learning was “embedded” leading to a greater level of understanding. Later in the discussion, this point came up again, with another employer stressing that training value in the current market was based on applicability rather than knowledge.

“I think everybody can get the facts now online, pretty much. I think it has to be less about facts and more about practical application.”

Training Value and Return on Investment

In the discussion of training quality, several employers stressed that training was often expensive and did not deliver the skills they needed for their business. As a result of this employers were now choosing to bring more training in-house rather than using third-party providers. In the discussion of CAD training, one employer stated that

“CAD training it, it's extortionate, you know, and a lot of time, they don't give us the skills we need so, we needed to stop sending people on CAD courses, because it didn't work for us.”

After this comment, the group moderator asked if the cost of training was prohibitive, at which point it was argued by multiple people in the room that it was not the cost of training specifically, but that employers felt it would offer little return on investment or that it was of low value. It was argued that manufacturing companies invest heavily in machinery, service plans, and other tangible assets, but when it came to training there was a reluctance to invest as:

“there's that worry about lack of return, you know, so I think that that return has got to be really, really clear of what people would get out of it when sending someone a training course.”

Out of Area Training

Focus group participants had chosen at times sent employees to training providers outside of Dorset. This was because there were not the training courses they needed locally, or due to a poor previous experience.

Apprenticeship Standards

Participants acknowledged that the move to apprenticeship standards, while well-intentioned, and designed by employers, has inadvertently made it harder for some students to access apprenticeships due to the new specific standards agreed upon.

Another significant issue raised was the impact on social mobility. Participants shared that they believe the new standards (needing five GCSEs), with their higher entry requirements, inadvertently excluded a group of potential apprentices who might not have the academic qualifications but possess the practical skills necessary for key apprentice roles. Thus, whilst the group recognised the move to standards is well-intentioned, it was agreed, that the result was a reduction in social mobility and overly specific courses.

The group highlighted that the consequence of this is they are excluding a group of students they may have gone on to successfully train in badly needed skills such as carpentry, engineering and electrical.

“Then there's this other little group of students who haven't got their five GCSEs. But they are going to be great engineers or campus electricians,”

Living Costs

Participants mentioned that Dorset's location and its high cost of living, compared to other areas of the UK, are factors that affect recruiting and developing skills. The cost of living was seen as a universal barrier among participants to bringing skills into the area,

Participants were clear on the problems associated with living costs and their impact on their businesses. For instance, one participant highlighted that they regularly benchmark their pay and cited that in 2021, their pay went up by about 18%. Another participant said that they believed that wages offered by employers in Dorset were broadly, competitive but should be publicised more.

Focus Group Findings Summary

The focus group's comprehensive exploration into the skill gaps within the advanced manufacturing sector underscores key challenges in upskilling and training the workforce.

Employers have pointed out several key areas where skill gaps are most pronounced. Firstly, a notable deficiency in Level 2 training options, which they believe has led to a scarcity of fundamental trade and production skills. This gap is acutely felt across the sector, as employers struggle to find personnel with the necessary practical hand skills, a cornerstone for efficient and quality manufacturing processes. The lack of skilled production operatives and field engineers is not just a local issue but a widespread concern affecting various regions.

A business-critical skill gap was in the fundamentals of engineering. Employers stressed that while knowledge of CAD programs and theoretical understanding is important, it cannot replace the core engineering skills necessary for manufacturing. This includes the ability to understand and apply engineering principles in real-world scenarios, which are crucial for problem-solving and efficient production. The employers' perspectives reflected a disconnect

between academic training and practical application, with new graduates often lacking the hands-on experience essential for the manufacturing sector.

Furthermore, employers in the focus group emphasised a significant shortage in software design engineering skills, particularly at advanced levels (L4-7). This gap is especially critical in today's technologically driven manufacturing landscape, where software plays a pivotal role. The scarcity of skills in digital design, particularly proficiency in CAD programs like AutoCAD, Siemens NX, CATIA, and SolidWorks, was repeatedly mentioned.

To address these challenges, employers advocated for a multi-faceted approach. This includes enhancing training programs to align more closely with industry needs, fostering stronger collaboration between educational institutions and the manufacturing sector, and revising apprenticeship programs to be more inclusive and practical. Employers also called for training that focuses on the practical application of skills in the workplace.

In summary, the focus group's findings reveal a pressing need for targeted interventions to bridge the skill gaps in the advanced manufacturing sector. This requires concerted efforts from both the industry and educational institutions to develop training programs that are not only academically sound but also deeply rooted in practical, real-world applications. By addressing these skill gaps, the sector can better prepare for the challenges of modern manufacturing and ensure a robust pipeline of skilled professionals.