LET'S TALK REAL SKILLS

ENGINEERING AND ADVANCED MANUFACTURING SKILLS PLANS

– FINAL REPORT

November 2021

CONTENTS

EXECUTIVE SUMMARY

1. This report was commissioned by Calderdale College, as part of the Let's Talk Real Skills Programme. It sets out the key findings overall and sub-sector specific findings from 99 skills audits undertaken with advanced manufacturing and engineering (AME) businesses across Leeds City Region. The data analysis and the report production has been undertaken by Tokos Solutions.

2. The data has been analysed at a sub-sector level for 5 sub-sectors, making up the AME sector:

   - Textiles (including textile related manufacture)
   - Electronic and electronic equipment and products manufacture (Electronics)
   - Basic metal manufacture and fabricated metal products (Basic Metals)
   - Manufacture of machinery and equipment (non-electrical/electronic) (Machinery)
   - Manufacture of products/other manufacturing (i.e. those that have not been captured in the earlier categories (Products)

3. The report sets out key findings overall, then detailed findings identified from the data analysis against each of the sub-sectors, followed by conclusions and recommendations.

4. The majority of businesses participating in this project were micro and small businesses, accounting for 77% of the total businesses. The size of businesses impacts on their capacity to address skills needs and approach to skills development and recruitment. Few have an HR person who may lead on this activity.

5. Significant numbers of businesses in the sector have national and global markets.

6. The majority of businesses in each sub-sector are aiming for growth through strategies such as new markets, expansion of existing markets, diversification and development of new products. However, significant numbers of businesses in the textile and the basic metals sub-sectors are working on survival following significant impacts of Covid and Brexit.

7. Key business challenges faced by the businesses in the sub-sectors can be summarised as follows:

Challenges	Textiles	Electronics	Base Metals	Machinery	Products
Aging workforce	40%	8%	46%	43%	32%
Skills shortages	20%	42%	8%	7%	14%
Recruitment issues	16%	50%	23%	29%	14%
Increased cost of production (& wages)	20%			29%	18%
Supply chain/logistics	40%	25%	69%	14%	68%
Access to markets	16%		23%	21%	21%
New Technology/ Product Innovation	8%		8%	14%	14%

8. The majority of businesses across all the sub-sectors were impacted in some way by the external factors of Covid and Brexit, this included negative impacts such as:

   - Having to furlough and reduce staff.
   - Increased paperwork and costs.

   And positive impacts such as:

- Lockdown providing an opportunity to undertake strategic planning and training.
- Opening up opportunities for new business with UK customers, where customers were previously reliant on importing products, and as a result suffered from delivery delays.

9. Priority skills needs per sector can be summarised as follows:

Priority Skill	Textiles	Electronics	Base Metals	Machinery	Products
Lean manufacturing	√	√		√	√
IT/Digital	√	√		√	√
Management	√	√		√	√
Business & commercial	√	√	√		√
Sales & admin	√	√	√		√
Social media & marketing	√	√	√	√	√
Agile skills	√	√		√	
Installation & maintenance	√	√	√		
Production equipment /technology operation (sector specific)	√	√	√	√	√
Design & technical drawing				√	
Data analysis				√	
Accounts /financial management					√

10. Diverse recruitment methods are used across all the sub-sectors. But many businesses had negative experiences of working with the education sector and/or trying to recruit young people.

11. Several businesses, across all sub-sectors, state that young people lack the qualities they need to sustain work in the sector - at the same time few businesses (less than 25%) offer placement opportunities to increase awareness of the sector or create recruitment pipelines.

12. Most businesses recruit based on transferable skills e.g. problem-solving capability, team-work and communication skills, alongside interest in the sector and willingness to learn.

13. There is a good level of understanding and awareness of apprenticeships across all the sub-sectors, with high take-up in specific sub-sectors i.e. electronics – 75% of businesses offer apprenticeships. However, there are barriers to offering apprenticeships including size of business (and lack of capacity for supervision), attracting young people into the opportunities and relevance of courses.

14. Digital technology adoption is relatively high across most of the sub-sectors, especially for accounting, digital marketing and CRM.

15. Recommendations from this research include:

- To put into place mechanisms to support businesses to address their ageing workforce.
- To facilitate improved education links with businesses enabling them to access the higher skilled future workforce they need.
- To work with businesses to develop and deliver the courses identified as gaps in provision.

1. INTRODUCTION

1.1 This report, commissioned by Calderdale College, is intended to set out the key findings overall and sub-sector specific findings from skills audits undertaken with advanced manufacturing and engineering (AME) businesses across Leeds City Region, as part of the Let's Talk Real Skills programme.

1.2 The report uses data from diagnostics on businesses that were engaged by the Textile Centre of Excellence and Brook Corporate Developments Ltd, on behalf of the College for the ESF funded programme Let's Talk Real Skills (LTRS). 99 Skills Plans have been reviewed to provide these key findings.

1.3 For the report, the data has been analysed at a sub-sector level for 5 sub-sectors, making up the AME sector:

- Textiles (including textile related manufacture)

- Electronic and electronic equipment and products manufacture (Electronics)

- Basic metal manufacture and fabricated metal products (Basic Metals)

- Manufacture of machinery and equipment (non-electrical/electronic) (Machinery)

- Manufacture of products/other manufacturing (i.e. those that have not been captured in the earlier categories (Products)

1.4 There are 7 'other' businesses that are not categorised in the above sub-sectors, that are construction, repair of motor vehicles, and accommodation and food service activities businesses. As these are not AME businesses, small in number, and are a disparate group of businesses, they have not been analysed in detail.

1.5 The key characteristics of the businesses engaged overall are set out below, by business location, business size and business sector:

1.5.1 Business Location

Local Authority area	Number	% of total business base completing skills plans
Barnsley	1	1
Bradford	11	11
Calderdale	12	12
Kirklees	41	41
Leeds	21	21
Selby	2	2
Wakefield	6	6
Others outside the area	1	1

1.5.2 Business Size

Business Size	Number	% of total
Micro businesses 0-9 employees	32	32
Small businesses (10-49 employees)	45	45
Medium businesses (50-250 employees)	19	19
Large businesses (250+ employees)	3	3

1.5.3 Business Sector

Sector	Number	% of total
Textiles (including textile related manufacture)	25	25

Electronic & electrical engineering & products	12	12
Basic metal manufacture & fabricated metal products	13	13
Machinery & equipment manufacture	14	14
Manufacturing products (not included elsewhere)	28	29
Other sectors (construction etc)	7	7

1.6 Data is analysed on a sectoral basis providing the following details for each of the business sectors set out from section 3 -7 of the report, as follows for all sectors (except other sectors):

- Sector Overview
- Markets
- Strategic planning and challenges, covering:
    - Business Priorities
    - Main business challenges
    - External Challenges
    - Barriers to growth
- Skills and training, covering:
    - Priority skills needs
    - Recruitment
    - Work Placements
    - Training
    - Apprenticeships
- Digital technology Adoption.

1.7 The key findings from this detailed analysis are summarised with comparisons in section 2. This section also sets out the key challenges and opportunities for the sector and sub-sectors.

2. KEY FINDINGS

2.1 Overview:

- The majority of businesses participating in this project were micro and small businesses, accounting for 77% of the total businesses.

- The largest proportion of micro businesses is within the Machinery sub-sector, where 93% of businesses were micro (43%) and small (50%).

2.2 Markets:

- The Basic Metals and Products sub-sectors have markets that are national and global. All other sectors also had some proportion of regional markets.

- The Electronics sub-sector has the largest proportion of businesses operating largely on a global basis at 50%.

- Whilst the Basic Metals sub-sector has wider markets than regional, it is also the sub-sector with the highest proportion of businesses that do not export – 77% (indicating that most of their business is UK-based); followed by the Machinery sub-sector with 50% of businesses not exporting.

2.3 Business Priorities:

- 92% and 82% of businesses in the Electronics sub-sector and PM sub-sector, respectively, are aiming for growth of their businesses, primarily through strategies including accessing new markets, expansion of existing markets and innovation and development of new products. These sub-sectors appear to be the most resilient post Covid and Brexit.

- 54% and 40% of businesses in the Basic Metals and the Textile sub-sectors, respectively, are aiming for survival /recovery following significant impacts of Covid and Brexit.

2.4 Business Challenges:

- Ageing workforce is a significant challenge across all sub-sectors, impacting on over one third of businesses overall, with the Basic Metals (46%) and Textile (40%) sub-sectors particularly affected.

- Supply chain/logistics are also a challenge across all the sub-sectors, with 83% of Electronics businesses and 69% of Basic Metals businesses stating this as a challenge, directly related to the markets in which they operate. The sub-sector least affected by this challenge is the Machinery sub-sector – linked to the fact that 50% of businesses do not export.

- Increased cost of production including wage inflation and increases in the cost of raw materials and components is a relatively big challenge within the Machinery, Textile and Products sectors, with 29%, 20% and 18% of businesses respectively identifying this. Those businesses in highly competitive sectors and with tight margins appear to be particularly impacted, and several appear to struggle to pay more than minimum wages.

2.5 Barriers to Growth:

- Skills shortages and recruitment difficulties are barriers across all sub-sectors. The sub-sector most affected by skills shortages is Machinery with 62% of businesses citing this as a barrier. Basic Metals is the sub-sector most affected by recruitment difficulties (54%), whilst also being impacted by an ageing workforce and needing to attract new entrants. The perception and awareness of this sub-sector, as well as limited school links, potentially affects ability to recruit. However, the fact that many businesses are also seeking 'skilled and experienced engineers' so that they do not have to invest in the training themselves may also impact.

- Cash-flow, financial management and lack of resources/access to finances to support growth affect businesses in the Textiles, Products and Machinery sub-sectors. Some of these businesses have cash-flow issues resulting from Covid related closures and reduction in turnover, and others need investment in technology to remain competitive and grow.

- Technology is also cited as a barrier to growth in Textiles and Basic Metals – for both these sectors it is largely the continued use of traditional machines, that is the issue.

2.6 External Challenges:

- The Textile and the Machinery sub-sectors have been most negatively and significantly impacted by Covid, with 81% and 69% of businesses respectively affected. Many businesses had to furlough staff, and there were significant reductions in turnover, however, several businesses used the opportunity to restructure, undertake training, put new systems in place, contributing to resilience and readiness to take up new opportunities as the economy re-opened.

- The Electronics sub-sector had the most positive impact from Covid with 17% of businesses indicating that this was the case – largely as a result of opportunities to increase business through customers having to on-shore contract manufacturing and a reduction in competition for the business.

- The Electronics sub-sector, however, as the sub-sector with the highest level of global trade, also has the highest negative impact from Brexit, with 75% of businesses affected. They had significant issues relating to trading with EU businesses, and this has not surprisingly become one of their biggest business challenges (see above).

- Only 2 businesses within the Products sub-sector, have stated a positive impact from Brexit. These were businesses that took up opportunities from customers that had to on-shore production rather than rely on EU-based production. However, several businesses across the sectors have also seeing increasing opportunities from markets wider than the EU (including the US and China).

2.7 Priority Skills Needs:

- All sub-sectors have identified management, business, technical and digital skills needs, alongside 'softer' skills such as communications.

- Some technical skills needs that businesses need are specific to the sub-sector, thus Textile skills needs include garment technology, whilst Electronics includes electrical assembly.

- However, many of the skills needs are generic across most sub-sectors, e.g. lean manufacturing; installation and maintenance; welding and fabricating (although this also includes plastics as well as metal); design; and sales and admin.

- The specific roles needed differ according to the sub-sector, e.g. Software engineers for the Electronics sub-sector or Chemists for the Products sub-sector.

- However, there are generic roles needed across the sub-sectors, including: Sales, digital marketing, accounts, experienced engineers.

2.8 Recruitment:

- The Machinery sub-sector have the highest proportion of businesses with current vacancies at 36%, whilst around a third of businesses in Textiles, Products and Electronics also have vacancies. One business in the textile sector has 21 vacancies and several other businesses across the sub-sectors are always looking for skilled engineers.

- Businesses have specified difficulties in recruiting for warehouse staff, welders and fabricators, industrial machinists and sales staff.

- There are a number of examples where businesses have not recruited for many years, as they have stable and loyal staff. But these same businesses are now facing issues relating to an ageing workforce and potential difficulties in terms of 'fit' of new entrants within that kind of environment.

- Businesses tend to use a range of methods to recruit, including specialist agencies, word of mouth, trade and staff referrals, and jobs boards.

- Within the Textile sub-sector, most businesses work with the Textile Centre of Excellence to access potential staff. For Electronics and Machinery, strong links with universities and colleges enable them to access the qualified potential staff that they need. The Products sub-sector businesses also work with a large number of universities and in particular Kirklees College, however, word of mouth is used by the highest proportion of businesses. Word of mouth is used by 54% of businesses in the Basic Metals sector, although recruitment is considerably lower.

- There is no real difference across sub-sectors in how businesses recruit – they all look for behaviour, attitude and characteristics such as adaptability, attention to detail, good communications etc. Where the job role is highly skilled, they tend to look for skilled and experienced people, generally with the qualifications. For the lower skilled roles, they will recruit based on worked experience and qualities, then train them on the job.

- Less than a quarter of businesses across sub-sectors offer work placements as a potential starting point in a career within the sector (although it should be stated that a number of businesses have tried to offer placements without much success or take-up).

- At the same time, many businesses state that they struggle to recruit young people. Most businesses suggest this is down to lack of understanding and awareness of the sector (by young people, careers advisers and schools), as well as more interest in other types of work such as IT. Several businesses state that the young people lack the qualities needed to sustain work in the sector.

2.9 Training:

- As identified in the snap-shot report, the majority of businesses undertake on-the-job, in-house training, delivered by internal staff (note: this level of detail was not provided in the full data), thus the training needs identified tend to focus on those that they cannot necessarily deliver in-house. Most businesses did not identify any additional needs, however, of those that did, they were primarily technical, digital, or leadership and management training.

- The technical training needs included Electrical safety, Fork-lift training, Apparel, lean manufacturing.

- The digital needs included Adobe Illustrator, Digital marketing, CAD/CAM.

- Leadership and management needs were not specified in detail – however, much of these needs were related to business owners/directors not having formal management training.

- Some businesses specified a need for courses to fill gaps in current provision, these included:
    - FeatureCAM and AlphaCAM courses
    - Vehicle Body Builder
    - Plastic welding
    - Manufacturing course

2.10   Apprenticeships:

- The Electronics sub-sector has the highest proportion of businesses with apprentices at 75%, whilst the textile sector has the lowest proportion at 28%.

- Apprenticeships cover technical skills needs, e.g. Textile Manufacturing Operatives, Fabrication, Engineering (Mechanical and Electrical), Machine Operatives. They also cover non-factory-floor business needs including Leadership and Management, Accountancy, Digital Marketing, Business Admin and Supply Chain.

- The majority of businesses across all sub-sectors are aware of the apprenticeship standards and systems. A lack of awareness typically linked to businesses that did not have apprentices and may have been too small and lacking in capacity to host an apprentice.

- There is interest from a large number of those businesses currently without apprentices, to potentially take them on, however, some businesses were concerned about the lack of relevant courses.

- Barriers to offering apprenticeships include:
    - Finding apprentices who will stay with the company throughout their training.
    - Access to quality providers.
    - Transport issues for learners.
    - Relevance of courses - too generic and don't match actual business needs.
    - Attracting young people.
    - Time to train in company.
    - Poor previous experience of apprentices not working out/leaving etc.
    - Capacity to support the apprentice within the company.
    - Attitude of school leavers.

2.11 Digital Technology Adoption:

- Digital technology adoption is relatively high across most of the sub-sectors.

- 100% of businesses in the Basic Metals sub-sector have digital in some areas or throughout the business; whilst for the Textile and the Electronics sub-sectors this drops down to 84% in both sub-sectors; however, the latter sub-sector has the highest level of adoption 'throughout the business' at 42%.

- The adoption in some areas, for most businesses includes:
  - o Accounting
  - o Digital marketing
  - o CRM

- Some businesses also had adopted it for (although it is by no means widespread across the sector):
  - o Supply chain integration
  - o Factory floor and production/processing systems.
  - o Predictive maintenance technology
  - o Design and digital modelling.

- Several businesses indicated plans for increasing digital adoption for example incorporating robotics to support efficiencies; using Big Data to understand the market; as well as for embedding the circular economy in operations. However, some businesses indicate that adoptions may not give the return on investment, because of the size of the business.
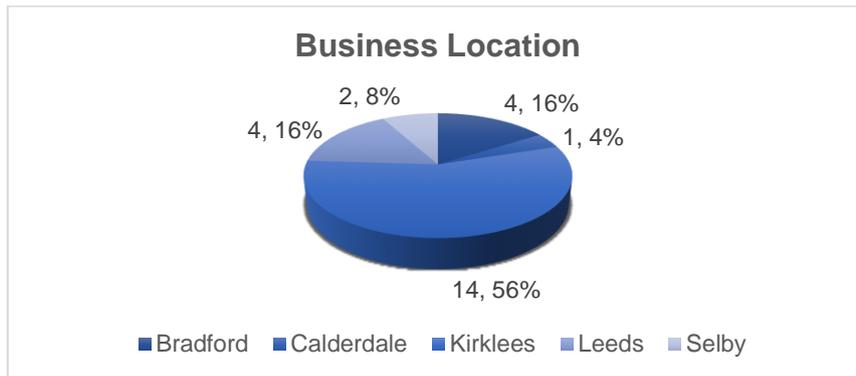
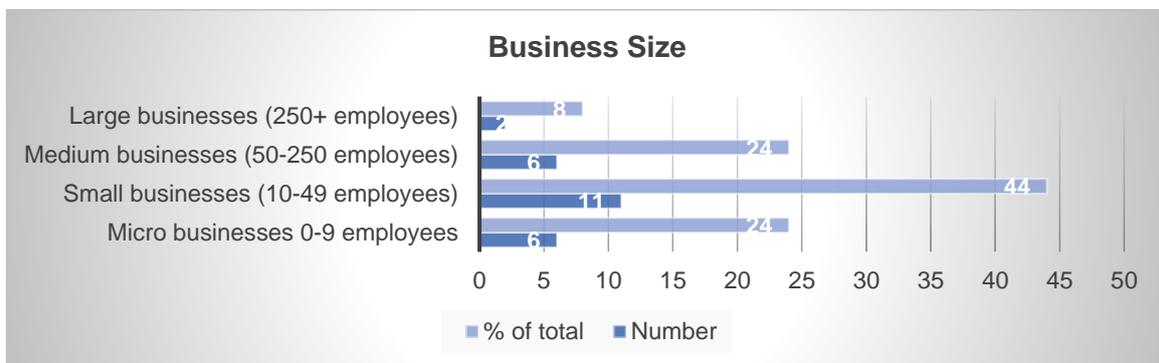## 3. TEXTILES

3.1 Sector Definition

This sector definition incorporates the following subsectors:
- Manufacture of textiles
- Garment manufacture
- Textile related products manufacture e.g. beds/mattresses.

3.2 Sector overview

Business Location

- From a total of 25 businesses, the majority (56%) of businesses in this sector undertaking the skills plans are in Kirklees.
- 2 are outside of the West Yorkshire area.

Business Size

- Textile businesses are spread across the size spectrum; however, the majority (44%) are small businesses.

3.3 Markets

Geographical Markets

- 92% of textile businesses operate within the main markets on a national or international basis.
- For many stating UK as their main market, the also trade outside of the UK.
- 2 of them state that their main markets are regional (i.e. within Yorkshire).
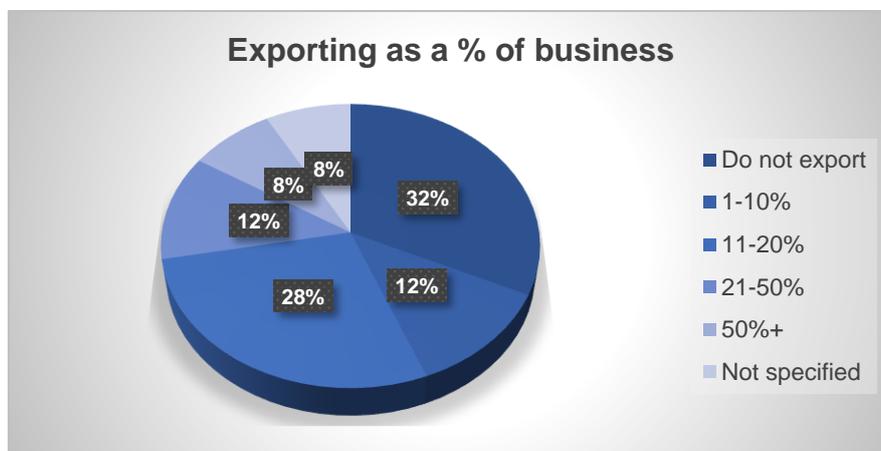
- 15 of the businesses have stated that they export to some degree.

3.4 Strategic Planning and Challenges

3.4.1 Business Priorities:
Business priorities and plans for growth of the textile businesses are summarised as:

- 14 (56%) of the businesses are aiming for growth, including through new markets, expansion of existing markets, vertical integration, diversification and development of new products. Several of these cite the need for skilled people and/or larger premises.
- 10 (40%) businesses, which have largely been impacted by Covid and/or Brexit, are aiming to maintain current levels of turnover or regain pre-covid levels – half of these are in survival mode, and the others are consolidating after growth or do not wish to over-extend themselves.
- 1 business is undecided.

3.4.2 Main Business Challenges:
The key challenges cited by businesses, to achieving their business priorities, were:
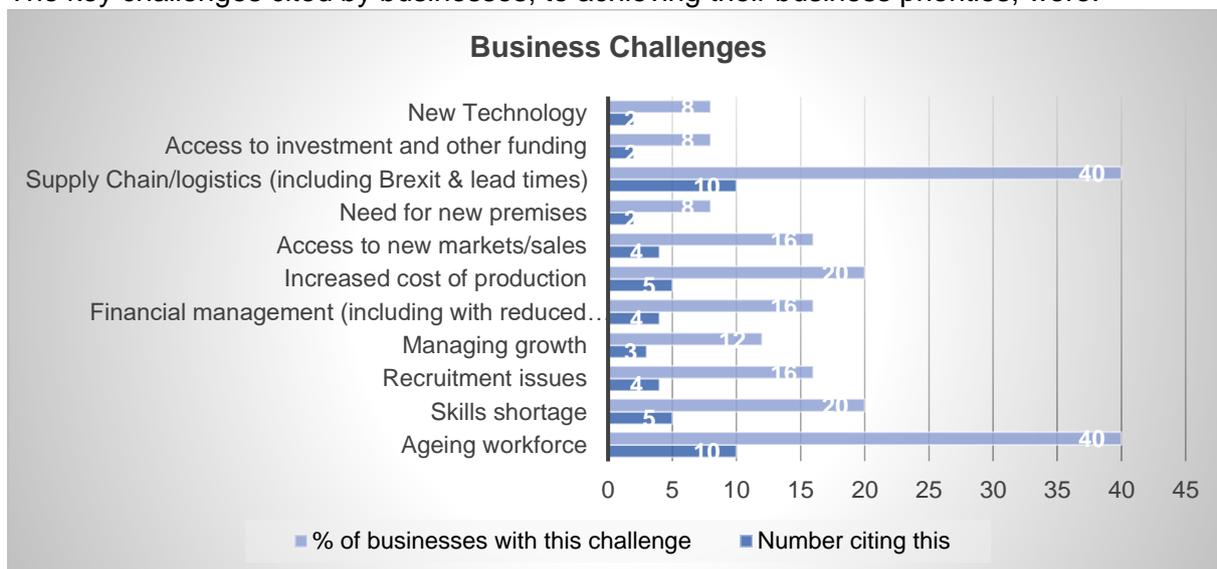
The main challenges across the textile sector are:

- Ageing workforce and succession planning with 40% (10) of businesses stating this as a challenge, although many businesses had started to put into place plans, which included apprenticeships.
- Supply chain/logistics – 36% (16) - with many affected by Brexit and the Suez Canal blockage.
- Skills shortages were identified by 5 (20%) businesses as a key challenge. In addition, 4 (16%) businesses stated recruitment difficulties – i.e. they could not get the right type of staff.
- Responding to volatility is a key concern for many of the businesses, reflected in the lead times and the financial management skills. There is a recognition that agility is essential in this sector.

3.4.3 Barriers to Growth

Skills shortages and associated recruitment difficulties are cited by 28% of businesses in both respects.

Other workforce /skills related barriers cited include:

- Minimum wage is a barrier to recruiting staff – and the business cannot afford to pay more because it will impact on its competitiveness.
- Attitude and awareness of opportunities from young people is cited in different ways – e.g. young people not wanting to work in this sector, not wanting to travel to work.

Non-workforce barriers cited include:

- Technology (lack of)– or use of traditional machines (e.g. in textiles) - this is cited as a barrier to recruiting young people who are more interested in working with technology. A key issue is inability to implement technology - impacting on ability to improve efficiency.
- Lack of resources /access to finances to support growth, linked to reduction in sales/competitiveness.

3.4.4 External Challenges

Key external challenges stated by businesses are the impact of both Covid and Brexit. This section identifies the extent that businesses were impacted by these.
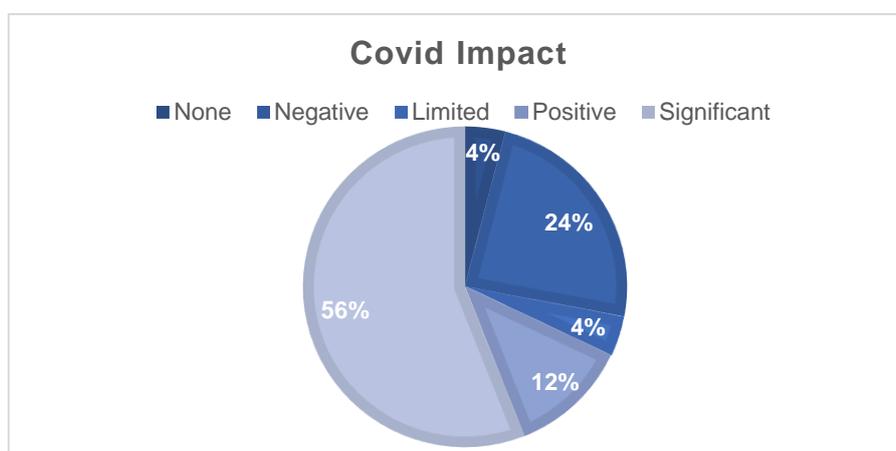
Key feedback points regarding the impact of COVID include:

- Demand and trade reduced dramatically for many businesses due to covid, at least initially. "We saw a drop in production to some of our lowest levels since we started in the 60s". One business went into liquidation.
- Many businesses had to furlough staff and for a number of businesses some key staff were made redundant. Where they did not make redundancies or use the furlough scheme, they used valuable capital to fund wages during lockdown, or they capitalised on other opportunities to maintain their workforce.
- Those businesses who had direct sales to consumers e.g. for home furnishings, had an increase in business, as this client base had more disposable income and so spent more of refurbishing homes. Some businesses in this market sector report that it is the busiest they have ever been. The opposite was the case for businesses supplying to retail, hospitality and education sectors.
- Several businesses took the opportunity of lockdown to put in new systems, restructure to make savings, undertake training, and at least two businesses increased their income by pivoting to respond to new market opportunities e.g. producing health care scrubs etc. These were seen as positive (and some responded as significant) impacts. At least one business used grants to put in new machinery and invest in new premises, staffing and new products.
- Several businesses are now reporting that business is returning, but that some sectors are slow, but have an expectation that they will recover fully (examples of timescales are within the 3- 6 months) – "a lean, multi-skilled workforce has made the company resilient".

Brexit Impact

8%
29%
63%

■ Negative ■ Limited ■ Significant
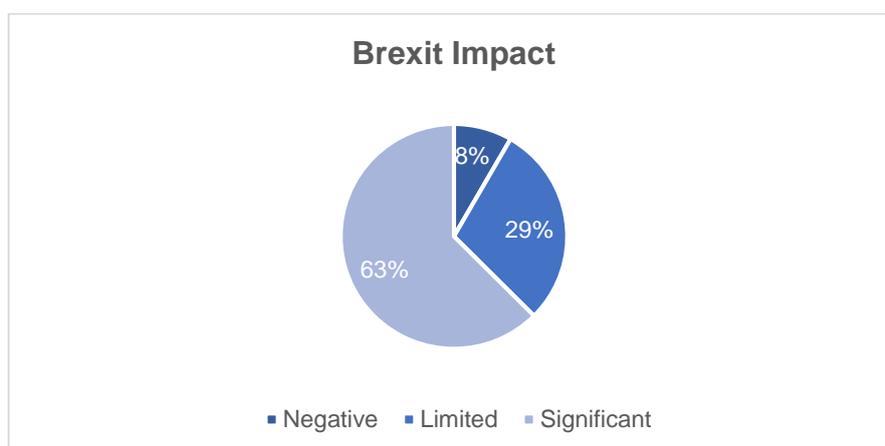
Key feedback points regarding the impact of Brexit include:

- The issues and challenges resulting from Brexit include:
  - o Logistics issues – reducing flexibility and responsiveness to customers.
  - o Supply chain issues – i.e. lack of supply and disruptions to supply for e.g. fabric and components.
  - o Increased red tape/paperwork
  - o Increased costs from suppliers, paperwork, increased administrative charges/staff.
- Many businesses reported negative or significant (with negative connotations) impact due to Brexit, regardless of whether they were an exporting business. This reflects the fact that many of them are reliant on raw materials from outside the UK. Delivery delays, increases in costs, taxes (VAT) and paperwork all impact on ability to respond to market need and customer requirements, whether they are importing raw materials/products or exporting to customers outside the UK.

- Some businesses saw opportunities in the need for their customers to onshore production, rather than rely on supplies from abroad and the related delivery delays, increased paperwork and costs. This resulted in some significant (and positive) impacts in terms of increased market or potential markets, through reduced numbers of competitors.
- Several businesses had planned for the changes, as experienced exporters/importers so impact was limited.
- Increased costs (e.g. one company states raw materials have increased in cost by 25%) will have to be passed on to customers, but a number of businesses have stated that increases have not yet impacted on sales.
- For those operating on a wider basis than the EU, access to those markets seem to be improving and the lack of bureaucracy (compared to Brexit) is helping.

3.5 Skills And Training

3.5.1 Priority Skills Needs:
Needs stated by textile businesses are:

- Lean manufacturing
- IT/Digital
- Garment technology
- Installation & maintenance
- Management
- Business and commercial
- Sales and admin
- Social media and marketing
- Agile skills

The specific roles that the textile businesses need are:

- Technicians
- Production staff and crafts people including knotters, weavers, menders, pattern cutters
- Seamstresses/Machinists

3.5.2 Recruitment:
- 8 businesses are currently recruiting a total of 32 posts:
  - One has 21 vacancies (Harrison Spinks).
  - Another seeks 4 sewing machinists.
  - Other roles include Production Operatives, Digital marketing, Maintenance engineer, and pattern cutter.
- Some businesses have identified recruitment difficulties for highly skilled industrial machinists – they are always on the lookout for appropriate candidates.
- Most businesses in the sector work with the Textile Centre of Excellence (6) to support recruitment, particularly of production and technician staff and apprentices, with some accessing their links with schools and colleges.
- The businesses use a variety of recruitment methods including specialist agencies, recruitment websites, word of mouth and employee referrals.
- Few businesses work with the education sector to develop recruitment pipelines. Where businesses do have links, they tend to be through their work with the Textile Centre of Excellence. 4 have links with schools, 3 with colleges and three with

Universities (Huddersfield and Leeds) for higher skill roles. Some have previously had links with colleges, which have not been successful sources of staff.

- Businesses recruit for the following predominantly:
    - Willingness to learn and work, and interest in the sector
    - Individual value, behaviour and attitude.
    - Characteristics such as flexibility, enthusiasm, cleanliness, attention to detail, timekeeping and team player are also sought.
    - 'Fit' where it is a smaller business in particular.

    Qualifications tend to be lower down the list of requirements.

- Many businesses stating that young people are not interested (or aware of) in careers in their sector, and several stated that they did not have the right attitude, behaviour and application for work.

3.5.3 Work Placements:

Work placements are (potentially) offered as follows:
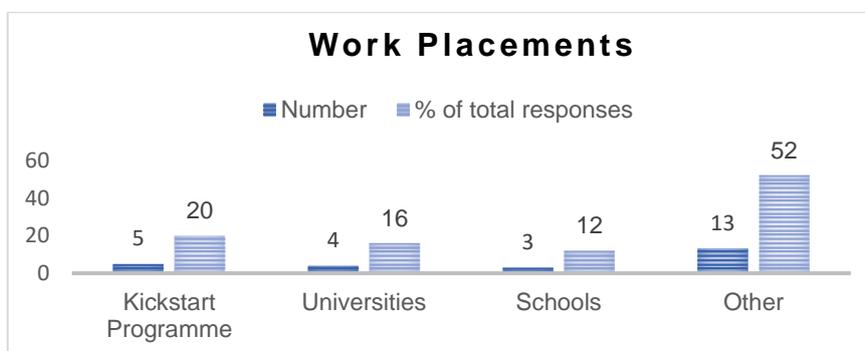
- 20% of businesses were either offering or interested in offering Kickstart placements.
- In the Other category - 6 organisations work with the Textile Centre of excellence and some through their Edu4Tex project, linking businesses with schools, colleges and universities; 3 have (had) links with colleges; and the remaining 4 do not offer nor have links with education establishments for work placements – these include businesses who believe that young people are not best placed to work in their organisations.
- A number of businesses did offer placements previously but in the main had bad experiences.

3.5.4 Training:

5 businesses specified they had additional training needs and courses, including the following:

- Adobe Illustrator
- Garment Technology
- Fibre/Fabric Technology
- Children's Wear Regulations
- Environmental awareness programme including energy usage.
- Technical textiles knowledge
- Production methods, rather than just a focus on designing
- Weaving
- Industrial Sewing Machine skills
- Taxation for exporting

- Management and leadership

Several businesses stated that they did not intend to undertake any further training at least until 2022. This approach typically related to business plans that were about recovery, survival and consolidation.

3.5.5 Apprenticeships:
- Out of 25 businesses, 7 have apprentices with 18 not having them.
- Those with apprentices have between 1 to 5 apprenticeships. Those stating the types they have include Textile Manufacturing Operatives (TMO, 11), Carding Engineer (1), Warehouse (2) and Leadership and Management (3).
- 1 is currently recruiting for a Carding Engineer, with a further 13 businesses interested in the potentially offering apprenticeships. These apprenticeships include:
  - TMO (2)
  - Level 4 Textile Technician (4)
  - Business admin (2)
  - Digital marketing (2)
  - Marketing (2)
  - Mechanical engineering (2)
  - IT
  - Leadership and management
  - Warehouse
  - Apparel
  - Engineering/Electrical installation
  - Environmental
- 19 of the businesses are aware of apprenticeship standards and systems, with 6 that do not have apprentices who are not aware.
- 4 businesses specified barriers to offering apprenticeships,
  - Transport issues for learners.
  - Relevance of courses - too generic and don't match actual business needs – 3 businesses stated this as a barrier.
- For other businesses whilst not specified as barriers, feedback narratives indicate the following may impact on their interest in apprenticeships:
  - Ability to attract young people to the sector/job.
  - Poor previous experience of apprentices not working out/leaving etc.
  - Capacity to support the apprentice within the company (where it is a smaller business).
  - Attitude of school leavers.

3.6 Digital Technology Adoption

The following table sets out the levels of digital adoption across the sector businesses undertaking the audit:

Digital Technology Adoption
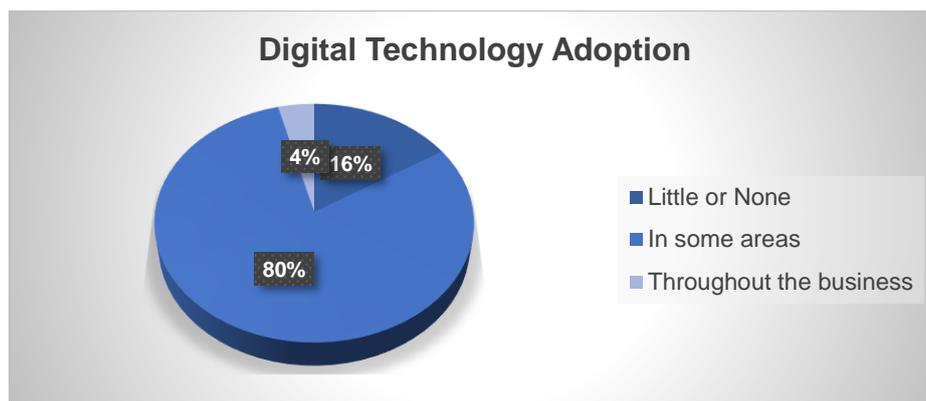
- The majority of businesses saw some relevance of digital technologies to one or more parts of their businesses and systems, however 4 businesses had little or no digital technologies within their businesses, although 1 was interested in the potential.
- The areas where there was digital adoption included:
  - Digital marketing
  - Supply chain integration
  - Factory floor and production/processing systems
- Several businesses were using ERP systems; 3D- CAD for design; digital equipment e.g. computerised sewing machines, digital looms etc; various accounting systems; and CRMs as part of their sales and marketing.
- A few businesses were also planning for improved digital adoption and developing digital strategies, particularly linked to disruptions as a result of COVID /Brexit.
- Developing strategies focused on sustainable development and embedding a circular economy also featured in plans for a number of businesses – e.g. incorporating recycling as part of their business systems and processes.
- One or two (of the smaller) businesses running on very tight margins in a competitive environment, whilst agreeing that digital technologies would support efficiencies etc, are concerned about costs to implement them.
- Examples of planned digital technology adoption by businesses include:
  - One company specifically stated that they spend £50,000 on maintaining machinery and that they would be interested in technologies that can help to address this (and reduce this cost overall). Other businesses already use predictive maintenance technologies.
  - One business also stated that they wanted to use Big Data from consumers directly to capture trend information for their different markets.
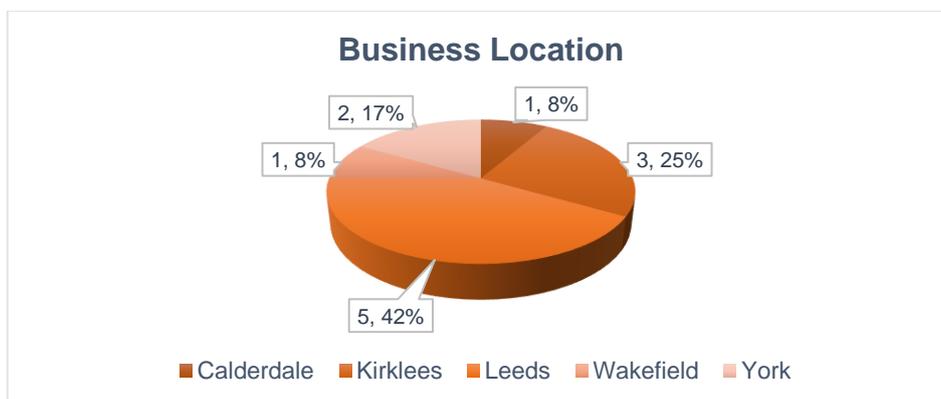 - Another business is looking to replace some of the knitting machines and make them more digital.

4. ELECTRICAL AND ELECTRONIC EQUIPMENT AND PRODUCTS

4.1 Sector Definition

This sector definition incorporates the following subsectors:
- Manufacture of electrical equipment e.g. Fans
- Manufacture of computer, electronic and optical products
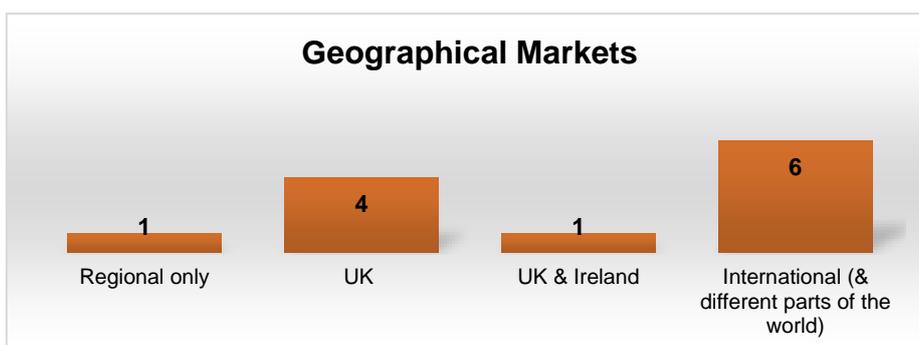
4.2 Sector overview

- From a total of 12 businesses undertaking the skills plans in this sector, the majority (42%) are based in Leeds.
- 2 are outside of the West Yorkshire area and based in York.
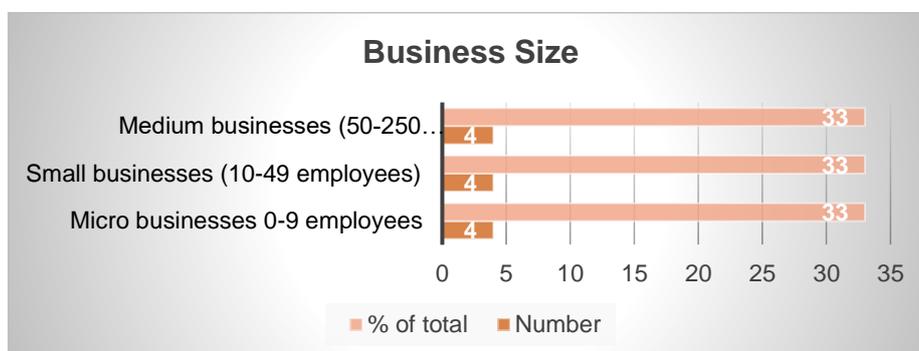
- This sub-sector businesses are spread equally across the size spectrum, from micro-business to medium. There were no large businesses involved in the skills audits.

4.3 Markets

- 92% of businesses operate within main markets on a national or international basis.

- Just one business states that their main markets is regional (i.e. within Yorkshire).
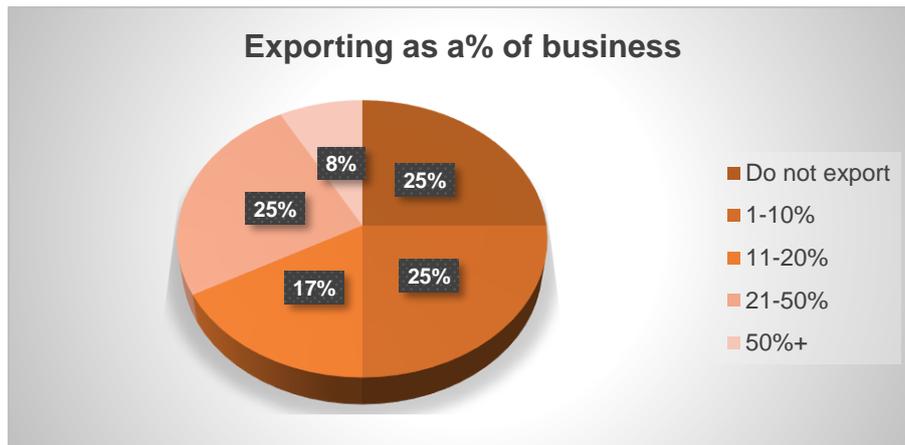
- 9 of the businesses have stated that they export to some degree.

## 4.4 Strategic Planning and Challenges

4.4.1 Business Priorities:
Business priorities and plans for growth of the Electronics businesses are summarised as:

- 11 (92%) of the businesses are aiming for/maintaining growth, as follows:
  - Through new markets for 5 of the businesses, including 2 looking at markets outside Europe such as Japan and China.
  - Expansion of existing markets for 2.
  - Innovation and development of new products for 2.
- Three of the businesses expect to recruit new (or have recently done so) to support this growth, whilst two seek new premises. Several cite the need for skilled people.
- One business is looking to recover their financial position following difficulties due to covid primarily.

4.4.2 Main Business Challenges:
The key challenges cited by businesses, to achieving their business priorities, were:
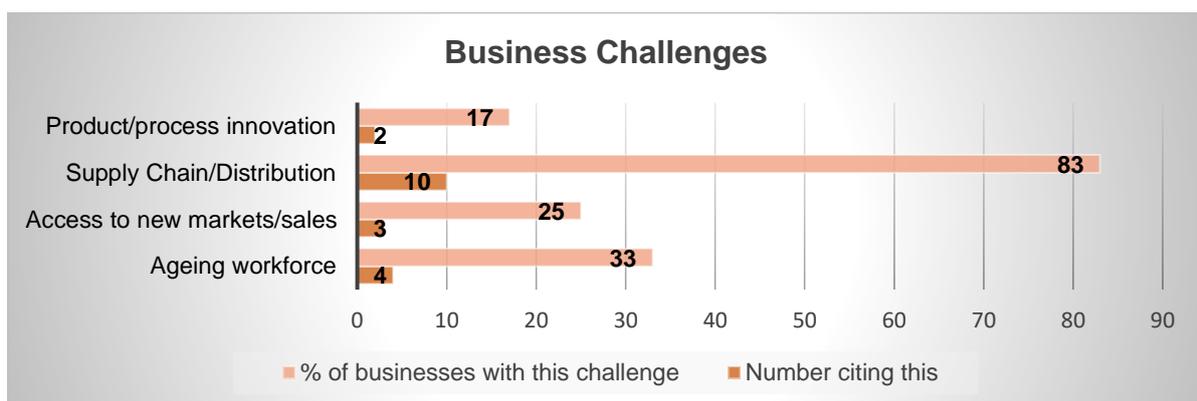
- Most of the businesses (83%) in this sub-sector have been impacted by supply chain and distribution disruption – in addition to Brexit and the Suez Canal – one mentioned anticipating potential problems due to the drought in Taiwan. One business also indicated that supplier payments were an issue.
- A third of the businesses stated ageing workforce was a significant challenge – although most had started to put into place plans, which included apprenticeships.

- One business stating product/process innovation as a challenge indicated that this included access to academic/industry development collaborations.
- Regulatory issues were also cited by one business involved in medical product manufacture, they recently had to deal with various changes in legislation regarding medical devices - namely MDR (Medical Device Regulations) and CE Marking changing to UKCA.
- Other businesses also referenced succession planning as an issue.

4.4.3 Barriers to Growth
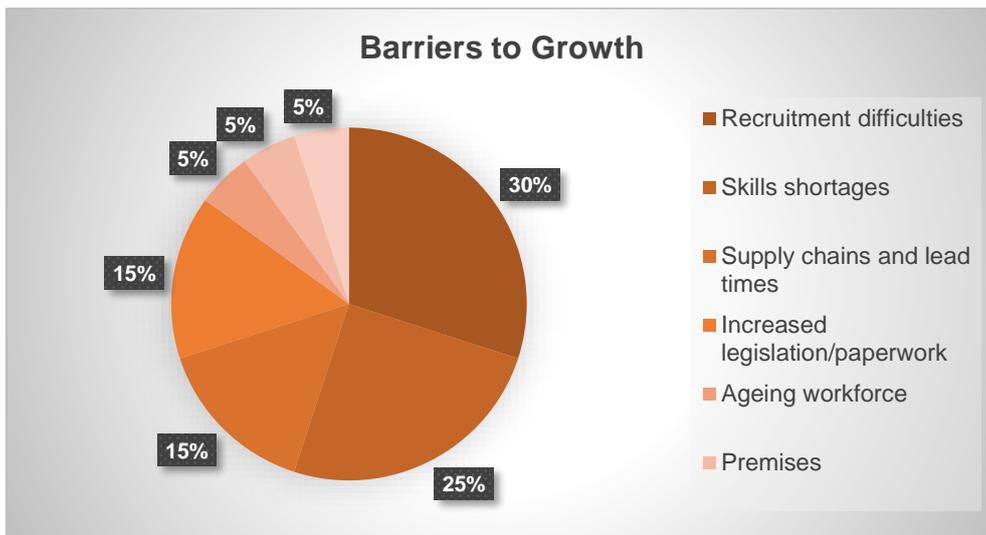
- Skills shortages and recruitment issues were particularly related to skilled engineers for a number of businesses.
- The supply chain issues impacted on a shortage of components for production, thus also increasing the manufacturing timescales and ability to get products to customers within agreed timescales.

4.4.4 External Challenges

Key external challenges stated by businesses are the impact of both Covid and Brexit. This section identifies the extent that businesses were impacted by these.
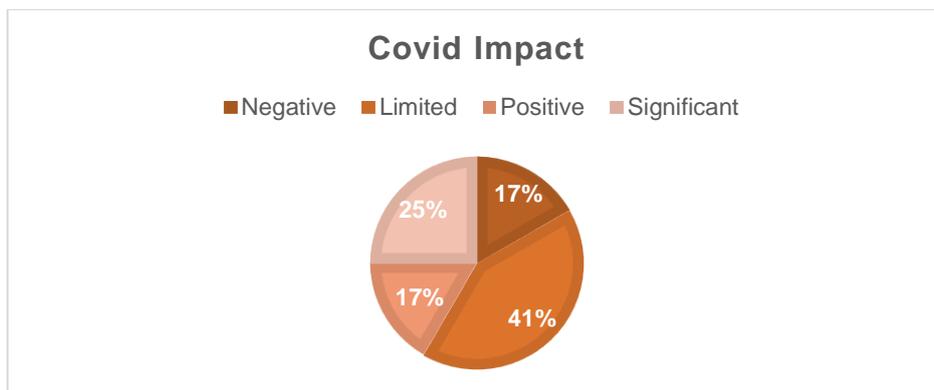
Key feedback points regarding the impact of COVID include:

- For most businesses (41%) there was a limited impact due to covid, whilst some staff were furloughed and, in some cases, manufacturing slowed, other staff continued to work and adapted.

- Some businesses had supply chain issues. One business stated that "Procuring raw materials was a little more difficult as ships were stuck in the South China Sea as there was a shortage of labour on the docks due to the pandemic".
- One business has gained customers because of some 'on-shoring' contract manufacturing. However, another business reported 'shrinkage of a key market' (automotive) having a significant impact on their business.
- Another business that was significantly affected by Covid, also faced the loss of key markets in hospitality and retail but was able to pivot to manufacture PPI for the health sector.

Brexit Impact

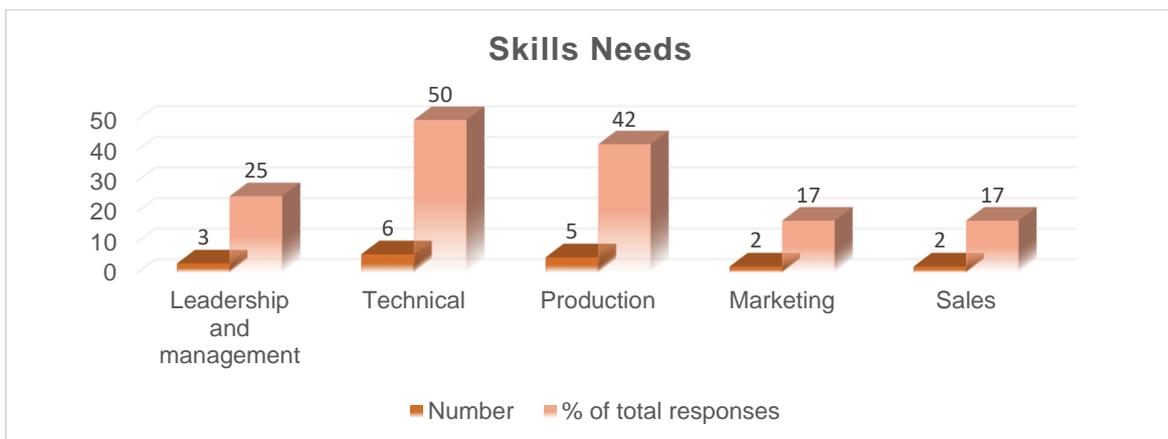■Negative ■Limited ■Significant

8%
17%
75%
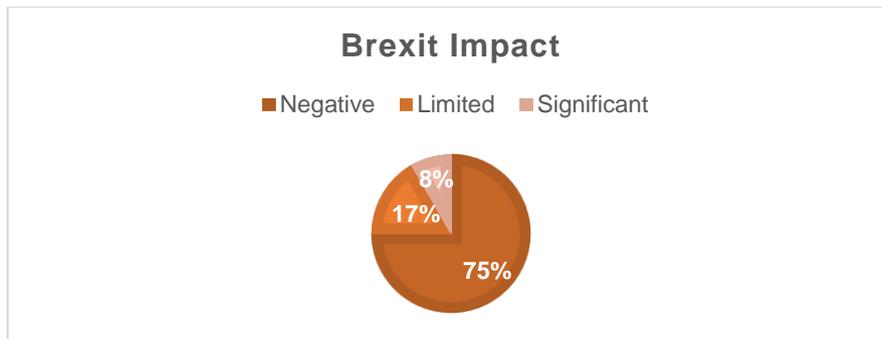
Key feedback points regarding the impact of Brexit include:

- All the businesses stating negative Brexit impacts (75%) referenced supply chain issues, with the following implications:
  o Reduced flexibility and responsiveness to customers.
  o Lack of components/raw materials to enable manufacturing, impacting on lead times.
  o Increased red tape/paperwork – requiring more staffing.
  o Increased costs of the supplies/raw materials.
- Only one business indicated that they were not reliant on EU supplies – thus the impact was limited.

4.5 Skills And Training

4.5.1 Priority Skills Needs:
Needs stated by this sub-sector businesses are:

Skills Needs

	Leadership and management	Technical	Production	Marketing	Sales
Number	3	6	5	2	2
% of total responses	25	50	42	17	17

■Number ■% of total responses

Specific Technical and Production skills include:

- Lean manufacturing

- Mechanical and electrical assembly skills
- Production equipment operation
- IT/Digital
- Installation & maintenance
- Management
- Business and commercial
- Sales and admin
- Social media and marketing
- Agile skills

Examples of the Leadership and management skills needed include:

- Lean management and continuous Improvement – e.g. Ensuring staff know how to cost save in their role and do more with less.
- Practical coaching of operational improvements in a production environment.
- Managing teams.

The specific roles that the businesses need are:

- Onsite engineers and electricians
- Mechanical engineers
- Designers
- Research and development working on product innovation
- Production Engineers
- Cabinet Makers
- Metal workers
- Assembly Team who set up the mechanisms
- Software Engineers
- Sales
- Marketing
- Accounts

4.5.2 Recruitment:

Recruitment Methods

Jobcentre Plus 6%
Staff referrals 19%
Agencies 13%
Job boards 31%
Educational links 31%

- 4 businesses are currently recruiting a total of 4 posts:
  - Field Technician to work on installations and repairs.
  - Production assistant.
  - Assembly worker.
  - Quality control officer.
- One business is "always looking to recruit experienced and skilled engineers".
- The businesses use a variety of recruitment methods:

- A number of businesses stated that they work with the education sector to develop recruitment pipelines. E.g. Leeds UTC was mentioned by 2 businesses, whilst one business mentioned Barnsley College and another stated that used engineering students from Leeds University as holiday interns, who were then offered opportunities on graduation. 3 businesses stated they did not have educational links.
- Businesses recruit for the following predominantly:
    o Willingness to learn and work.
    o Interest in the sector.
    o Problem-solving capability.
    o Individual value, behaviour and attitude.
    o Characteristics such as adaptability, attention to detail, ability to 'stick at it'.
    o 'Fit' where it is a smaller business in particular.
- Engineering qualifications (e.g. degrees for project engineers) were sought by a number of businesses – hence the link to educational establishments for many.
- Some of the businesses stated that young people are not interested (or aware of) in careers in their sector, and /or they did not have the right attitude, behaviour and application for work.

4.5.3 Work Placements:
Work placements are offered (or potentially will be offered) as follows:
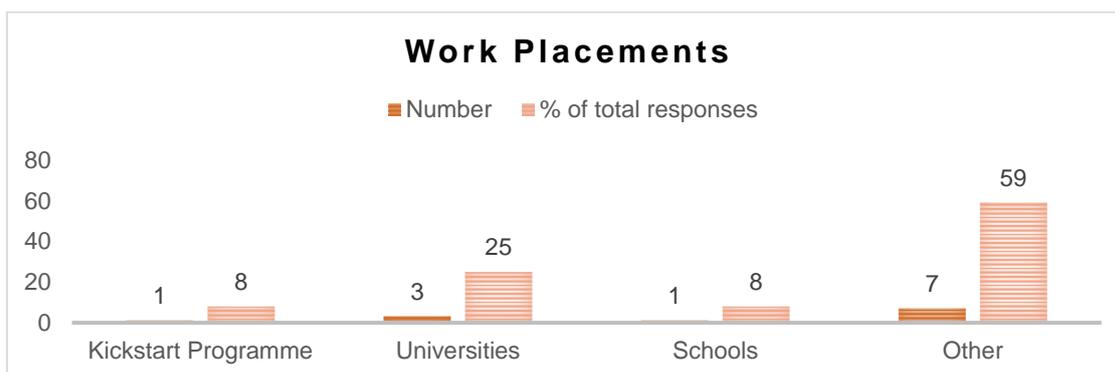
One business felt strongly that most schools do not provide a sufficient level of Careers Advice - especially with regards to the many Manufacturing & Engineering opportunities there are in West Yorkshire, with a general perception given by most schools that there are no jobs or careers opportunities in Manufacturing, which is not correct.

4.5.4 Training:
3 businesses specified they had additional training needs, including the following:

- Management and leadership
- HR
- Finance and budgeting
- Sales and marketing
- Personal safety
- Electrical safety
- Fork-lift training
- General workshop operating

One business (electronics manufacturer) also stated that more relevant apprenticeship courses should be made available, and another (with a diverse product range) stated that they would want apprenticeships more tailored to their business and products.

4.5.5 Apprenticeships:
- Out of 12 businesses, 9 have apprentices.
- Those with apprentices have between 1 to 4 apprenticeships. These include:
  o Leadership and Management
  o Accountancy
  o Engineering
  o Electronics & electrical
  o Manufacturing – machining
  o Fabricator
  o Mechanical engineer
  o CNC
  o Woodworking
- Of the three businesses that do not currently have apprentices, two are potentially interested in offering apprenticeships.
- 10 (83%) of the businesses are aware of apprenticeship standards and systems, with 2 that do not have apprentices who are not aware.
- The barriers to offering apprenticeships that were specified include:
  o Transport issues for learners.
  o Relevance of courses - 2 businesses stated this as a barrier.
  o Time away from work.
  o Time to support apprentices
  o Need for guidance and support to set up.

4.6 Digital Technology Adoption

The following table sets out the levels of digital adoption across the sector businesses undertaking the audit:
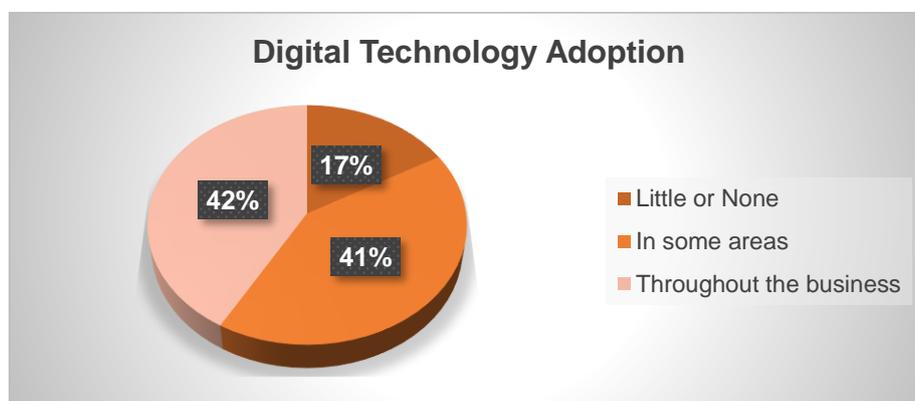
- Ten (84%) of the businesses saw some relevance of digital technologies to one or more parts of their businesses and systems, however 2 businesses had little or no digital technologies within their businesses.
- The areas where there was digital adoption included:
  o Digital marketing
  o Supply chain integration
  o Digital Twin and Simulation, including digital modelling.
  o Factory floor and production/processing systems e.g. CNC machines.
  o Web to Order.
  o Predictive maintenance.
- Several businesses were using accounting systems, and CRMs as part of their sales and marketing.

- A few businesses were also planning for improved digital adoption, for example Factory floor production systems. And one company is currently researching and developing embedding predictive analytics and sensors into their products.
- One business would consider adoption; however, the business is small and the return on investment would not justify it.
- Developing strategies focused on sustainable development and embedding a circular economy also featured in plans for two of the businesses – e.g. incorporating recycling as part of their business systems and processes.
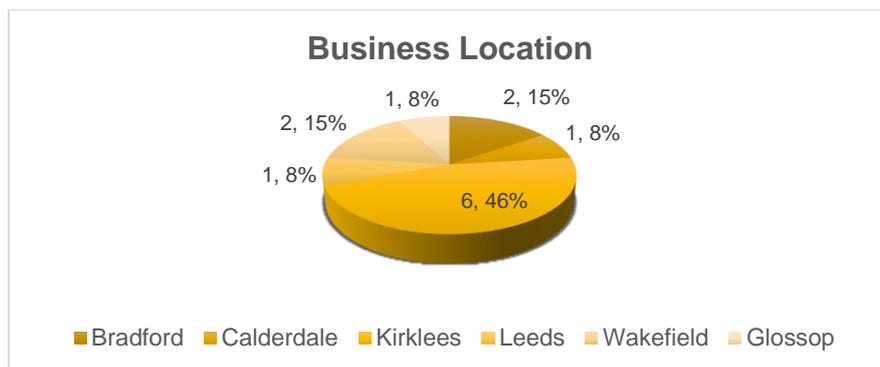
5. BASIC METAL MANUFACTURE & FABRICATED METAL PRODUCTS
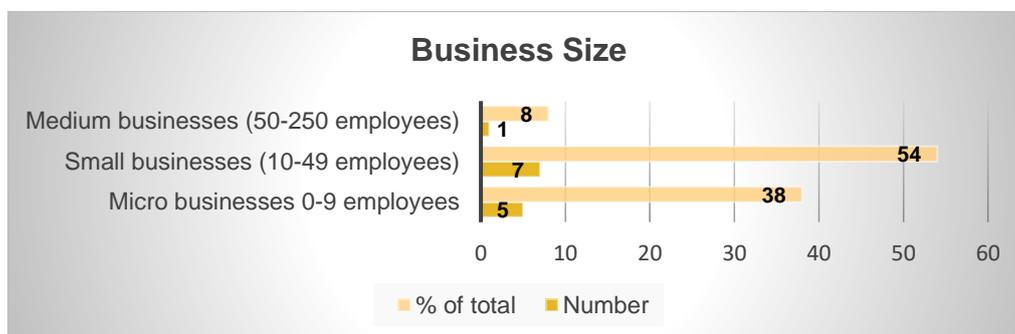
5.1 Sector definition

This sector definition incorporates the following subsectors:
- Manufacture of fabricated metal products, except machinery and equipment.
- Manufacture of basic metals, e.g. machine knives to support food manufacture.
- Structural engineering, to support construction.

5.2 Sector overview

Business Location

1, 8%   2, 15%
2, 15%   1, 8%
1, 8%
6, 46%

■ Bradford ■ Calderdale ■ Kirklees ■ Leeds ■ Wakefield ■ Glossop

- From the total of 13 businesses completing skills plans in this sector, the majority (46%) are in Kirklees.
- 1 is outside of the West Yorkshire area.

Business Size

Medium businesses (50-250 employees)   8 / 1
Small businesses (10-49 employees)   54 / 7
Micro businesses 0-9 employees   38 / 5

0   10   20   30   40   50   60

■ % of total ■ Number

- The metal manufacturing businesses that have participated in this project are mainly micro or small businesses.

5.3 Markets

Geographical Markets

11 — UK
2 — International (& different parts of the world)

- All the businesses in this sub-sector operate beyond the West Yorkshire region.
- 85% operate within a UK market.

- 2 of them operate on a worldwide basis.

Exporting as a % of business
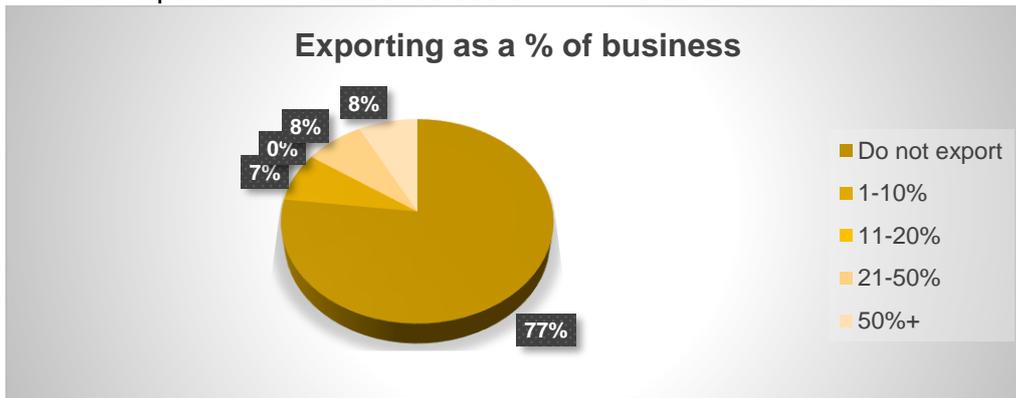
- With the majority of businesses operating mainly within the UK market, a similar number therefore do not export.
- Three of the businesses have stated that they export, although one business exports less than 5% of their products and has a mainly UK market.

## 5.4 Strategic Planning and Challenges

5.4.1 Business Priorities:
Business priorities and plans for growth of the 13 businesses in this sub-sector are summarised as:

- 6 (46%) of the businesses are aiming for growth, including through new markets, expansion of existing markets through sales and offering branded products, and development of new products. Two of these are looking for larger premises.
- 2 businesses plan to increase their turnover by 50%, whilst a third aims to increase their staff by 60% by 2024.
- 7 (54%) businesses, which have largely been impacted by Covid, are aiming to maintain current levels of turnover or recover /survive.
- 1 business has no plans to grow as they are struggling to recruit skilled staff.

5.4.2 Main Business Challenges:
The key challenges cited by businesses, to achieving their business priorities, were:
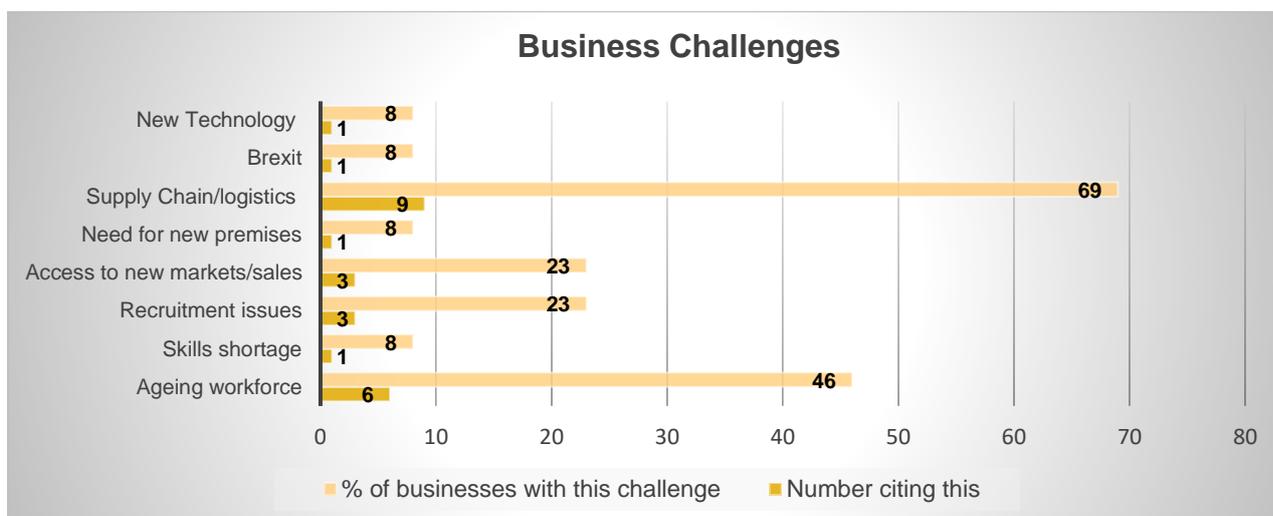
The main challenges across this sub-sector are:

- Ageing workforce - 46% of businesses state this as a challenge, and this links to the recruitment issues that half of them face.
- Supply chain/logistics – 69% of businesses cite this as their raw materials tend to come from outside the UK – and even if they trade with UK based suppliers, they have been impacted by price rises.
- Access to new markets and sales have been difficult for 23% of the businesses due to Covid and not being able to get out into the marketplace; although one other business stated that the unpredictability of the market was the problem, and they have been busier than ever and have been struggling to fulfil orders (even with many staff doing overtime).

5.4.3 Barriers to Growth
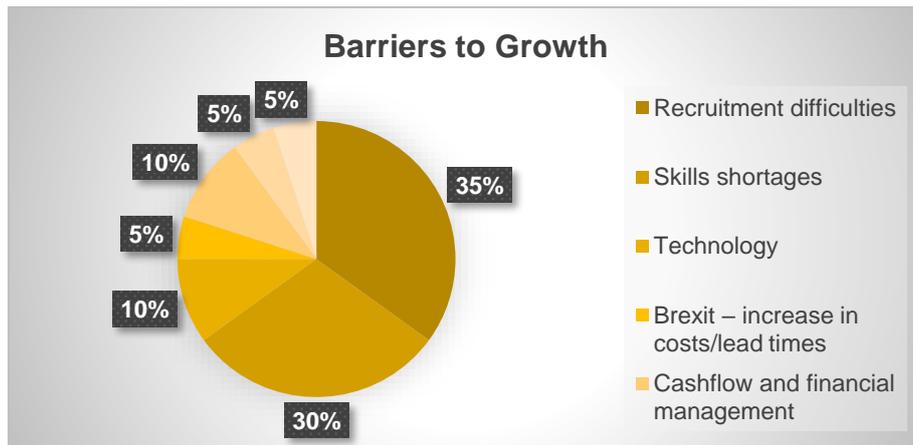
Skills shortages and associated recruitment difficulties are cited by 46% and 54% of businesses, respectively. Key skills missing include marketing and business development skills.

One business's challenge was the need to have additional staffing resources to support the owner/manager – i.e. a staff shortage.

Non-workforce barriers cited were mainly around technology (lack of)– or use of traditional machines. A key issue is inability to implement technology - impacting on ability to improve efficiency.

5.4.4 External Challenges
Key external challenges stated by businesses are the impact of both Covid and Brexit. This section identifies the extent that businesses were impacted by these.
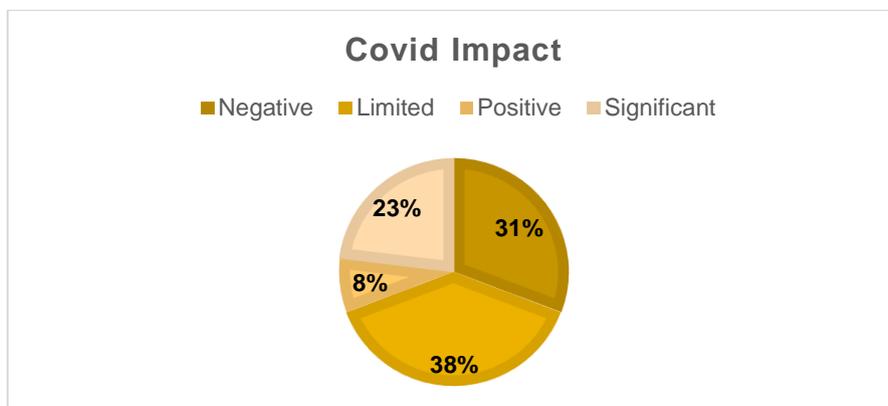
Key feedback points regarding the impact of COVID include:

- 8 of the businesses had to furlough staff – at least in the first lock-down.
- 3 businesses carried on without furloughing staff.
- One business was able to supply screens to the food sector – increasing their sales.
- One business lost 50% of their turnover on a project that could not go ahead.
- For those 5 businesses with a limited impact – they were largely able to maintain working after the first lockdown, having put in place the necessary measures.
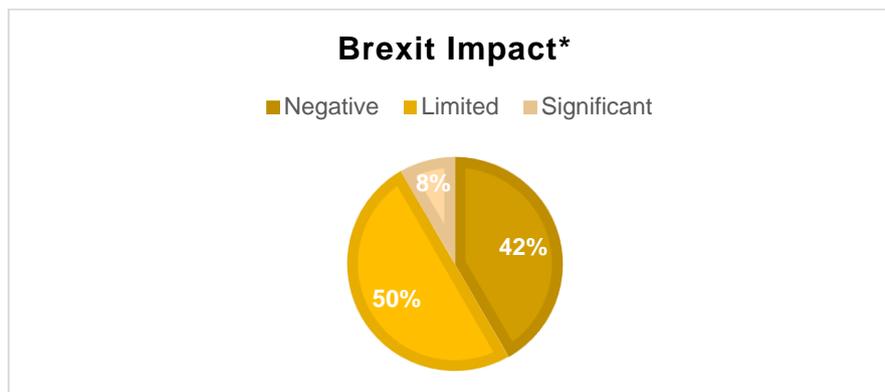
Brexit Impact*

■ Negative ■ Limited ■ Significant

8%

42%

50%

* one business has not specified impact

Key feedback points regarding the impact of Brexit include:

- The businesses reporting negative impact due to Brexit, despite the fact that most were not an exporting business, reflected the fact that they are reliant on raw materials from outside the UK. Delivery delays, increases in costs of raw materials such as steel, taxes (VAT) and paperwork all impacted.
- One business reported - 'a nightmare' in terms of increased administration with regard to declarations and descriptions of products, time taken to receive and send deliveries, increased cost of raw materials (at least 20%) and distribution costs.
- Another reported "Shortage of certain items, and sizes of cut steel".

5.5 Skills And Training

5.5.1 Priority Skills Needs:
Needs specified by businesses are:

- Business development
- Marketing
- Technical
- Communication skills in Sales and Admin.

The specific roles that sub-sector businesses involved in the project need are predominantly highly skilled and include:

- Labourers
- Brick layers
- Ground works
- Electrical engineers
- Welders,
- Metal fabricators
- Technicians who can install as well as fabricate.

5.5.2 Recruitment:
- Only 1 business currently has vacancies – welders/fabricators, and another is planning to recruit 2 engineering posts and office support.
- Several businesses state that they are always on the look-out for skilled and experienced staff.
- One business has not recruited for almost 10 years due to a loyal, stable and experienced workforce.
- The businesses use a variety of recruitment methods when they do recruit:

Recruitment Methods

- Jobcentre Plus 11%
- Staff referrals 6%
- Educational links 11%
- Job boards 11%
- Agencies 22%
- Word of mouth 39%

- 5 businesses stated they did not have educational links.
- Businesses recruit for the following predominantly:
  - Willingness to learn and work.
  - Individual value, behaviour and attitude.
  - Characteristics such as adaptability, attention to detail, committed, approachable, good communications, flexibility and team player.
- Engineering qualifications (e.g. degrees and City and Guilds Engineering and Welding) were sought by a number of businesses. One business stated, "Entrants are expected to be qualified by experience with fabricator/welders expected to have NVQ level 2 and 3 coded welding certificate".
- And most businesses wanted experience.

5.5.3 Work Placements:
Only one business offered placements via college. This is predominantly due to the health and safety rules applied in this sector's working environment. This issue also impacts on links with schools, as many of the businesses do not see the value of such links as they cannot offer work placements. However, at least one business stated that more could be done by schools to encourage apprenticeships and that they preferred to take young people on straight from school.

5.5.4 Training:
None of the businesses stated any specific training needs (in addition to the priority skills stated), except for the need to ensure access to young people and skilled workers in the future. Two expressed interest in learning more about apprenticeships and standards.

5.5.5 Apprenticeships:
- Out of 13 businesses, 7 have apprentices, totalling 18.
- Those with apprentices have between 1 to 7 apprenticeships.

- These include:
    - Mechanical Engineering
    - Metal fabrication
    - Welder
    - Accountancy
    - HVAC
    - Draughtman
- 11 of the businesses are aware of apprenticeship standards and systems, some of those with apprentices were unaware of the standards/systems.
- 3 businesses specified barriers to offering apprenticeships:
    - Transport issues for learners.
    - Relevance of courses – 2 businesses stated this as a barrier.
- Age also appears to be a barrier in this sector - one business stated that whilst they have apprentices, they "prefer to take them when they are into their final year as they will then be 18 and able to work 'on site'".

5.6 Digital Technology Adoption

Digital technology adoption appears to be high across this sub-sector. 77% of businesses (10) have adopted digital technology in some areas, whilst the remaining 23% have digital technology throughout the business. However, when responses are analysed, many of the businesses only have digital technology for accounts (e.g. using software such as Zero or Sage), and design (e.g. using Autocad, Solid Works, or other similar design software). Several suggest that beyond these usages digital technology is not really relevant to their business.

Where businesses have more readily adopted digital technology, in addition to the basic usages stated above, they may also use:

- CNC Machinery
- Supply Chain Integration
- Stock control software
- ERP system
- Digital marketing
- 3D printer

One business has bespoke digital systems in place and are developing new machines that will be digital.

Responses on where digital technology is most relevant include:

- Circular economy - one business will often buy back their old equipment, repair it and resell.
- Supply chain integration – although Brexit has impacted on this, and software has needed to be harmonised.
- Shop floor production – e.g. using systems such as Red Ant.

# 6. MANUFACTURE OF MACHINERY AND EQUIPMENT

6.1 Sector definition

This sector definition incorporates the following subsectors:
- Manufacture of machinery and equipment not elsewhere classified (n.e.c.), e.g. manufacture of hydraulic hose fittings.
- Repair and installation of machinery and equipment.

6.2 Sector overview

- The 14 businesses in this sector undertaking the skills plans are largely equally spread across Calderdale, Kirklees and Leeds.
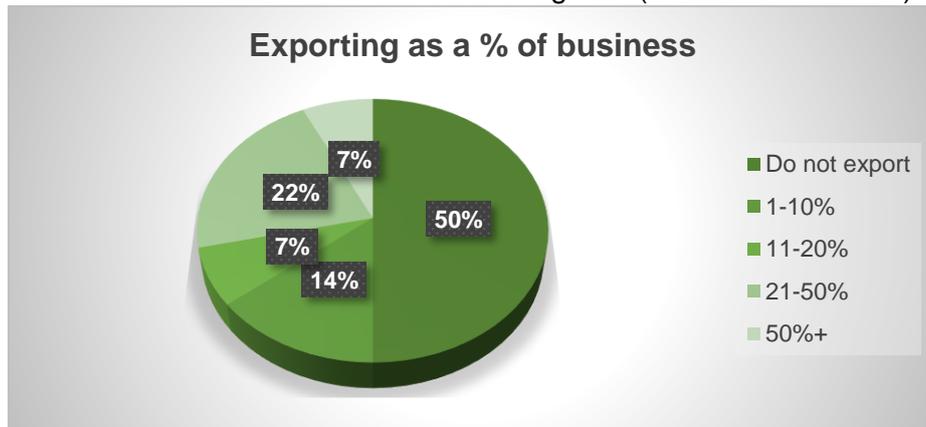- 1 is outside the West Yorkshire area.
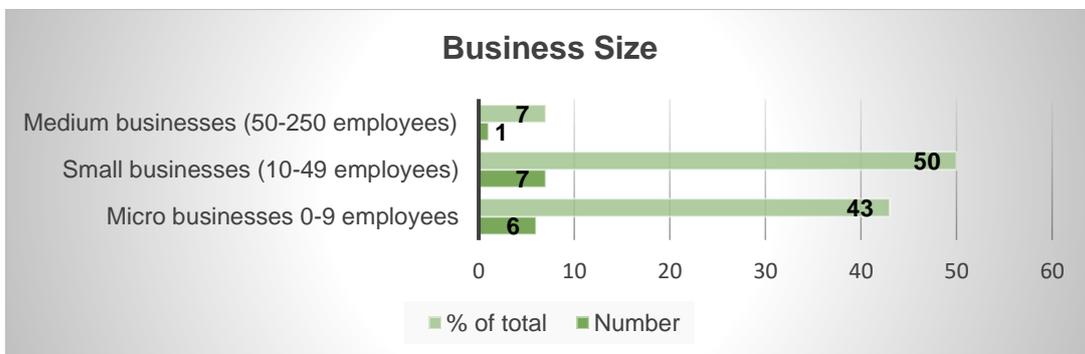
- This sub-sector's businesses are nearly all micro or small businesses.

6.3 Markets

- 86% of this sub-sector businesses operate mainly on a national or international basis.

- For many stating UK as their main market, the also trade outside of the UK.
- 2 of them state that their main markets are regional (i.e. within Yorkshire).

- 50% of the businesses export to some degree, but similarly, 50% do not export.

6.4 Strategic Planning and Challenges

6.4.1 Business Priorities:
Business priorities and plans for growth of the businesses are summarised as:

- 57% (8) of the businesses are aiming for growth, through new markets (3), expansion of existing markets (1), increasing productivity/efficiency (2), new staff (2), workforce development and training (3); and diversification and development of new products (1).
- 2 (14%) businesses, which have largely been impacted by Covid and/or Brexit, are aiming regain pre-covid levels and are in survival mode.
- 4 are seeking stability and aim to maintain current levels of turnover.

6.4.2 Main Business Challenges:
The key challenges cited by businesses, to achieving their business priorities, were:

The main challenges across this sub-sector are:

- Ageing workforce and succession planning with 43% (6) of businesses stating this as a challenge, although many businesses had started to put into place succession plans.

- Recruitment difficulties were also significant with 29% of businesses stating this as a challenge. One business had recently recruited a 68-year-old as they had no other choice of a younger person. For another business recruitment used to be an issue - but the closure of competitors has led to the creation of a good pool of experienced labour for them. Other businesses are trying to overcome this challenge by developing new structures for pay and career development.
- Increased cost of production was also an issue, with businesses citing increases in raw material/tooling costs, but also the impact of wage inflation (including the minimum wage increases).
- Only one business specifically cited skills shortages as an issue, however, another was concerned about the relevance of courses – "the apprenticeship course is Metal Manufacturing but the company manufacturers plastics".

### 6.4.3 Barriers to Growth

Skills shortages and associated recruitment difficulties are cited by 62% and 31% of businesses, respectively. Retention of staff is also an issue for a small business.

Non-workforce barriers cited include:

- Lack of resources /access to finances to support growth.
- Capacity and capability, as a small business, to put in place systems and regulatory requirements to enable them to tender successfully for more contracts.
- Premises constraining growth.

6.4.4 External Challenges

Key external challenges stated by businesses are the impact of both Covid and Brexit. This section identifies the extent that businesses were impacted by these.

Covid Impact*

■Negative ■Limited ■Positive ■Significant

38%
31%
23%
8%
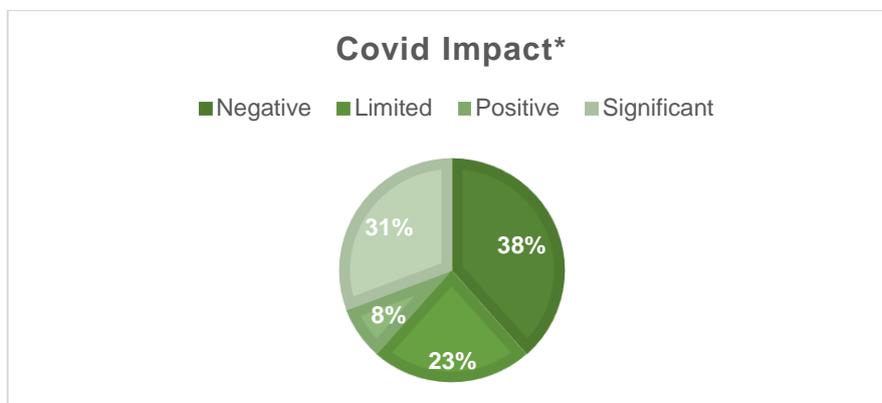
* one business has not specified impact

Key feedback points regarding the impact of COVID include:

- Demand and trade reduced for many businesses due to covid lockdowns, with production and trade slowing down, at least initially.
- Many businesses had to furlough staff, at least for the first lockdown. Many reported bringing them back in within 3 months and only one business reported having to make any redundancies.
- Those businesses whose customers had direct sales to consumers e.g. for home furnishings, had an increase in business, as this client base had more disposable income and so spent more of refurbishing homes.; and one business pivoted to manufacture what was needed – i.e. desk and face shields.

- Those involved in e.g. food manufacture had increased costs due to the need for increased hygiene.
- Several businesses reported loss of projects – one business reporting loss of £500k turnover.
- Some businesses took the opportunity of lockdown to put in new systems, restructure to make savings, undertake training; whilst another benefited from reduced competition, and increased markets where competitors had to close down temporarily.
- Several businesses are reporting that business is almost back to normal, or even busier.

Brexit Impact*

■None ■Negative ■Limited ■Significant

8% 8%
46%
38%
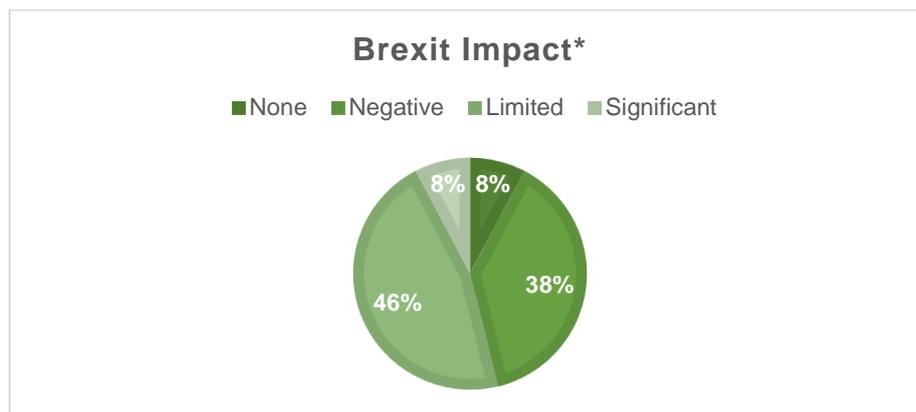
* one business has not specified impact

The impact of Brexit is very mixed for this sub-sector, with over half reporting none or limited impact, whilst the remaining reporting significant (in a negative way) and negative impact. Key feedback points include:

- Where businesses reported limited or no impact this was largely due to:
    o Markets outside of the EU.
    o Good and early preparations for the changes.
    o Capacity in the workforce to deal with changes.
    o Raw materials /components not from EU.
- Where businesses reported negative or significant (with negative connotations) this was due to:
    o Reliance on raw materials and/or tooling from EU.
    o Delivery delays.
    o Increase in lead times.
    o Increases in costs – particularly steel
    o Paperwork.
- The business reporting significant impacted stated that they needed to set up individual representation in each country to manage VAT, TAX etc.

6.5 Skills And Training

6.5.1 Priority Skills Needs:
Needs stated by businesses are:

- Design and technical drawing
- Data analysis
- Lean manufacturing

- Welding
- CNC Turning and Milling
- Management – many business managers have no formal training
- Agility and flexibility to work on different machines
- Maths
- Communication skills
- Software/electrical/hardware development
- Social media and marketing

The specific roles that the businesses need are:

- Highly skilled and experienced engineers
- Technical and Production staff e.g. Mig & Tig welders
- Site Engineer who can be responsible for the maintenance of old and new installations.

6.5.2 Recruitment:
- 5 businesses are currently recruiting posts including:
  - o CNC Turner
  - o Parts Inspector
  - o Trainee Water Treatment Engineer
  - o Skilled /experienced engineers
  - o General production and operations assistant
  - o Press brake operators
  - o Skilled fabricators.
- The majority of businesses work with the education sector to develop recruitment pipelines. 5 have links with colleges, particularly Kirklees College.
- In addition to these links, the businesses use a variety of recruitment methods including specialist agencies, recruitment websites/jobs boards, word of mouth and employee referrals.
- One business has a policy of developing talent from within and tends to recruit from within their own organisation – staff that have started as apprentices and progressed.
- Another business is always actively looking for skilled and experienced engineers, however, they state that "the pool is very limited".
- Businesses recruit for the following predominantly:
  - o Individual value, behaviour and attitude.
  - o Characteristics such as flexibility, self-motivation, hard-working, ability to communicate clearly, are sought.
  - o Qualifications and experience also feature in most job specifications.
- Many businesses state that young people (and careers advisers on schools) are not interested (or aware of) in careers in the sector, and several stated that they did not have the right attitude, behaviour and application for work.

6.5.3 Training:
Only one business specified they had training needs in addition to those specified under priority skills needs. They needed additional courses including FeatureCAM and AlphaCAM.

Another business's director believes that all the syllabuses need to be over-hauled and re-thought as they are out-dated, not relevant or relatable to the real world. They particularly referenced a CAM course their staff had attended.

6.5.4 Apprenticeships:

- Out of 14 businesses, 50% (7) have 18 apprentices between them, with one business looking to recruit another in 2022.
- The types of apprentices are:
  - Engineering (Mechanical and Electrical)
  - CNC Milling
  - CNC and Manual Tuning
  - Fabrication
  - Manufacturing
- 6 businesses do not have them, and one has not responded to this question. Of these 3 expressed interest in learning more about apprenticeships.
- 8 of the businesses are aware of apprenticeship standards and systems, with 3 that do not have apprentices who are not aware, and the others have not specified.
- Only 1 business specified barriers to offering apprenticeships and this was Transport.

6.6 Digital Technology Adoption

The following table sets out the levels of digital adoption across the sector businesses undertaking the audit:
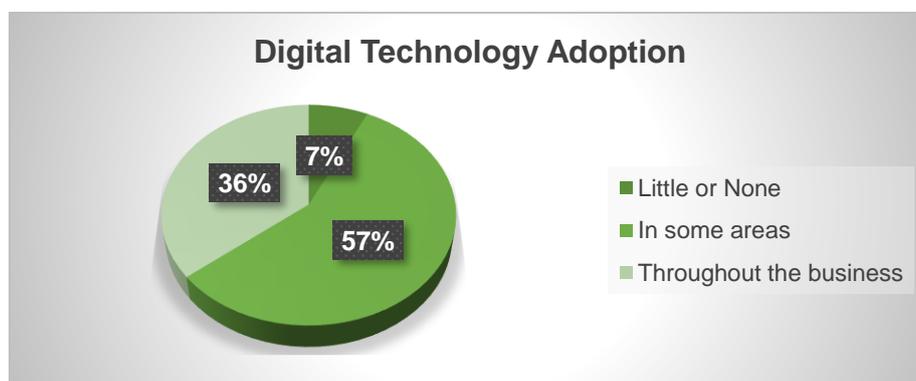
- The majority of businesses saw some relevance of digital technologies to one or more parts of their businesses and systems, however 1 business had little or no digital technologies within their businesses.
- Most businesses had adopted digital technology through one or more of the following:
  - Production
  - Production Planning
  - Digital marketing
  - Accounting
  - CAD/CAM
  - CRM
  - ERP
  - CNC Machines
  - Workflow management.
- Digital technology adoption was seen by many businesses as most relevant for:
  - Supply chain integration
  - Factory floor and production/processing systems
- One business also saw its relevance in reducing water usage and recycling.

## 7. MANUFACTURE OF PRODUCTS /OTHER MANUFACTURING

7.1 Sector definition

This sector definition incorporates the following subsectors:
- Manufacture of furniture.
- Manufacture of motor vehicles, trailers and semi-trailers.
- Manufacture of paper and paper products.
- Food manufacturing.
- Other manufacture of products.

7.2 Sector overview

Business Location

Bradford ■ Calderdale ■ Kirklees ■ Leeds ■ Wakefield ■ Barnsley
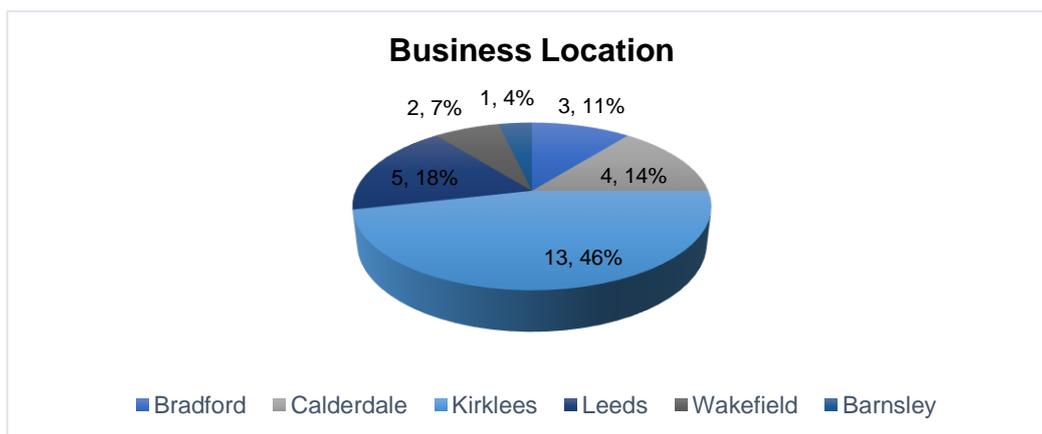
- From a total of 28 businesses in this sector completing skills plans, the majority (46%) are in Kirklees.
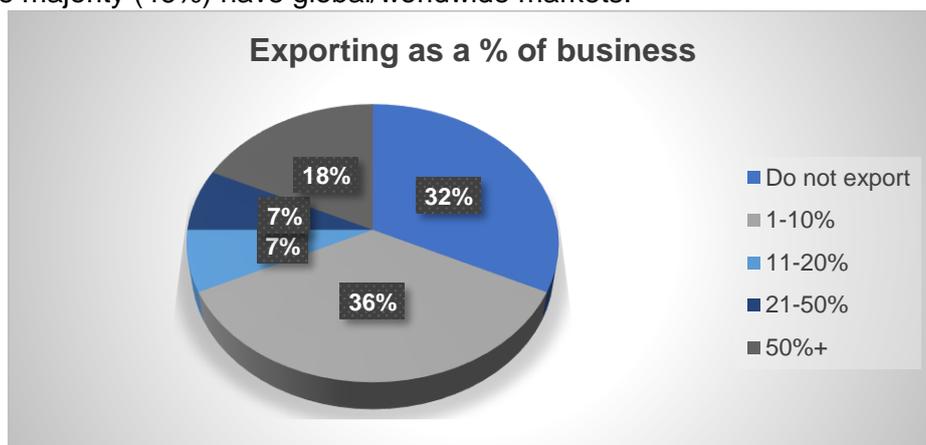- 1 is outside the West Yorkshire area.
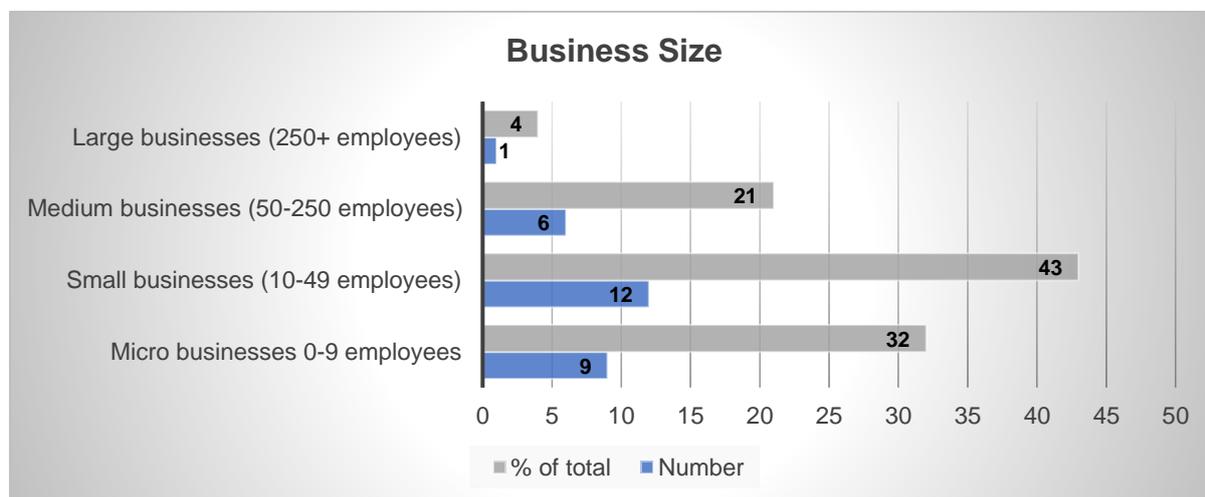
Business Size

- This sub-sector businesses are spread across the size spectrum; however, the majority (43%) are small businesses.

7.3 Markets

- All of this sub-sector's businesses have main markets on a national or international basis.
- The majority (46%) have global/worldwide markets.

- 68% (19) of the businesses export, but more than half of these (36%) only export very small amounts.

## 7.4 Strategic Planning and Challenges

7.4.1 Business Priorities:
Business priorities and plans for growth of this sub-sector businesses are summarised as:

- 23 (82%) of the businesses are aiming for growth. Most of these will facilitate the growth through new markets (including the US and China) and new product development and introduction (both accounting for 29% of the businesses). Other strategies include:
  o Increasing sales and expansion of existing markets -21%
  o Introducing lean processes and improving productivity – 11%
  o Recruiting new staff – 11%
  o Developing their staff – 7%
  o Seeking /increasing investment – 7%.
- 3 (11%) businesses, aim to maintain current levels of turnover or are consolidating after growth
- 2 (7%) which have largely been impacted by Covid and/or Brexit, aim to regain pre-covid levels.

7.4.2 Main Business Challenges:
The key challenges cited by businesses, to achieving their business priorities, were:
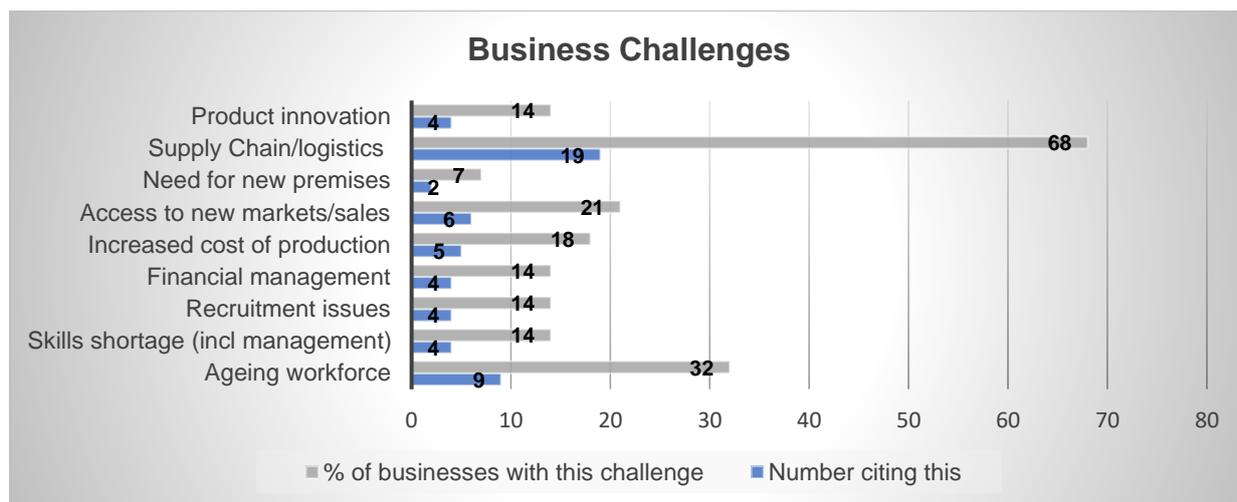
- The main challenge is Supply chain/logistics – 68% (19) - with many affected by Brexit and the Suez Canal blockage.
- Ageing workforce with 32% (9) of businesses stating this as a challenge is also significant, although many businesses have started to put into place plans, which included apprenticeships.
- Skills shortages were identified by 4 (14%) businesses as a key challenge. In addition, 4 (14%) businesses also stated recruitment difficulties – centring on accessing the skilled staff, and also trying to address the ageing workforce through unsuccessful attempts to engage and recruit young people.
- Responding to volatility is a key concern for many of the businesses, reflected in the and the financial management skills.
- Unsurprisingly the cost of production also features as a key challenge of 18% of businesses, which have largely been increased through increases in raw materials, as well as wage inflation.

7.4.3 Barriers to Growth
Skills shortages and associated recruitment difficulties are cited by 29% and 46% of businesses, respectively.

Other workforce /skills related barriers cited include:

- Management capacity to support growth – particularly in smaller businesses.
- Attitude and awareness of opportunities from young people is cited in different ways – e.g. young people not wanting to work in this sector, not wanting to travel to work.

Non-workforce barriers cited include:

- Technology and innovation and funding to invest in it to improve efficiencies etc.
- Lack of cashflow and resources /access to finances to support growth – this is linked to reduction in sales during Covid lockdowns.

7.4.4 External Challenges
Key external challenges stated by businesses are the impact of both Covid and Brexit. This section identifies the extent that businesses were impacted by these.

- The impact of Covid was more or less evenly spread in terms of both negative/significant and limited/none across the sub-sector (as can be seen in the graph below). Key feedback points include:

Covid Impact

■ None ■ Negative ■ Limited ■ Positive ■ Significant ■ Not stated

4% 11%

18%

32%

3%

32%
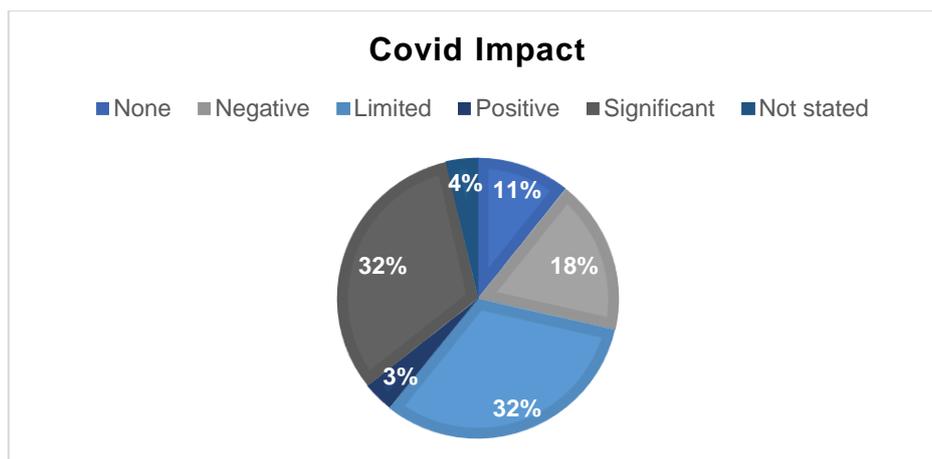
- Demand and trade reduced significantly particularly for those businesses that stated there was a significant or negative impact due to covid. Even if the businesses were still operating in the UK, some that worked in the global market were affected by covid-related delays to shipping, or closures in other parts of the world.
- Those businesses with customers in sectors such as education, hospitality or retail, were also significantly impacted. For one business turnover was cut by 50% due to a reduction in travel.
- Many businesses had to furlough staff and some staff were made redundant, some others had to close fully for several months, whilst others kept on a skeleton staff. However, as one company stated – "Implementation of sensible precautions and a large manufacturing facility to allow social distancing has now enabled a return to somewhere near normal production". This is typical of a number of businesses in this sector.
- Many businesses sought the positive out of a negative situation and there are several examples of this including:
  - For one company, furlough provided a positive improvement in cash flow, although it is now hindering growth due to unpredictable sales patterns from their retail customers.
  - Another company increased staffing overall to maintain agility to capitalise on the return of market demand.
  - A third business's turnover was down by 50% but the business is now back to full strength and never been busier.
- Several businesses took the opportunity of lockdown or slow trading to undertake activities they would not normally have the time to do, this included: strategic thinking, putting in new systems, developing training programmes, redesigning the office space and undertaking risk assessments.
- 11 (39%) businesses were negatively impacted by Brexit, and a further 3 (11%) were significantly impacted (with largely negative connotations). The issues and challenges they face(d) include:
  - Logistics issues – reducing flexibility and responsiveness to customers.
  - Supply chain issues – i.e. lack of supply and disruptions to supply for raw materials and components.
  - Increased red tape/paperwork
  - Increased costs from suppliers, paperwork, increased administrative charges/staff.

Brexit Impact

■None ■Negative ■Limited ■Positive ■Significant

11% 11%
7%
32% 39%
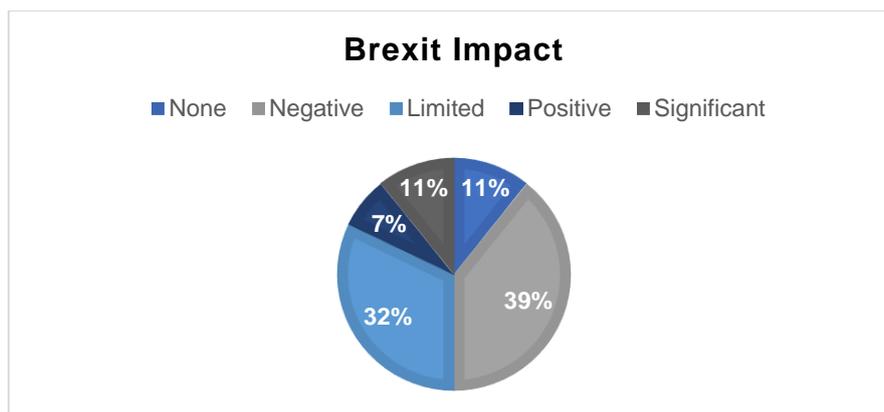
- 3 (11%) businesses were not impacted at all, whilst for a further 9 (32%) businesses, there were limited impacts from Brexit. The reasons for this include:
  - o They neither imported nor exported goods to the EU.
  - o They had planned in advance for changes.
  - o They are able to pass on additional costs to customers.
- For 2 (7%) businesses the impact was positive as they capitalised on opportunities e.g. the need for their customers to onshore production, rather than rely on supplies from the EU.

7.5 Skills And Training

7.5.1 Priority Skills Needs:
Needs stated by this sector's businesses are:

- Management
- Manufacturing
- IT /digital skill including using MRP/ERP systems, and Zoom
- Technical knowledge of Sage 200
- Skilled chemists
- Lean manufacturing
- Continuous improvement knowledge
- Grinding and Smithing
- Customer services
- Regulatory technical skills
- Manual fitting
- Carpentry
- Plumbing
- Social media and marketing
- Accounts and forecasting
- CAD/CAM
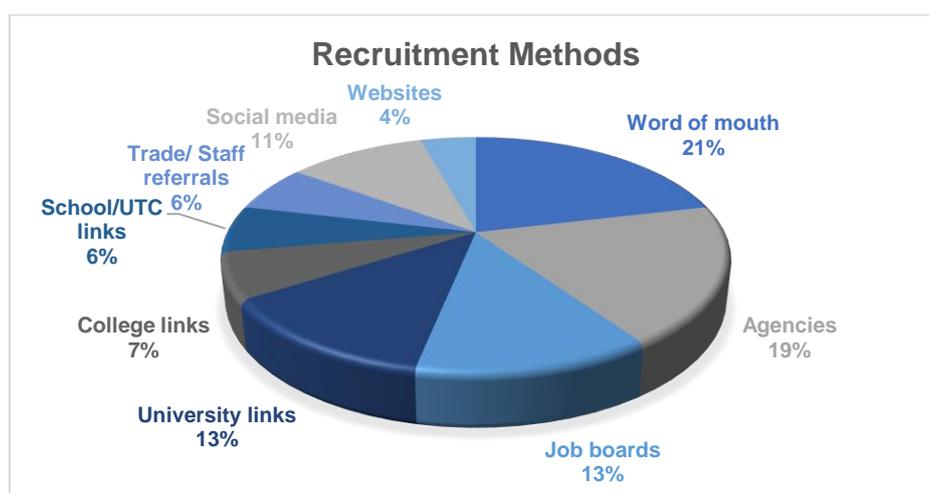- Import-export regulatory knowledge

The specific roles that the businesses need are:

- Sales and Customer Care staff
- Technical staff with regulatory knowledge
- Technical engineers to develop and support innovation
- Production staff – welders and fabricators
- CNC Machinists

- Laminators
- Warehouse staff
- Chemists
- Tube room operators

7.5.2 Recruitment:
- Some businesses are always looking to recruit specific staff, as they may not have enough or there is a higher turnover, these include:
  - Warehouse staff
  - Welders and fabricators
  - Sales staff
- The businesses have identified recruitment difficulties in the following areas/positions:
  - Sales
  - marketing
  - CNC Machinists
  - Electrician
  - Welders and Fabricators
  - Coachbuilders
  - Technical staff with regulatory knowledge
  - Chemists
- 9 businesses currently have vacancies for:
  - Industrial Level Electrician
  - Customer Services team members
  - Production Operatives
  - Grinders
  - Engineers
  - Business Development and Sales
  - Goods in/out
  - Installer on the Fitting team
  - Welder and Fabricator
- The businesses use a variety of recruitment methods including:

Recruitment Methods

- Websites 4%
- Social media 11%
- Trade/ Staff referrals 6%
- School/UTC links 6%
- College links 7%
- University links 13%
- Word of mouth 21%
- Agencies 19%
- Job boards 13%

- The businesses work with several universities: Huddersfield, Bradford, Leeds, Leeds Beckett, Sheffield Hallam, Sheffield, Newcastle and Lancaster.
- Kirklees college is regularly mentioned by businesses as an example college that they work with.
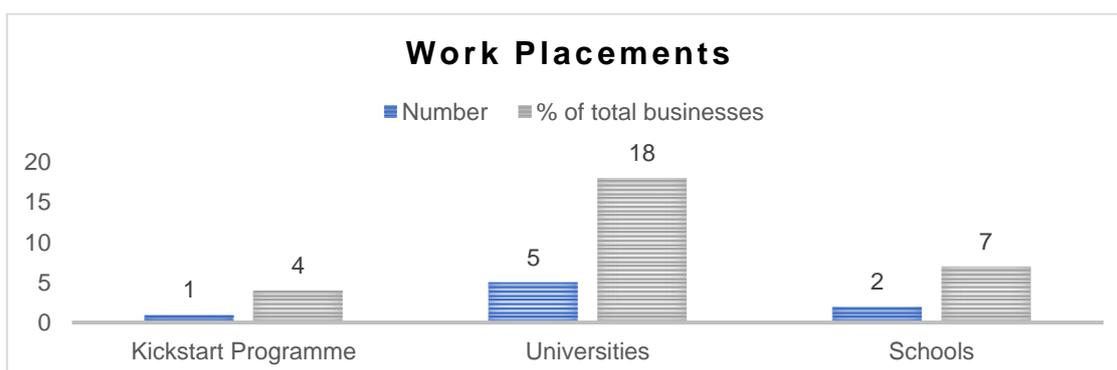
- 11 businesses stated they did not have any links with schools and/or colleges.
- Other recruitment methods also include using CV libraries and linking with Wakefield Employment Hub.
- Some businesses only recruit highly skilled people, with the exception of apprentices. They state that they do not have the time to train them as they are so busy.
- Several businesses have roles that are low-skilled, non-technical roles and require qualification by experience. They tend to provide training internally on the job.
- One business had 240 applicants for a driver job.
- Businesses recruit for the following predominantly:
  - Willingness to learn and work, and interest in the sector
  - Individual value, behaviour, attitude and good work ethic.
  - Characteristics such as flexibility, enthusiasm, attention to detail, timekeeping, ability to multi-task, creativity and team player are also sought.
  - 'Fit' where it is a smaller business in particular.

    Qualifications tend to be required for the higher skilled and technical jobs

- Some businesses suggest that young people did not have the right attitude, behaviour and application for work, and one business said, "Schools are not interested in what the company does - all students want to work in IT".

7.5.3 Work Placements:
Business offer or are interested in offering work placements follows:

Work Placements

Number   % of total businesses

	Kickstart Programme	Universities	Schools
Number	1	5	2
% of total businesses	4	18	7

7.5.4 Training:
Key feedback points about training and additional training needs to those specified under priority skills needs are:

- Training needs/courses specified include:
  - CAD
  - Surveying
  - Lean manufacturing
  - Mechanical engineering and fabrication
  - Tank manufacturing
  - Instrument making
  - Mechanical Engineering – Basic, tailored for advanced machine technicians.
  - Electrical Engineering – Basic, tailored for advanced machine technicians.
  - Furniture manufacturing.
- Several businesses commented on the need for additional/ more relevant courses:
  - One business stated that there were "no relevant Vehicle Body Builder courses available in colleges as this is classed as an 'old skill' by today's standards".

- o "A plastic welding course at Kirklees College would be a great addition".
- o "There is no relevant manufacturing course for apprentices which is why the business has apprentices but not on the shop floor".
- o One business would like to see apprenticeship courses offered in Plastic Fabrication and/or Manufacturing in General, thus enabling them to employ an apprentice.
- o Another business asks for: more basic apprenticeship courses, more relevant to the business, possibly along the lines of 'Introduction to Basic Electrical Industries' and 'Basic Industrial Mechanics'.
- One business suggested that 'People Skills' are needed – i.e. The world of business; how to communicate with customers/suppliers; what form of communication; spoken skills.

7.5.5 Apprenticeships:
- Out of 28 businesses, 14 (50%) businesses 42 have apprentices between them.
- Those with apprentices have between 1 to 19 apprenticeships. These include:
    - o IT
    - o Marketing
    - o Supply Chain
    - o Machine operatives
    - o Mechanical Engineering
    - o CMDA
    - o Digital marketing
    - o Lean Manufacturing
    - o Electrical Engineering
    - o Welding and fabrication
    - o Vehicle Technician
    - o Designer
    - o Business Admin

- 20 of the businesses are aware of apprenticeship standards and systems. Those that do not have apprentices are largely not aware of the standards and systems.
- 11 businesses specified barriers to offering apprenticeships,
    - o Staff reluctance
    - o Transport issues for learners.
    - o Relevance of courses - they don't match actual business needs – 5 businesses stated this as a barrier.
    - o Time away from work.
    - o Access to providers.
    - o 3 businesses expressed interest in learning more about apprenticeships.

7.6 Digital Technology Adoption

The following diagram sets out the levels of digital adoption across the sector businesses undertaking the audit:

Digital Technology Adoption

- 11% — Little or None
- 46% — In some areas
- 43% — Throughout the business
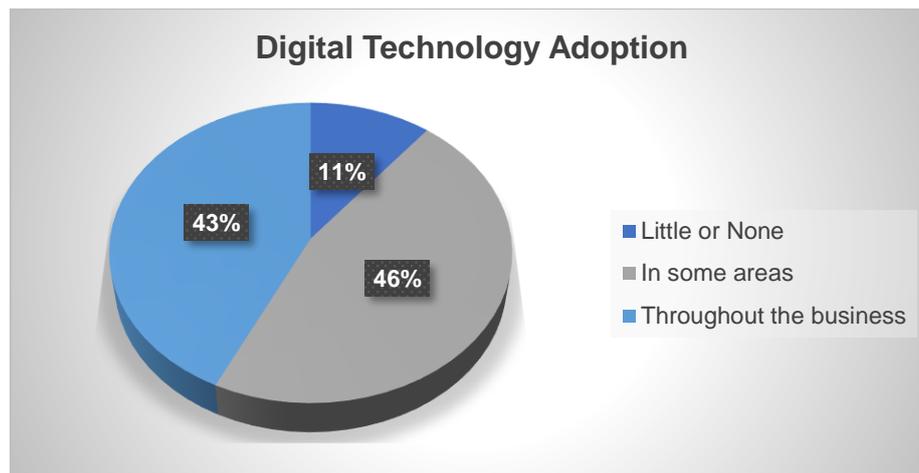
- The majority of businesses saw some relevance of digital technologies to one or more parts of their businesses and systems, however 3 businesses had little or no digital technologies within their businesses.
- Most businesses had adopted digital technology through one or more of the following:
  - Production
  - Production Planning
  - Digital marketing
  - Accounting
  - CAD/CAM
  - 3D printer for modelling
  - CRM
  - ERP
  - CNC Machines
- Digital technology adoption was seen by many of the businesses as most relevant for:
  - Supply chain integration
  - Factory floor and production/processing systems
  - Circular economy – one business endeavours to use recycled products wherever possible, they offer a service whereby customers can return used products, which can be granulated and remade (not applicable to toilet seats).
  - Digital remodelling.
- One business was also looking at Robotics for the future, whilst another is planning to utilise Predictive Analytics, Artificial Intelligence and Data Capture along with machine condition monitoring, which are seen as the future of the business.
- For another business supply chain digital information/Integration is lagging behind sales/marketing data in general. They believe that this needs improvement given the massive challenges that will affect supply chain and sourcing post Covid.
- Investing in a Manufacturing Production Tracking system that would track products in production to allow for accurate tracking, would help one business move from a system where everything is manually processed.

8. CONCLUSIONS

8.1 Sectoral Strengths

- Over half of the sector have national or global markets, despite the fact that more than three quarters are micro or small businesses.

- There is significant resilience within the sector, even with setbacks such as Covid and Brexit, many businesses look to the opportunities and pivot.

- Overall flexibility in terms of how businesses recruit – with a willingness to train new entrants on the job.

- Many businesses see the value of apprentices and workforce development.

8.2 Sectoral Challenges

- Ageing workforce is an issue that affects over one-third of businesses – many businesses are already putting plans in place to address this, but more can be done in terms of linking businesses with potential workforce.

- A negative perception of the sector as a career opportunity.

- Relevance of courses – several businesses suggested that this was an issue for both specific training aimed at addressing skills needs and apprenticeship courses.

8.3 Sectoral Opportunities

- Customers that are onshoring their suppliers to overcome Brexit issues provide significant opportunities for potential business growth.

- Building on global markets that many businesses already have and increasing market shares in countries outside the EU.

- Many businesses have good links with universities and colleges enabling them to access a pipeline of potential staff to fill higher skilled posts. These models can be extended much wider across the sector, to reduce skill shortages and recruitment issues.

8.4 Recommendations

8.4.1   To put into place mechanisms to support businesses to address their ageing workforce. To include:

- Supporting planning for future skills needs, including apprenticeships.

- Careers Information, advice and guidance and events to build on existing activities such as Manufacturing Week (Leeds and Bradford) and Apprenticeship Week.

- Sector specific Enterprise Advisers and employer engagement activities in schools.

- Targeted activities to support work placements.

- To increase understanding amongst young people of the range of non-production opportunities there are in the sector, enabling those that are interested in e.g. digital marketing or accountancy, to potentially access rewarding jobs.

8.4.2   To enable businesses to access information about potential business opportunities from customers that are looking to onshore their suppliers. This could also include support for accreditation processes for smaller businesses that may tender for opportunities.

8.4.3   To facilitate improved education links with businesses enabling them to access the higher skilled future workforce they need.

8.4.4   To deliver provision focusing on business development, sales and digital marketing, providing the skills and knowledge to support businesses to access new markets, including global markets.

8.4.5   To work with employers to help them overcome barriers to apprenticeship take-up including tailoring courses around their needs, demonstrating how apprenticeship standards can support them, and providing additional support to make it easier for businesses to offer apprenticeships. This should also include accessing resources through apprenticeship levy transfer (where relevant).

8.4.6   To work with businesses to develop and deliver the courses identified as gaps in provision.