

Labour Market Report 2019



Key Points

This report provides an assessment of Leeds City Region's skills needs, based on a detailed analysis of the supply and demand of skills together with evidence of mismatch and market failure. As well as providing an evidence base for policy and strategy development it can be used to inform the development of curriculum strategy and to support the delivery of careers information and advice.

A key purpose of the analysis is to inform the deliberations of the Leeds City Region Skills Advisory Panel. Skills Advisory Panels comprise employers, skills providers and local government, working together to understand and address local skills challenges. The LEP's existing Employment and Skills Panel will take on the functions of the Skills Advisory Panel in Leeds City Region.

Local landscape

The City Region underperforms against the national average in terms of both productivity and pay. It also has extensive pockets of acute deprivation. Raising local performance on skills can play an important role in addressing these challenges.

Demand for skills

- Job growth since 2012 has been broad-based in terms of sectors, with manufacturing and services sharing in the growth.
- Employment growth has been driven principally by higher skilled occupations and lower skilled caring occupations.
- Health, digital and teaching roles are featured among those in greatest current demand based on online job postings.
- Communication skills are the type of skill most commonly highlighted in postings for higher skilled jobs.
- Skills like project management, budgeting and teamwork / collaboration feature alongside core technical skills as the most in-demand in the skill shortage areas of engineering, construction, digital and health.

- Around two-thirds of employers expect future upskilling needs - they are most likely to highlight their managers as being affected.
- The recent pattern of occupational employment change is expected to persist in the future, according to projections but replacement demands will be the source of most job openings.
- An increasing range of jobs are being affected by automation, although those based on routine tasks and skills will remain at greatest risk of displacement.

The supply of skills

- There was no improvement in the proportion of local people qualified at level 4 and above in 2018 but the proportion with no qualifications fell.
- Apprenticeship take-up fell by more than a quarter in 2017/18, broadly in line with the national average.
- Provisional figures suggest partial recovery in apprenticeship take-up in the first three quarters of 2018/19.
- Disadvantaged pupils are less likely to enter an apprenticeship in most parts of the City Region.
- Disadvantaged pupils are also less likely to enter higher education in the City Region
- Many employers admit that they under-invest in training.
- There is unequal access to job-related training, with low-skilled workers being least likely to receive training.
- A small minority of local businesses have adopted high performance working practices.

Mapping of skills demand and supply

- Skill shortage vacancies are most acute (i.e. they account for the highest proportion of total vacancies) in the industry sectors of primary, construction and manufacturing.
- In occupational terms, shortages are most numerous and most acute in professional and skilled trades occupations. More specifically, health professionals and STEM professionals face acute shortages.
- Skills gaps occur when existing staff lack full proficiency to do the job. One in seven employers are affected by skills gaps. Gaps relating to sales and customer service and administrative staff are the most widespread.
- Skills underutilisation is widespread.
- Structural joblessness is still a major feature of the local labour market.
- There are disparities between the profile of HE and FE provision and labour market demand.
- EU migrants are concentrated in routine and low-skilled occupations and this is where labour supply issues could be concentrated as a result of Brexit.
- There are still more people in high skilled employment than people who are qualified at a high level within the City Region.

1 Introduction

What skills are needed to support the development of the local economy, to enable people to fulfil their career potential and to promote inclusion?

This document seeks to provide an assessment of skills needs across Leeds City Region, taking into account the level and nature of labour demand and the sufficiency of skills available in the local area in meeting this demand, as well as highlighting instances of market failure and skills mismatches.

Rich and comprehensive intelligence is essential to enabling the various groups in the labour market to make informed decisions about employment and skills. In undertaking labour market analysis the aim is to add value by supplying intelligence for the following purposes:

- To support strategy and policy development, particularly around areas of market failure in the local labour market.
- To influence the focus / profile of local learning delivery with reference to evidence of labour market demand and the wider learning supply picture.
- To inform careers choices by individuals by providing clear and robust information on labour market opportunities.
- To inform action by local employers (including through collaborative action) to address the skill needs of business.
- To support policy development and action on skills by local authority districts within Leeds City Region.

Ultimately we are seeking to use intelligence to get the right people with the right skills in the right place to support economic growth and individual progression and well-being.

Employment and Skills Plan

The analysis contained in the report takes account of local policy priorities. The LEP has developed an Employment and Skills Plan that sets out how the LEP and its partners will work together to ensure that action on employment and skills contributes to inclusive growth in the City Region.

The two headline priorities within the Employment and Skills Plan are to:

- Raise the bar on high level skills
- Provide more and better apprenticeships.

The Plan also has a series of supporting priorities around:

- Enhancing employability to enable people to access jobs and realise their potential
- Building workforce skills and attracting talent
- Fostering improved engagement between education and business.

Three broad sectoral areas are highlighted in the Plan as offering strong growth potential and a need for targeted attention around skills: construction, digital skills and engineering and manufacturing.

The development and dissemination of high quality labour market intelligence is a key cross-cutting element of the Employment and Skills Plan. This includes the use of intelligence to inform careers choice, to support entry into employment for adults and to shape learning delivery and investment in local learning infrastructure.

The priorities and key sectors highlighted above are used as important reference points throughout this report, in terms of the progress that is being made and the key issues that remain to be addressed.

Skills Advisory Panels

The government's policy on Skills Advisory Panels (SAPs) reinforces the importance of local labour market analysis and clearly defines the context for decision making and action by local partnerships with regard to employment and skills issues.

The aim of SAPs is to ensure that local areas can get the skills they need by setting out priorities for action and investment by local partners.

Local enterprise partnerships across England are developing Skills Advisory Panels, each comprising employers, skills providers and local government - pooling their knowledge on skills and labour market needs and working together to understand and address key local challenges. In Leeds City Region the LEP's Employment and Skills Panel is taking on the SAP functions.

SAPs reach an evidence-based view on local skills needs drawing on intelligence about the labour market. This document is intended to serve as a central element of that evidence base for Leeds City Region.

Leeds City Region

This analysis focuses on the functional economic area of Leeds City Region, comprising the five districts of West Yorkshire, the unitary authority of York, three districts in North Yorkshire, and Barnsley in South Yorkshire.



Functional economic areas are areas within which a local economy and its key markets operate and within which the majority of economic linkages and flows exist. Such areas often cut across administrative boundaries.

Analysis of the extent of commuting flows is a key means for defining functional economic areas. In this regard, around 92% of Leeds City Region residents in employment work in the City Region while 92% of people who work in the City Region, also live in the City Region. This makes the City Region largely self-contained in labour market terms and therefore a suitable focus for employment and skills interventions.

2 The local landscape

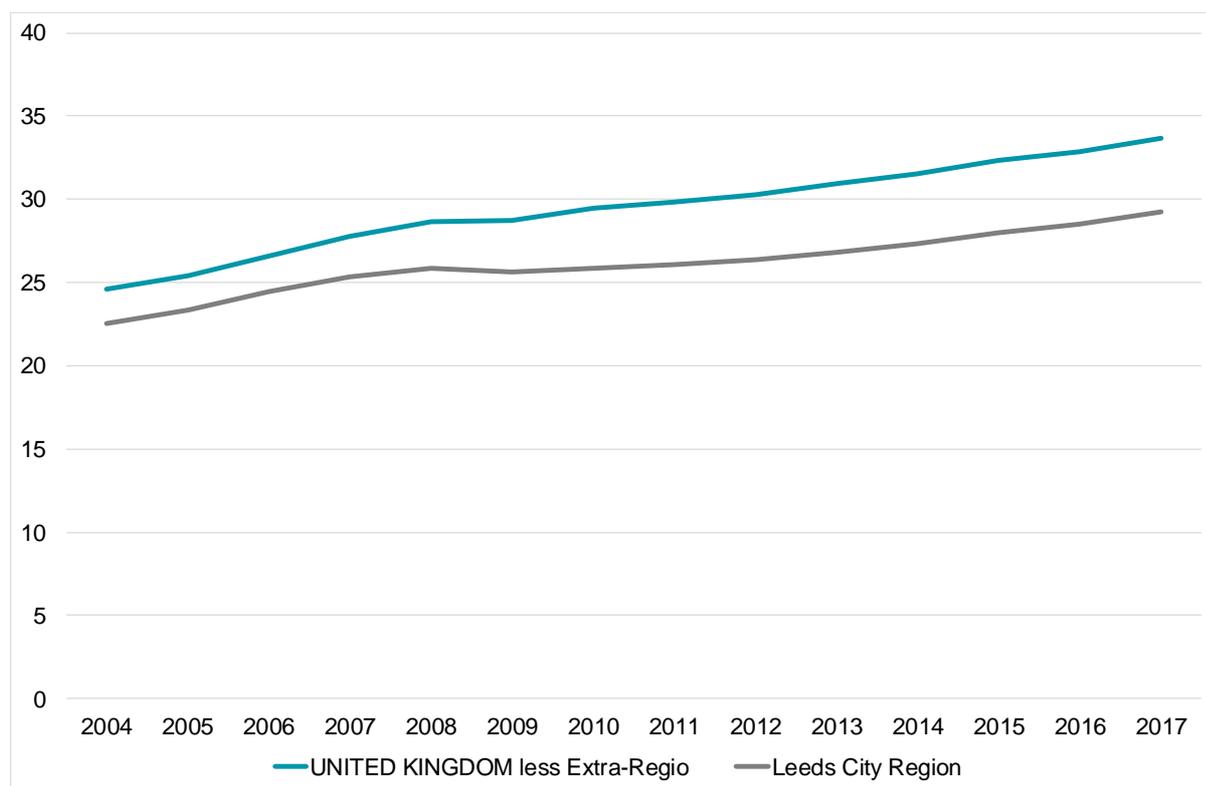
This section provides important context to the analysis of local skills needs by examining the area's performance against high level economic and labour market indicators, including productivity, pay, employment and deprivation. These are the things that need to be positively influenced through action on employment and skills if the wider vision for the LEP area, around prosperity, the fulfilment of individual potential and inclusion, is to be realised.

The City Region continues to under-perform on productivity

The City Region's position on skills has a direct impact on its performance on productivity, pay and employment and hence on the overall level of prosperity in the area.

Productivity growth is the main contributor to growth in the wider economy and provides the foundation for improvements in living standards.

Nominal (smoothed) GVA per hour worked (£)



Source: ONS, Sub-regional Productivity

There is no sign of an improvement in the City Region's relative performance on productivity. Output per hour worked fell from 91% of the UK average in 2007 to 86% of the average in 2017, indicating that local productivity growth has lagged the rate of growth

seen nationally. If the local level of productivity could be raised to match the national average it would mean an increase of more than £11bn in the size of the local economy.

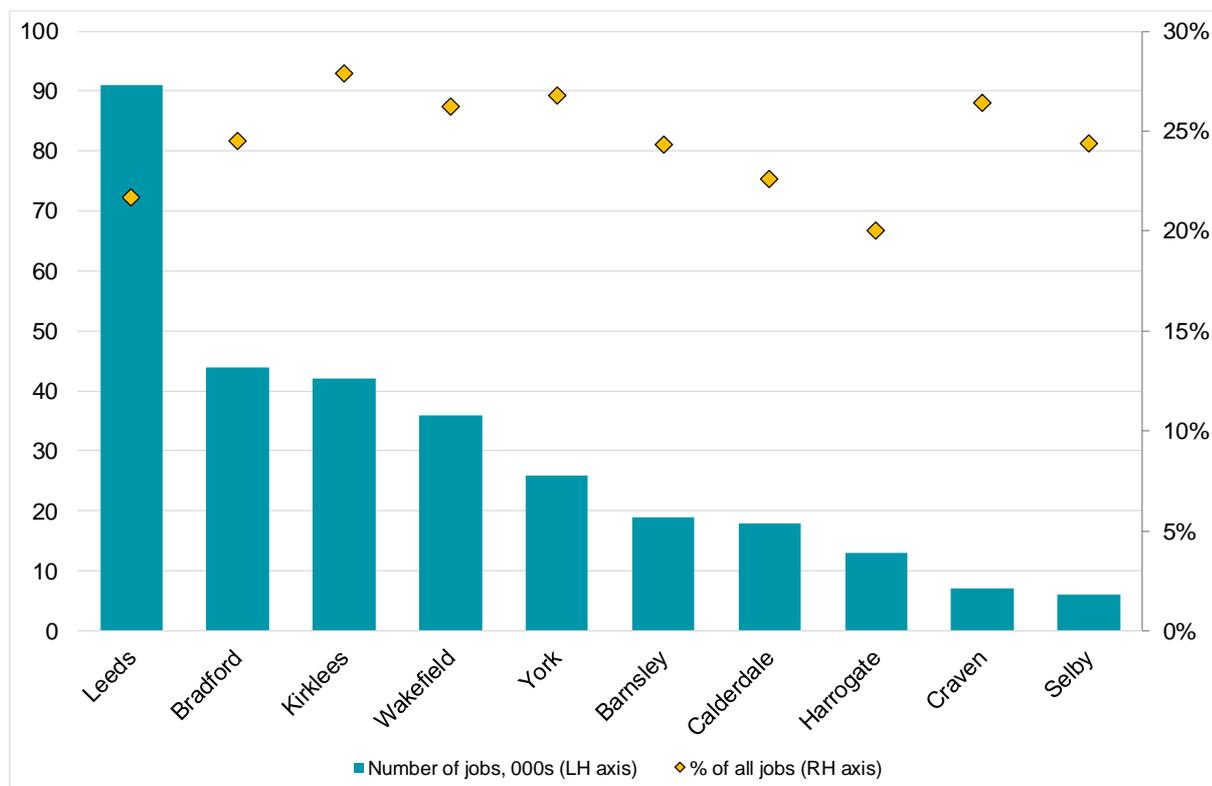
Raising the skills of the local workforce, as well as improving the way in which they are utilised in the workplace, as part of a comprehensive strategy for the local economy, can help to address this productivity deficit. The literature suggests that overall increases in skills or higher levels of skills are associated with greater area productivity and that differences in performance between UK regions and sub-regions can be partially attributed to differences in skills and in the occupational composition of employment¹. In particular, management skills can affect the productivity of a firm through developing and implementing market strategy, managing technical and organisational change, and effectively utilising workforce skills².

Productivity is closely linked to pay and therefore to living standards: more productive firms pay higher wages. The local productivity deficit is reflected in local pay levels. Median gross hourly pay for full-time jobs in the City Region is 92% of the national average, while 24% of local jobs pay less than the Living Wage Foundation's Living Wage rate, which is intended to reflect the level of pay people need to get by. In Kirklees, 28% of jobs fall below the Living Wage threshold. In total, around 300,000 people across the City Region are paid below the LWF's Living Wage threshold.

¹ Gambin, L, Green, A.E. and Hogarth, T. (2009), 'Exploring the links between skills and productivity: Final Report', Institute for Employment Research, University of Warwick for the East Midlands Development Agency

² Bender, S, Bloom, N, Card, D, Van Reenen, J and Wolter, S (2016), 'Management Practices, Workforce Selection, and Productivity', Centre for Economic Performance, CEP Discussion Paper Number 1,416, March 2016

Proportion of employee jobs paying below the Real Living Wage (as defined by the Living Wage Foundation)



Note: Workplace-based estimates

Source: Annual Survey of Hours and Earnings 2018

The LEP area faces a gender pay gap³ that is broadly similar to the national picture. The overall pay gap for all employee jobs locally is 17%, slightly below the national average of 18%. The size of this gap partly reflects the fact that women are more likely to work in part-time roles which attract a lower hourly rate of pay. At 9% the gap for full-time jobs is smaller but still substantial.

Although the region has a significant proportion of people paid below the Living Wage, the main source of the pay deficit with the national average is under-performance at the upper end of the pay distribution.

For example the pay level for jobs at the 10th percentile in Leeds City Region is 99% of the equivalent national figure; however, at the 90 percentile it is only 86% of the national figure.

This indicates that the highest paid jobs in the region are paid significantly less than the highest paid jobs nationally and this is the main source of the overall pay gap. This, in

³ The gender pay gap is calculated as the difference between average hourly earnings (excluding overtime) of men and women as a proportion of average hourly earnings (excluding overtime) of men's earnings.

turn, reflects the under-representation of jobs in the highest skilled occupations in the region.

Skills deficits also play a part in localised deprivation

As well as improving the performance of the local economy there is also a need to ensure that everyone in the local community has the opportunity to participate in high quality employment and benefit from growth.

One key challenge is to address concentrated deprivation at neighbourhood level. We now have refreshed data from the revised 2019 Indices of Deprivation to examine this issue.

This is an important source of intelligence, since it is used by government to target interventions, including education and skills programmes.

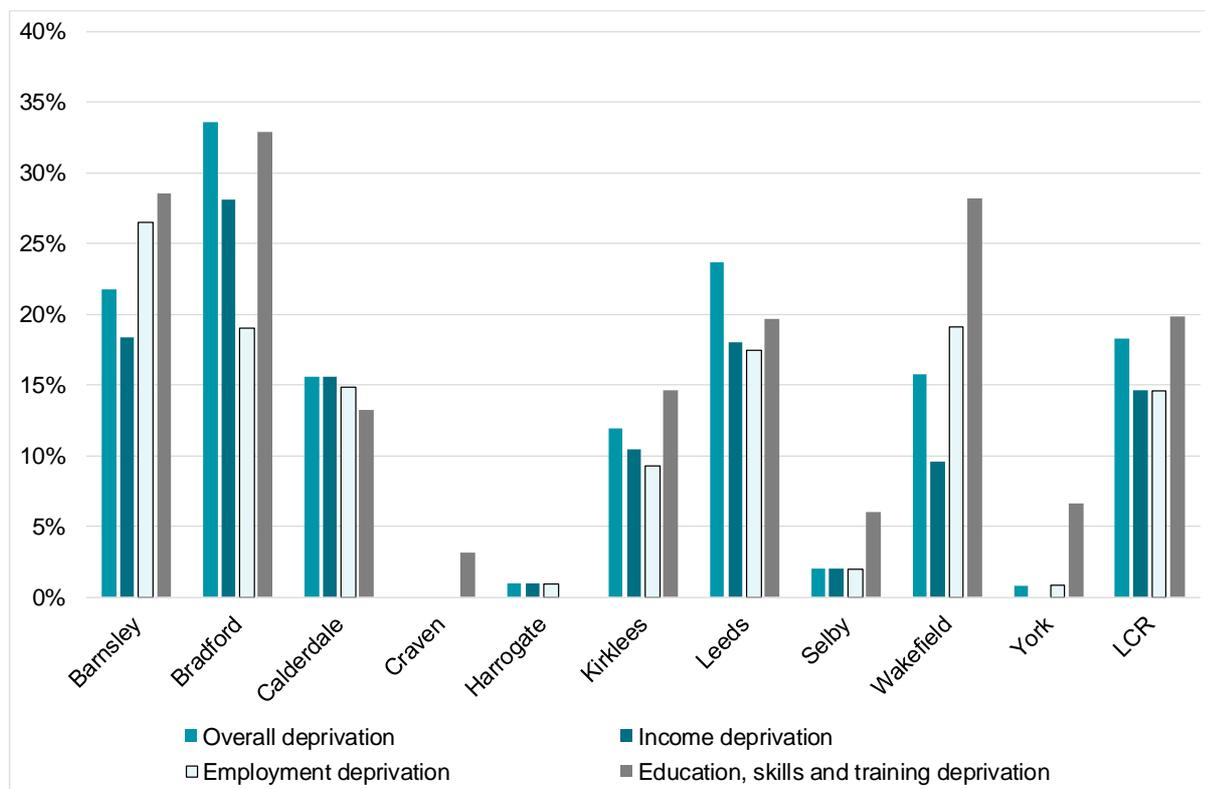
According to IMD, around 18% of neighbourhoods in the City Region are among the 10% most deprived nationally, significantly above the share one would expect. The number of City Region neighbourhoods in the 10% most deprived nationally has increased by 25 since 2015 IMD from 312 to 337, including net increases of 9 in Leeds and 8 in Kirklees.

A domain of deprivation within the IMD is education and skills deprivation, which mainly relates to attainment and skills in the population – both of young people and adults.

20% of our neighbourhoods are in the worst 10% nationally on this measure – twice the share that would be expected. Leeds City Region is ranked fifth out of 38 LEP areas on this domain. There has been little change locally since 2015, with a net increase of 5 neighbourhoods falling into the 10% most deprived, from 360 to 365.

More than three-quarters of City Region neighbourhoods that fall within the most deprived overall are also classed among the most deprived 10% in terms of education, skills and training, showing the strong link between the two.

Proportion of neighbourhoods in 10% most deprived nationally by domain of deprivation and district



Source: Department of Communities and Local Government, Index of Multiple Deprivation 2019

Performance on education, skills and training deprivation varies markedly at district level. Barnsley, Bradford and Wakefield, followed by Leeds are the most deprived in terms of the proportion of neighbourhoods facing acute deprivation. For example, a third of neighbourhoods in Bradford are skills deprived and 28% in Wakefield. In Wakefield, education, skills and training deprivation is more widespread than other aspects of deprivation. York and the North Yorkshire districts have much smaller proportions of neighbourhoods that are deprived in this way.

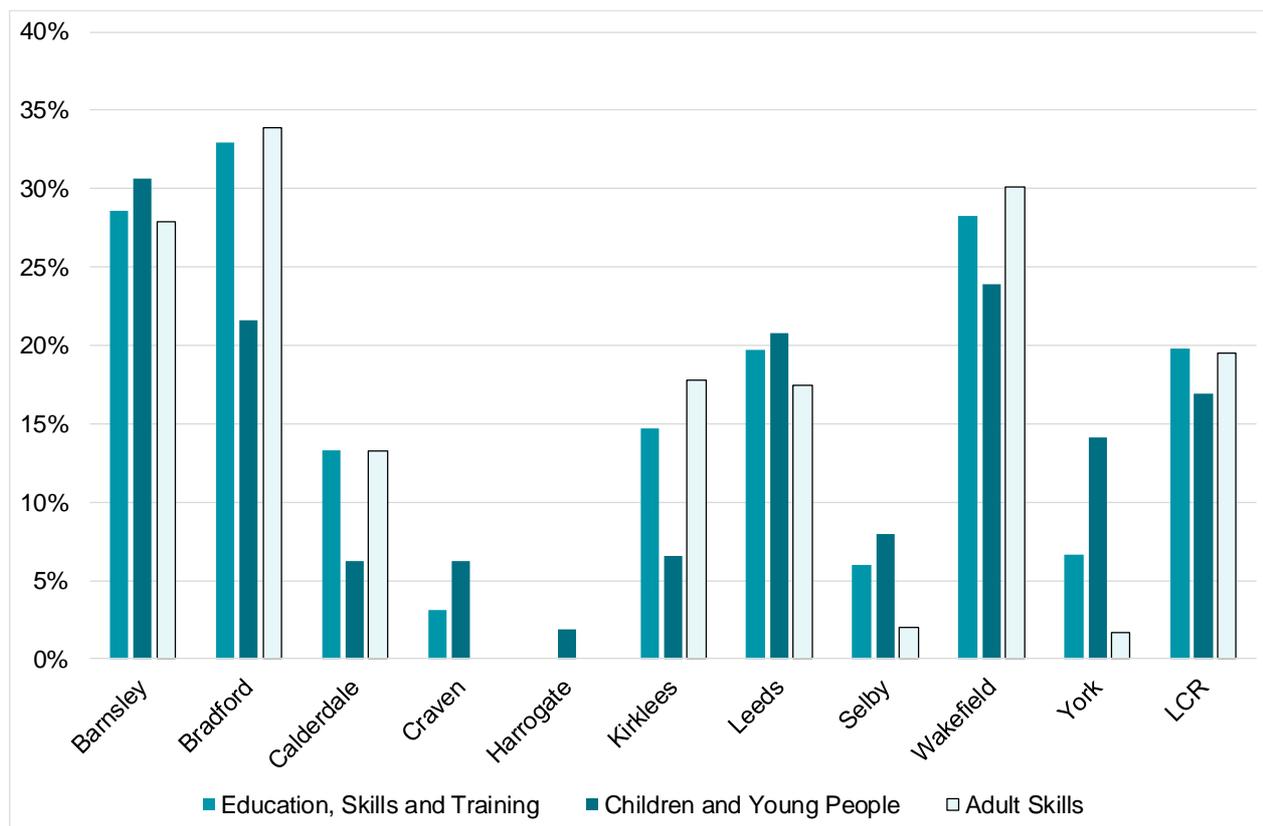
The Education, skills and training sub-domain of the IMD comprises two sub-domains – one focusing on children and young people and one relating to adult skills⁴, providing an insight into the character of deprivation.

⁴ The Children and Young People sub-domain is based on indicators that include attainment at Key Stages 2 and 4, secondary school absence, staying on rates and entry into higher education. The adult skills domain is made up of two indicators relating to adults with low or no qualifications and adults who lack English language proficiency.

The character of skills deprivation varies at district level

Overall, the City Region has a smaller proportion of neighbourhoods that are affected by acute deprivation relating to children and young people but this conceals differences at district level.

Proportion of neighbourhoods in 10% most deprived nationally by sub-domain of deprivation and district



Source: Department of Communities and Local Government, Index of Multiple Deprivation 2019

Bradford has fewer neighbourhoods among the 10% most deprived in respect of children and young people than it does in respect of adult skills – and the same is true of Calderdale, Kirklees and Wakefield. For some of these districts the issue of English language proficiency may play a strong part in the prevalence of adult skills deprivation.

This is not to seek to understate issues around children and young people in these districts, however; in both Bradford and Wakefield more than 20% of neighbourhoods are still among the most acutely deprived in respect of this indicator.

The reverse position is true of Leeds and of several of districts in North Yorkshire, including York and Selby. A greater proportion of neighbourhoods are among the most deprived with regard to children and young people than for adult skills.

Improving the skills pipeline by raising the attainment of young people is a critical priority but in some parts of the region will not be sufficient in view of the issues around adult skills.

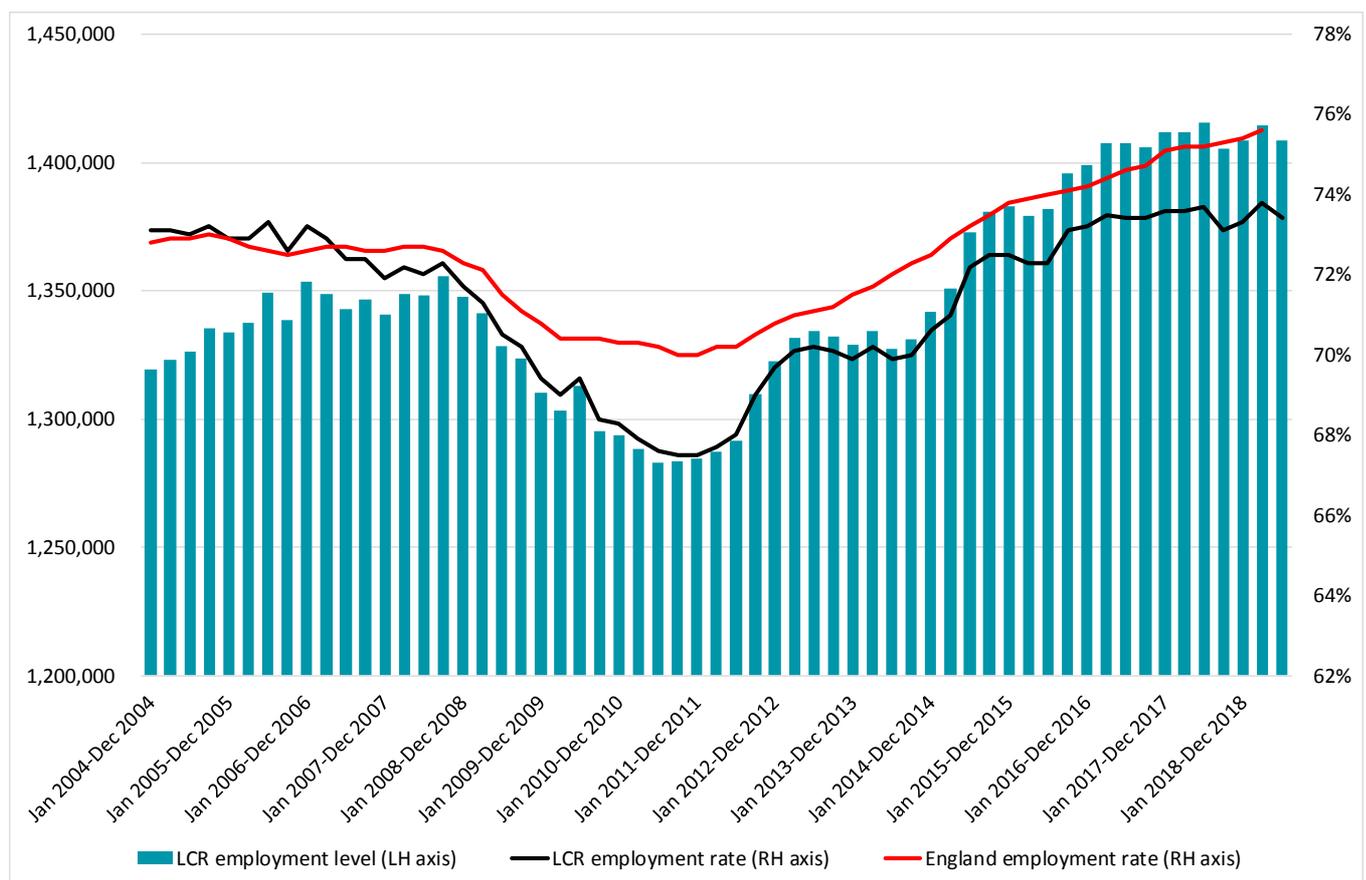
3 Demand for skills

This section provides an overview of the demand for skills in the Leeds City Region economy, based on the profile of jobs locally and the skills required to do those jobs. It considers the current picture and the way in which the pattern of demand is expected to develop in the future.

The local employment level has plateaued

The level of employment in the City Region is the main indicator of the overall demand for labour in the area. According to the latest data⁵ there were 1,409,000 people in employment in 2018, 73.3% of the total resident population of working age in the City Region.

Trend in employment level and employment rate



Source: Annual Population Survey

There is some evidence that the employment rate and level in the City Region may have plateaued and begun to diverge from the national trend. The national employment rate

⁵ Annual Population Survey, Jan – Dec 2018

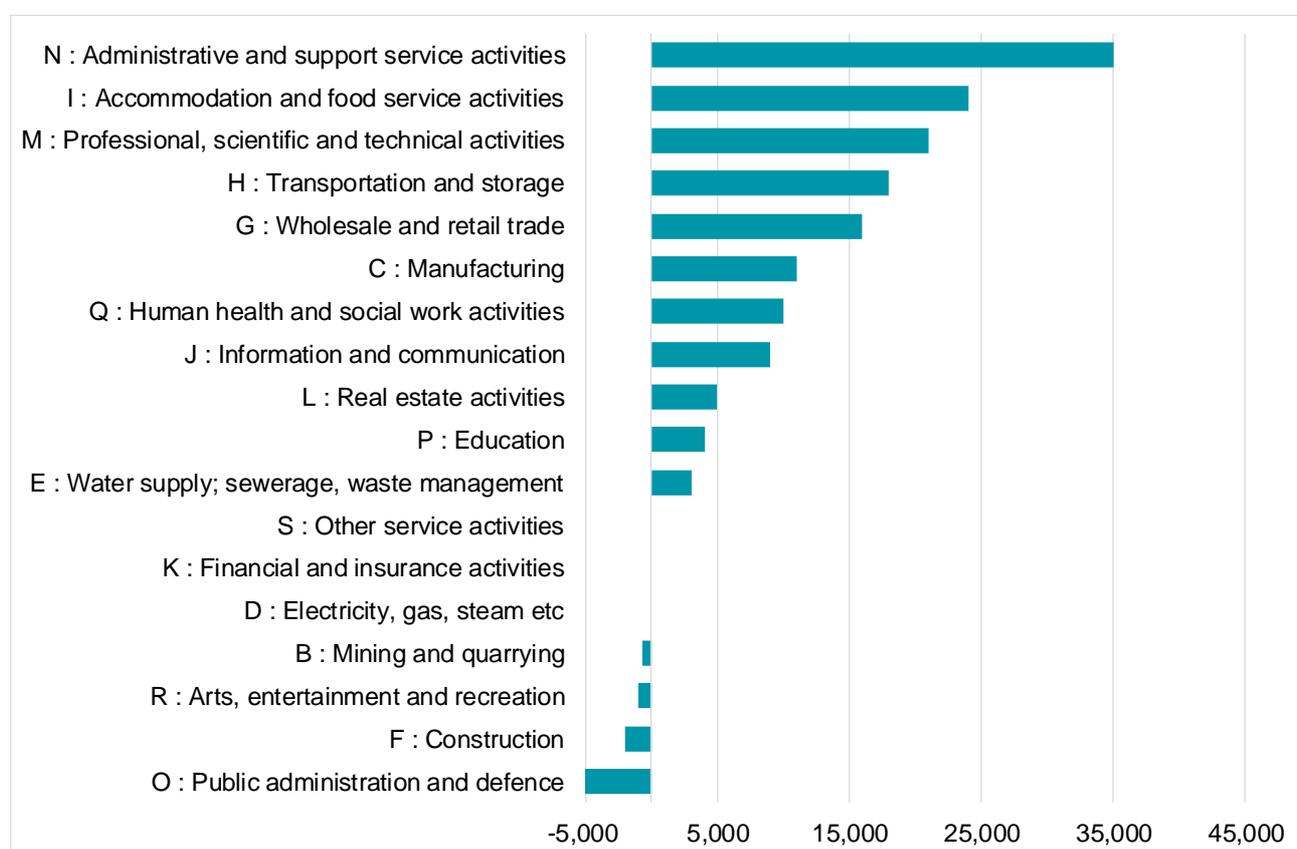
has maintained a strong upward direction at the same time as the local rate and level has shown signs of flattening out.

The City Region lags the national average employment rate of 75.4% by 2.1 points. This is a substantial deficit since an additional 40,000 people would be in employment in the City Region if the employment rate could be raised to the national average.

Job growth since 2012 has been broad-based in terms of sectors

Which industries have driven recent employment growth? The pattern of employment growth by sector gives a broad insight into the types of skills that have seen growth in demand.

Net change in employment by industry sector, 2012-2018, Leeds City Region



Note: Employment figures relate to employee jobs in YNYER workplaces..

Source: Business Register and Employment Survey

This figure, above, shows the broad sectors that saw the greatest growth⁶ between 2012 and 2018; this is useful because 2012 broadly coincides with the beginning of the economic recovery from the last recession.

⁶ Analysis base on the Business Register and Employment Survey relates to a count of jobs whereas analysis based on the Annual Population Survey / Labour Force Survey presented elsewhere in this report is based on a headcount measure of employment.

The City Region saw an overall increase of 150,000 jobs or 12% growth during this period.

Much of that growth was service based, including service sectors like *Accommodation and food services* (+25,000) that employ large numbers of people in lower skilled jobs but there was also growth in *Professional, scientific and technical activities* (+20,000), which is primarily higher skilled.

Administrative and support services saw the largest overall net increase of around 35,000 jobs, including growth in the constituent activities of employment agencies, building services and office administration activities.

Net growth was not confined to services, however. Manufacturing saw a bounce-back from the recession, with a net increase of 11,000 or 8%. Meanwhile *Construction*, with a small decline in employment, still appears to be feeling the after-effects of the recession.

Public administration saw the greatest net decline in employment of any sector, of around 5,000, reflecting the impact of public sector austerity during this period.

Growth in employment is being driven by higher skilled occupations and lower skilled caring occupations

The changing profile of occupational employment provides an important insight into the demand for skills in the local labour market. Occupations are largely defined by the level and type of skills that are required in order to perform work tasks.

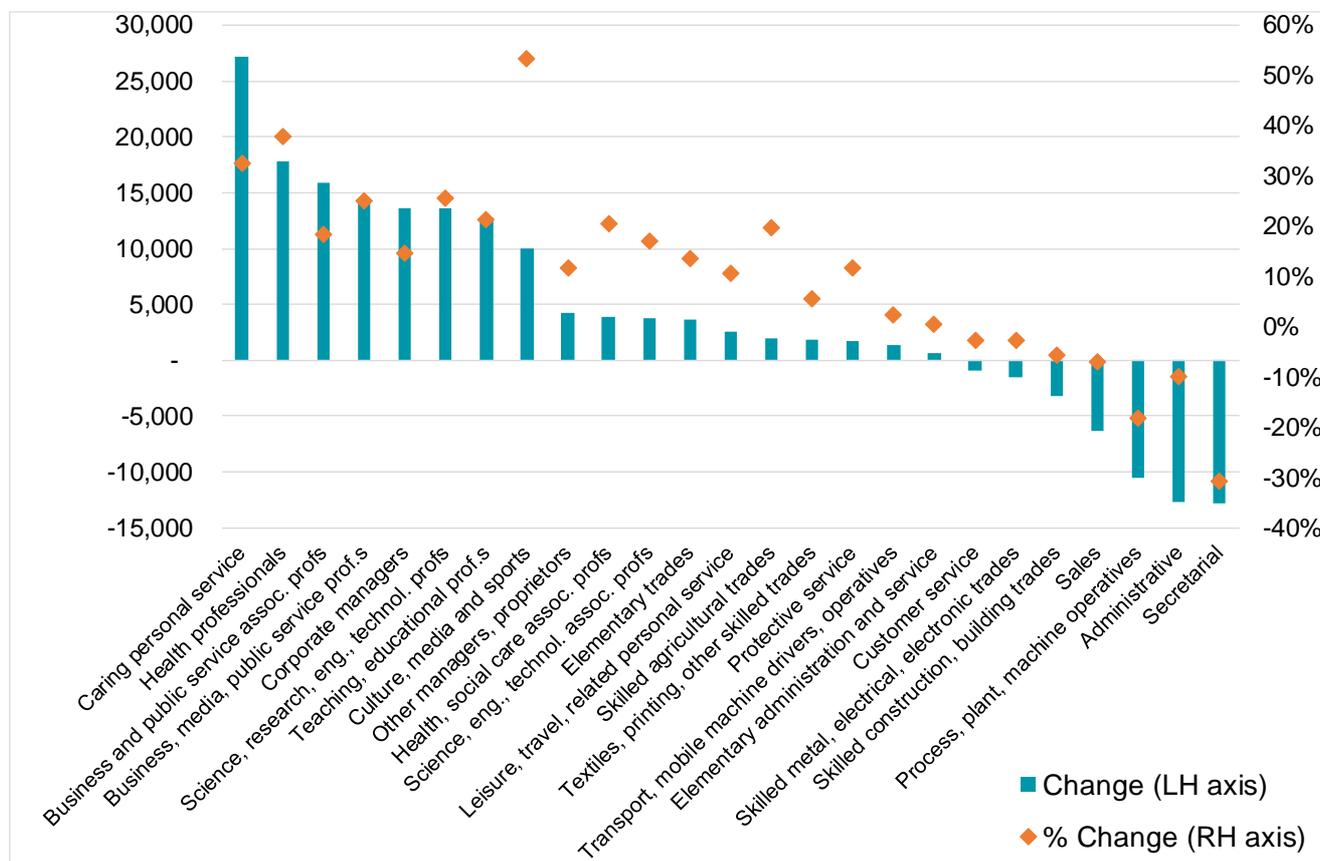
Employment statistics are volatile at local level. In order to gain a clear picture of the more detailed pattern of change in occupational employment over time, figures presented in the figure below **Error! Reference source not found.** have been averaged for a pair of three-year periods: one pre-recession (2004-2007) and one post-recession (2015-2018).

Caring personal services (a category which includes roles in social care, childcare as well as nursing auxiliaries) was the occupational category that saw the largest growth in absolute terms, with a net increase in employment of 27,000 (+33%).

The remaining occupations which saw the strongest growth were exclusively higher skilled, including *Health professionals*, *Corporate managers* and *Science, research, engineering and technology professionals*.

As a whole, high skilled occupations grew by 22% between the two period, whilst overall employment level grew by only 8%.

Net employment change by occupation, Leeds City Region



Note: Shows change between average employment levels for 2004-07 and 2015-18. Workplace based.
Source: Annual Population Survey

Culture, media and sports occupations, although only middle ranking with regard to absolute terms growth saw the fastest rate of growth of any occupational category, expanding its employment by more than 50% over this period.

The categories which saw the most pronounced declines between the two periods were exclusively middle and lower-skilled occupations, including *Administrative* and *Secretarial* occupations, routine *operatives* and *Sales occupations*.

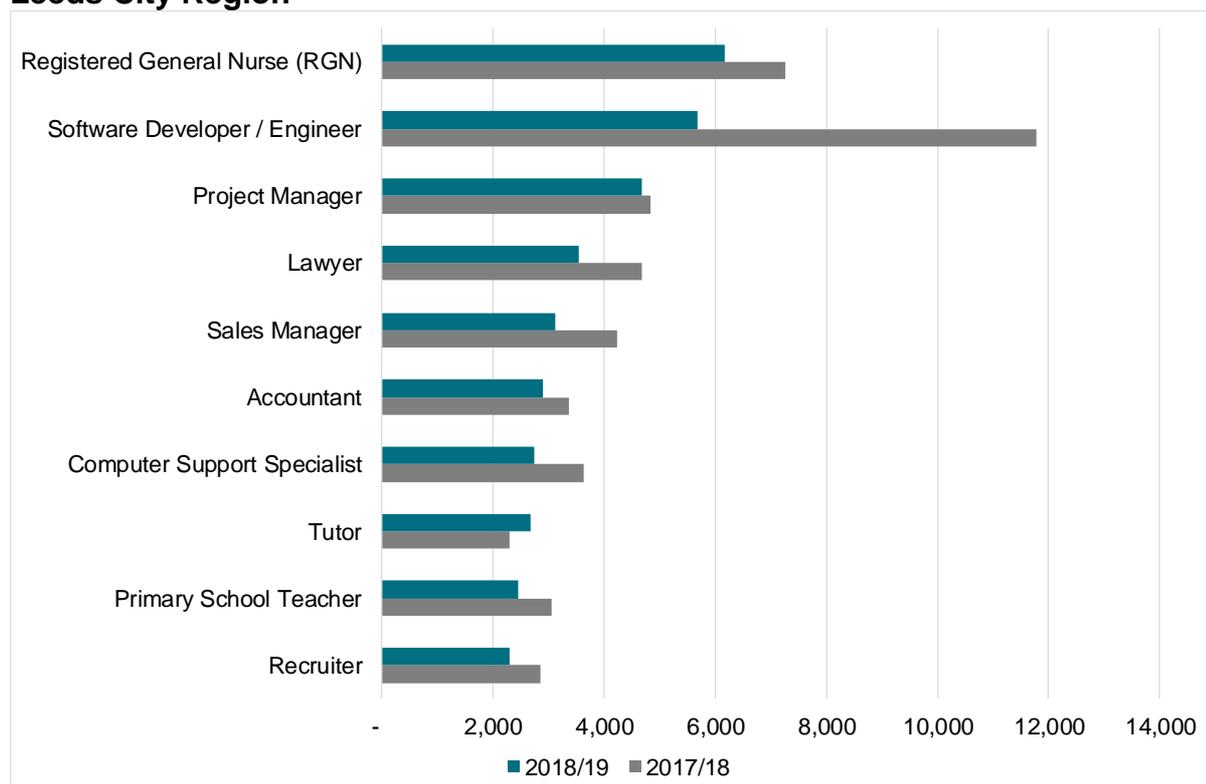
Health, digital and teaching roles are featured among those in greatest current demand

Analysis of online job postings enables us to examine the picture of current local labour demand in detail without the technical limitations of national surveys. However, a key caveat is that lower skilled jobs tend to be significantly under-represented in the data as they are much less likely to be advertised online.

Therefore this analysis focuses on jobs that fall within higher skilled occupational groups – managers, professionals and associate professionals.

There were 140,000 higher level job postings in the City Region in the 12 month period between August 2018 and July 2019. This figure represents a decline of 18% on the total registered for 2017/18. Most of the occupations in the top 10 saw declines in the number of postings, with software developer postings seeing the most marked fall. Whether this reflects a reduction in labour demand that is not reflected in aggregate employment figures for the City Region or methodological issues is unclear.

Top occupations in greatest demand overall based on volume of job postings, Leeds City Region



*Note: Analysis limited to management, professional and associate professional occupations
Source: Labour Insight*

Registered General Nurse is the occupation with the greatest number of postings, superseding software developer from 2017/18.

However, digital occupations remain fairly prominent, with 2 out of the top 10 occupations falling into this category. In addition to software developer computer support specialist features in the top 10.

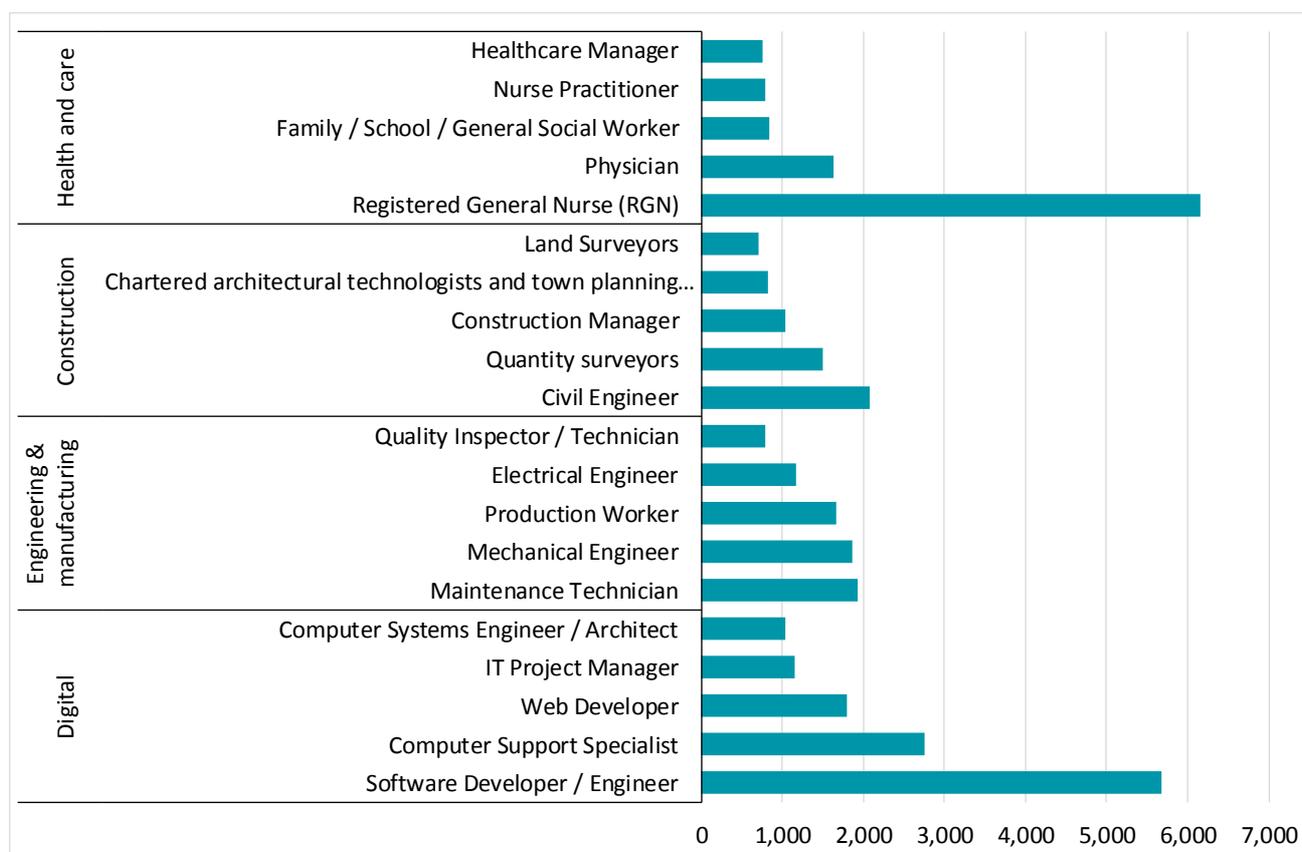
The top 10 occupational ranking also highlights the demand for a variety of other skills in the current labour market, including project management and sales as well as accountancy and legal skills.

In addition, two public sector jobs are included, in the form of registered nurse and primary school teacher.

Most of these recruitment needs can be met through the normal operation of the labour market but there are key areas of skill shortage, which are examined below.

Analysis of job postings also enables us to understand the skills that employers are looking for with regard to higher skilled jobs. Employers do not necessarily list their requirements in full in job postings; they are perhaps more likely to highlight those skills they expect will be difficult to obtain from candidates.

Top occupations in greatest demand based on volume of job postings in 4 key skill areas, Leeds City Region, August 2018 to July 2019



Note: Analysis limited to management, professional and associate professional occupations

Source: Labour Insight

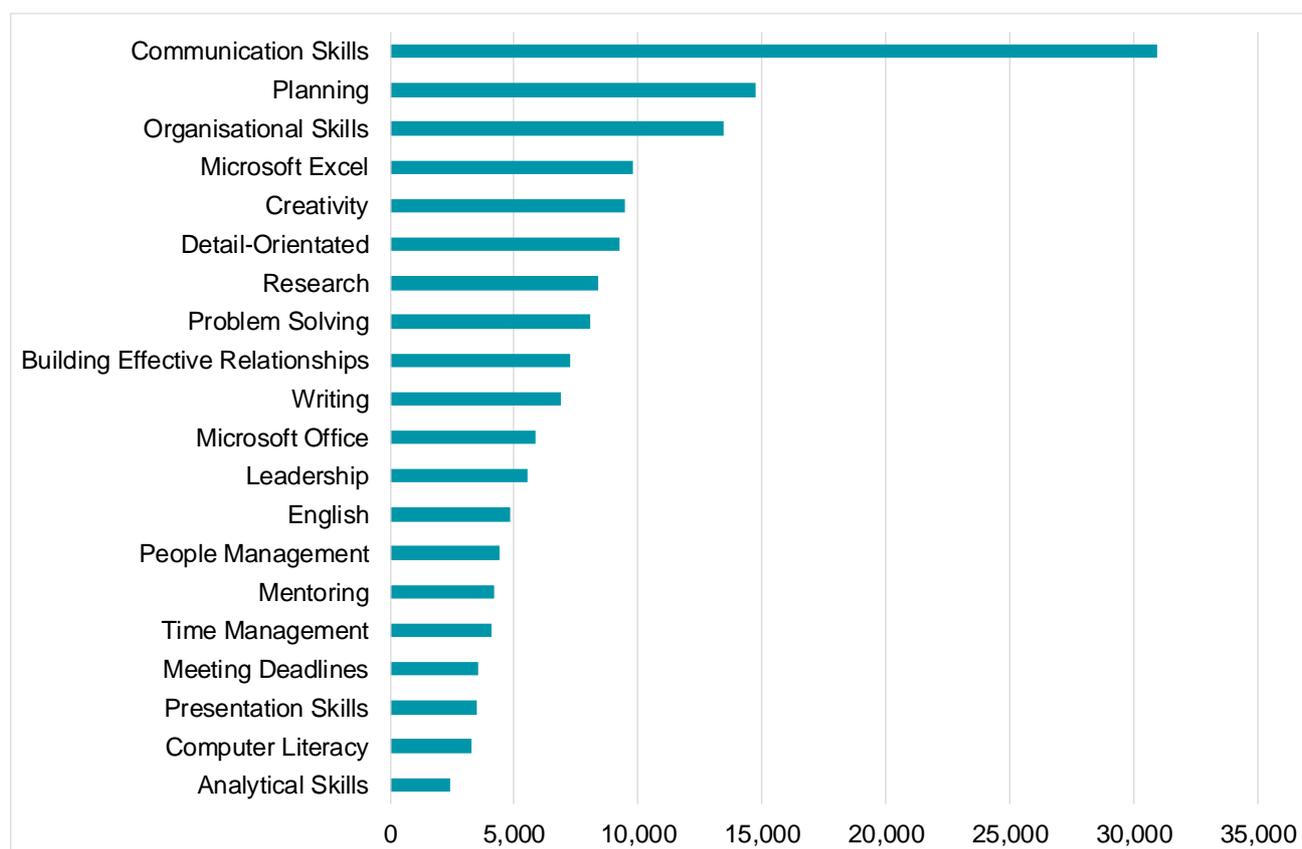
Drilling down to the occupations showing the greatest demand in four key skill areas provides confirmation that Registered General Nurse and Software developer / engineer are the leading occupations overall and are the focus of several times the number of job postings of any of the other occupations across the three areas. Maintenance technician is the leading occupation in engineering / manufacturing, while civil engineer remains in the greatest demand among higher level construction occupations. With regard to health and care, doctors, nurse practitioners and social workers are the higher skilled occupations in greatest demand.

Communication skills are most commonly highlighted in postings for higher skilled jobs

Baseline skills are those skills consistently required by employers across a range of sectors and occupations. This is useful intelligence, both for young people who need to develop career-readiness and for adults when reflecting on career adaptability.

An analysis of the baseline skills most commonly highlighted in job postings suggests that communication skills are a widespread requirement (flagged in one third of postings containing data around skills requirements). This is not surprising since communication is a defining characteristic of most high skilled jobs. A number of the remaining skill types in the top 10 can perhaps be categorised as “personal effectiveness” skills, including organisational skills, planning and problem solving. It is also notable that

Top “baseline” skill types in greatest demand, Leeds City Region, August 2018 to July 2019



Note: Analysis limited to management, professional and associate professional occupations

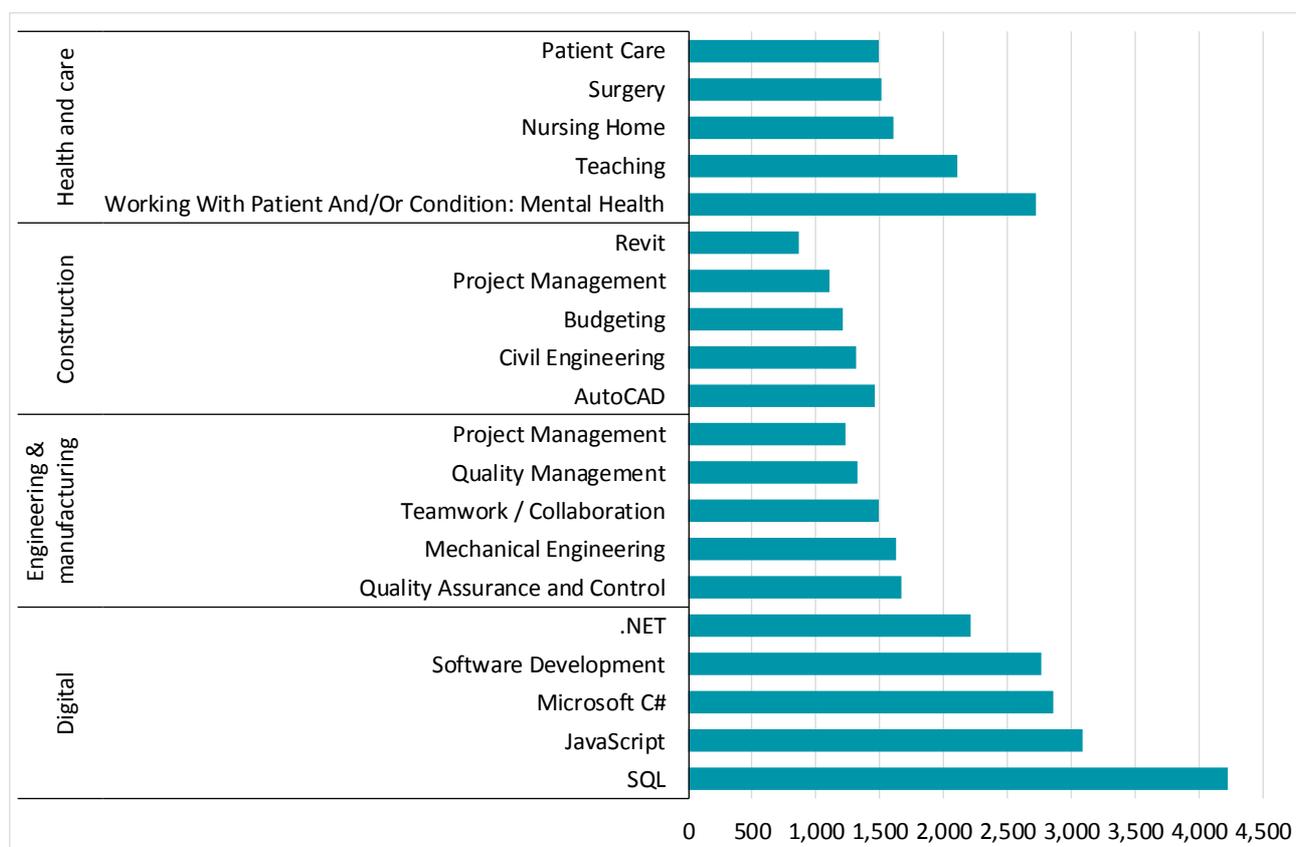
Source: Labour Insight

As well as providing an insight into the more generic “baseline” skills that are required across most jobs analysis of online job postings can be used to understand more specialised skills needs.

Skills like project management, budgeting and teamwork / collaboration feature alongside core technical skills as the most in-demand for our priority areas

Looking at skills for digital jobs it shows that the most in-demand skills are exclusively technical in nature and mostly relate to software development; in some cases specific languages and platforms such as SQL and Javascript, in others broader principles of development.

Top specialised skill types in greatest demand in 4 key skill areas based on volume of job postings, Leeds City Region, August 2018 to July 2019



Note: Analysis limited to management, professional and associate professional occupations

Source: Labour Insight

Looking at skills for digital jobs it shows that the most in-demand skills are exclusively technical in nature and mostly relate to software development; in some cases specific languages and platforms such as SQL and Javascript, in others broader principles of development.

The profile of the most in-demand skills in construction demonstrates the importance of technical skills including civil engineering and also design technologies, in the form of autocad and Revit (a type of building information modelling software). But it also shows the importance of business-related skills to these roles in the form of project and budget

management, both of which are becoming increasingly important to evolving roles in the sector.

Data from job postings suggests that the most in-demand skills in engineering and manufacturing cover a diverse range and extend beyond core technical skills. Although mechanical engineering and quality control / management feature, team working and collaboration is key and project management is again among the most in-demand skills.

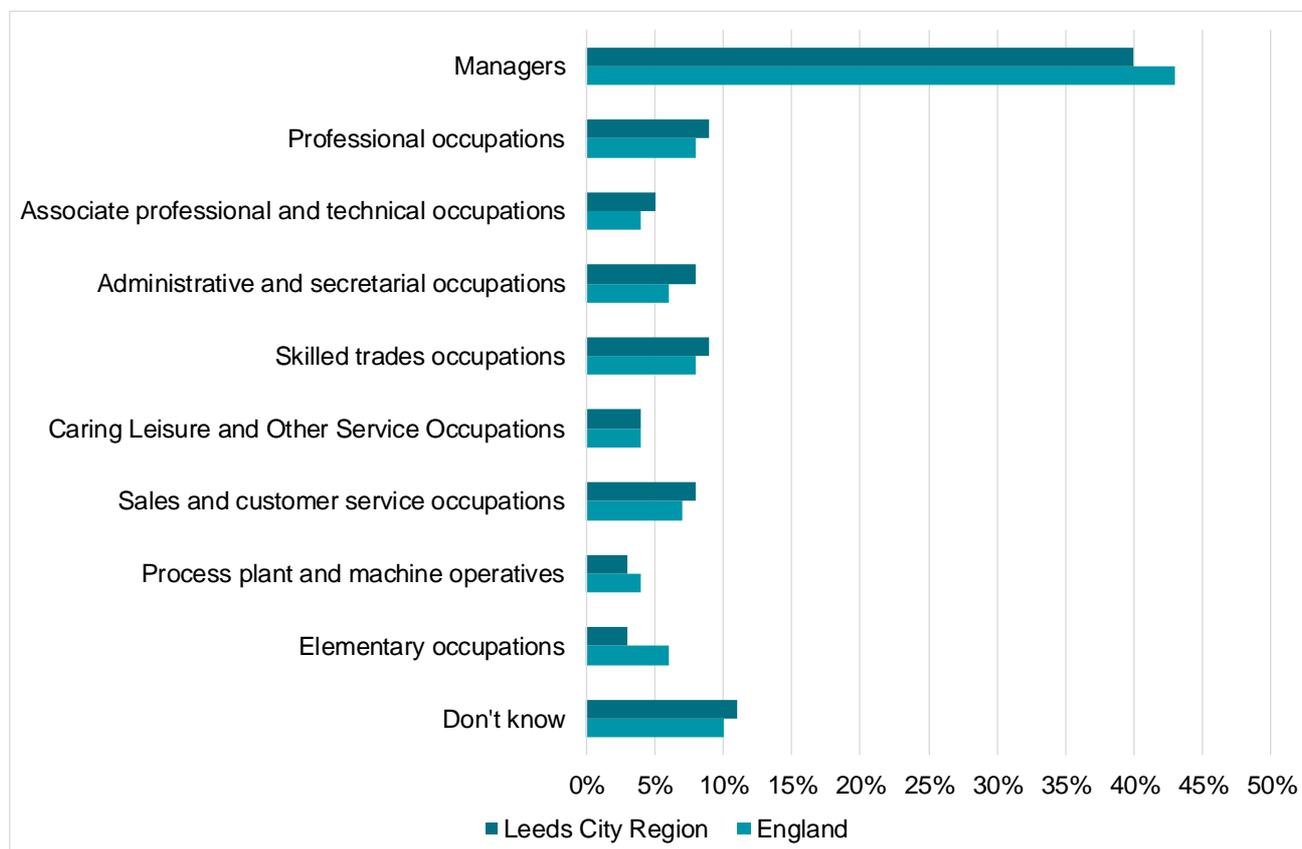
Skills relating to patient care, particularly in the context of mental health conditions and adult social care, are the most widespread requirements for health and care, together with teaching skills.

Around two-thirds of employers expect future upskilling needs - they are most likely to highlight their managers as being affected

Based on the Employer Skills Survey, two-thirds (65%) of employers expect that at least some of their staff will need to acquire new skills or knowledge over the next twelve months. This is slightly higher than the national average of 62%. The main drivers of this need are the introduction of new working practices, the development of new products and

services, the introduction of new technologies or equipment and new legislative or regulatory requirements.

Occupation most affected by need for new skills, among employers who anticipate a need for new skills in next 12 months, Leeds City Region



Source: Employer Skills Survey 2017

Managers are the occupation most likely to be identified by employers as requiring future upskilling being highlighted by 40% of those with an upskilling need. This partly reflects the fact that managers are employed by virtually all organisations whereas this is not the case for some other occupational groups.

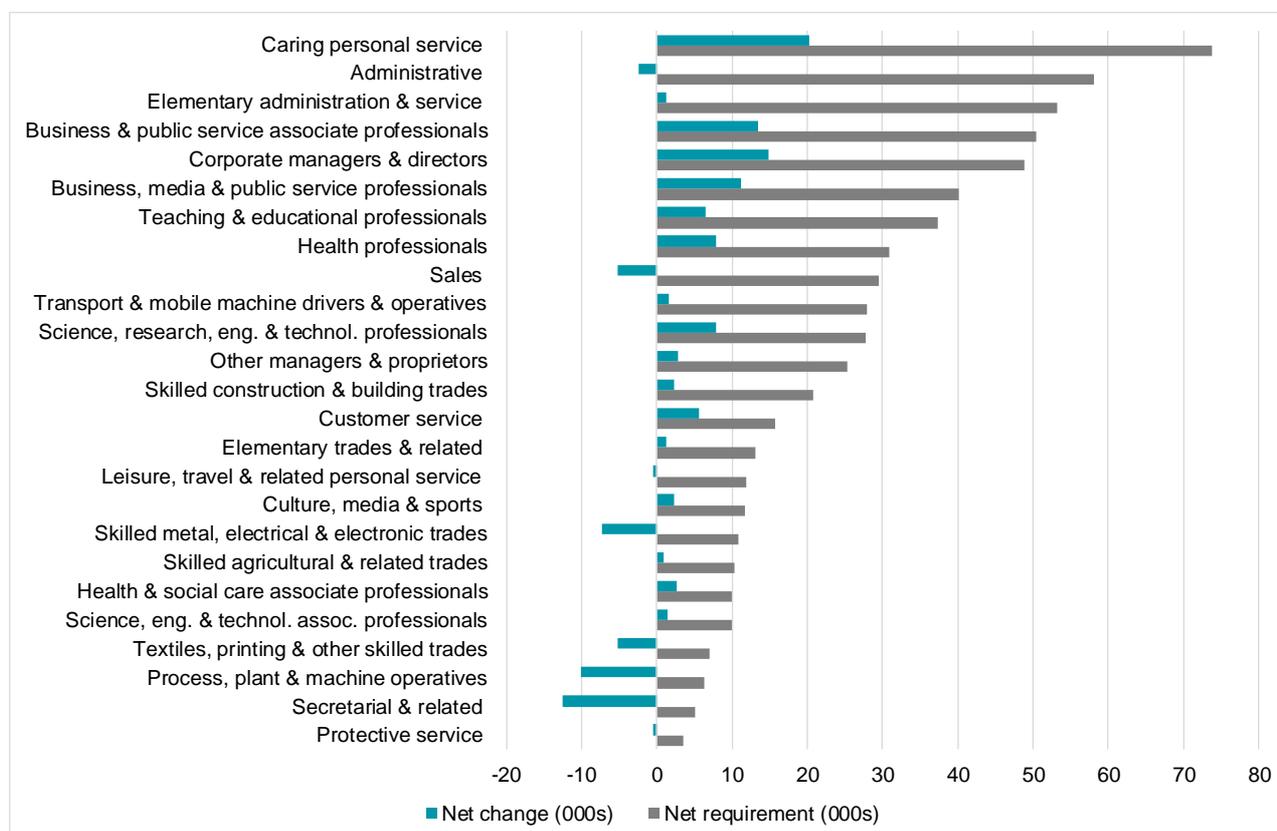
The recent pattern of occupational employment change is expected to persist in the future but replacement demands will be the source of most job openings

The Working Futures labour market projections indicate that the recent pattern of change in occupational employment, characterised both locally and nationally by growth in higher skilled occupations and in lower skilled caring roles, are likely to persist into the future. Working Futures⁷ indicates that employment in higher skilled occupations will grow at three times the average rate for all jobs and that caring personal services will grow even more rapidly. Meanwhile, net decline is expected for a range of middle-skilled and routine

⁷ A fuller analysis of Working Futures is provided in the [labour market report for 2016/17](#).

roles; most notably secretarial roles, some skilled trades occupations and process, plant and machine operatives.

Projected trends in job openings by occupation, Leeds City Region



Note: Net requirement is recruitment need taking into account net change in employment level and replacement demands

Source: Working Futures

However, trends in net growth and net decline in employment give only part of the picture. Working Futures estimates that there will be a net requirement of approximately 600,000 job openings in the City Region in the next decade, with replacement demands contributing nine out of 10 of these openings and net growth the remaining tenth. Moreover, replacement demands are expected to create job openings across all broad occupational areas, in the short to medium term, even in those that are expected to see net employment decline.

In the longer term, developments like automation may impact on the career prospects in particular occupational areas (see below).

An increasing range of jobs are being affected by automation, although those based on routine tasks and skills will remain at greatest risk of displacement

Skills obsolescence is a major cause for concern and comes about when workers' skills are rendered partly or wholly obsolete by changes in the pattern of demand for labour and

skills driven by technological change and other factors, negatively impacting on their employability.

Automation has the potential to disrupt established patterns of change in the labour market undermining the picture provided by conventional employment projections.

There are different views about the nature and extent of the future impact of technology on employment. There is broad agreement in the literature that many of the existing jobs (around 50% in the US and UK) have significant potential for automation but no consensus on what proportion of jobs could be fully automated or radically transformed.

A number of studies find that only in a few cases is it possible to automate nearly all work tasks making up an occupation. They suggest that automation of entire jobs will be much less significant than transformation⁸

A key study by Frey and Osborne (2013)⁹ and related analysis found that 35% of existing jobs in the UK are at high risk of automation over the next 20 years. The authors calculate susceptibility to automation of each job based on the extent to which a range of nine key skills, which are difficult to automate, are required to perform it. These skills include social perceptiveness, persuasion, assisting and caring for others and manual dexterity.

Automation is not a new phenomenon: computer-controlled equipment has been replacing workers in routine white collar and production roles for decades. However, the scope of what is routine and therefore automatable is expanding and this has the potential to profoundly affect the demand for skills by 2030. For example¹⁰:

- Commercial service robots are becoming better at performing complex tasks in cleaning, food preparation and healthcare.
- Administrative and office support occupations are becoming obsolete as algorithms become more efficient at handling tasks around accessing or storing information.
- A greater proportion of jobs in transportation and logistics are at risk as a result of autonomous vehicles and cheaper sensors.

The chart applies Frey and Osborne's analysis to the employment base of the LEP area using employment data from EMSI. Overall, 34% of jobs are projected to be at high risk of automation¹¹, very similar to the national average of 35%.

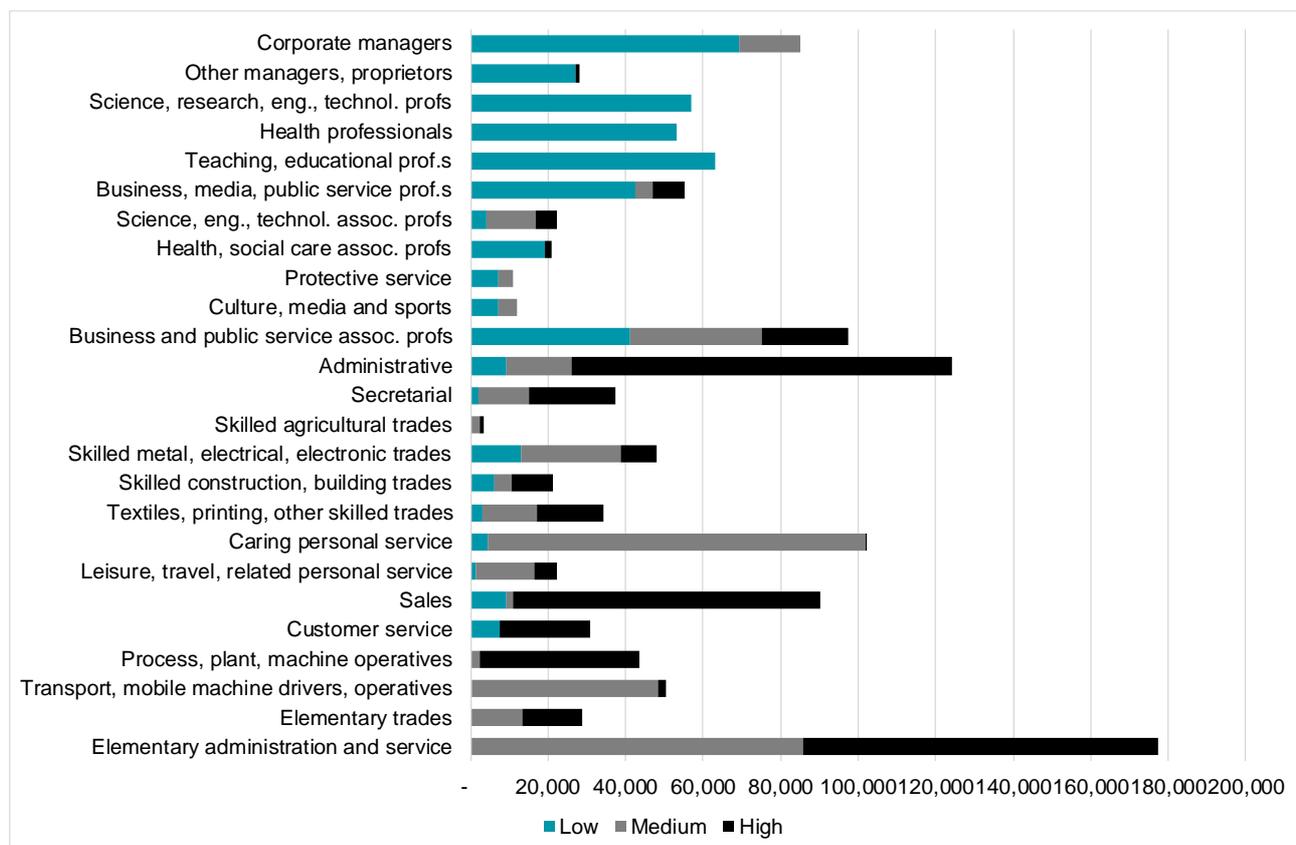
⁸ Brynjolfsson, E., Mitchell, T. & Rock, D. (2018). What Can Machines Learn and What Does It Mean for Occupations and the Economy?. AEA Papers and Proceedings 108: 43-47

⁹ Carl Benedikt Frey, Michael A. Osborne (2013) [The future of employment: How susceptible are jobs to computerisation?](#) Oxford Martin School, University of Oxford.

¹⁰ Berger, T., Frey, B. Future Shocks and Shifts: Challenges for the Global Workforce and Skills Development. Paris: OECD. Retrieved from <https://www.oecd.org/education/2030-project/about/documents/Future-Shocks-and-Shifts-Challenges-for-the-Global-Workforce-and-Skills-Development.pdf>

¹¹ High risk equates to 70% or greater likelihood of automation over approximately the next 20 years.

Proportion of jobs at high risk of automation by occupational sub-major group, Leeds City Region



Source: LEP estimates based on Frey and Osborne (2013) and EMSI employment data

The chart shows the scale of the potential impact of automation on service-based occupations that are lower-skilled but were previously difficult to automate because of the non-routine manual task involved. Hence, *Elementary administration and service* roles, which include cleaners, waiter and waitresses and kitchen staff, contribute the largest number of jobs at high risk.

In line with past trends, routine clerical (administrative and secretarial) and manual (*Process, plant, machine operative*) roles are expected to continue to be highly susceptible to automation, together with *Sales* roles (such as checkout operators).

Higher skilled occupations are expected to be relatively resistant to automation, along with caring occupations, reflecting the importance of skills such as creativity and social intelligence to these jobs, which are more difficult to computerise.

Among higher skilled occupations, *Business and public service associate professional* roles have a relatively high risk of computerisation. This category includes some financial specialist roles that are open to displacement by artificial intelligence.

4 The Supply of Skills

The availability of the right number of people with the right skills is critical to the City Region's ambition to achieve inclusive growth. The following section examines the overall level and profile of labour supply in the City Region as well as the key characteristics of the "skills pipeline", with regard to the various elements of the education system as well as employer investment in workforce development.

There was no improvement in the proportion of local people qualified at level 4 and above in 2018 but the proportion with no qualifications fell

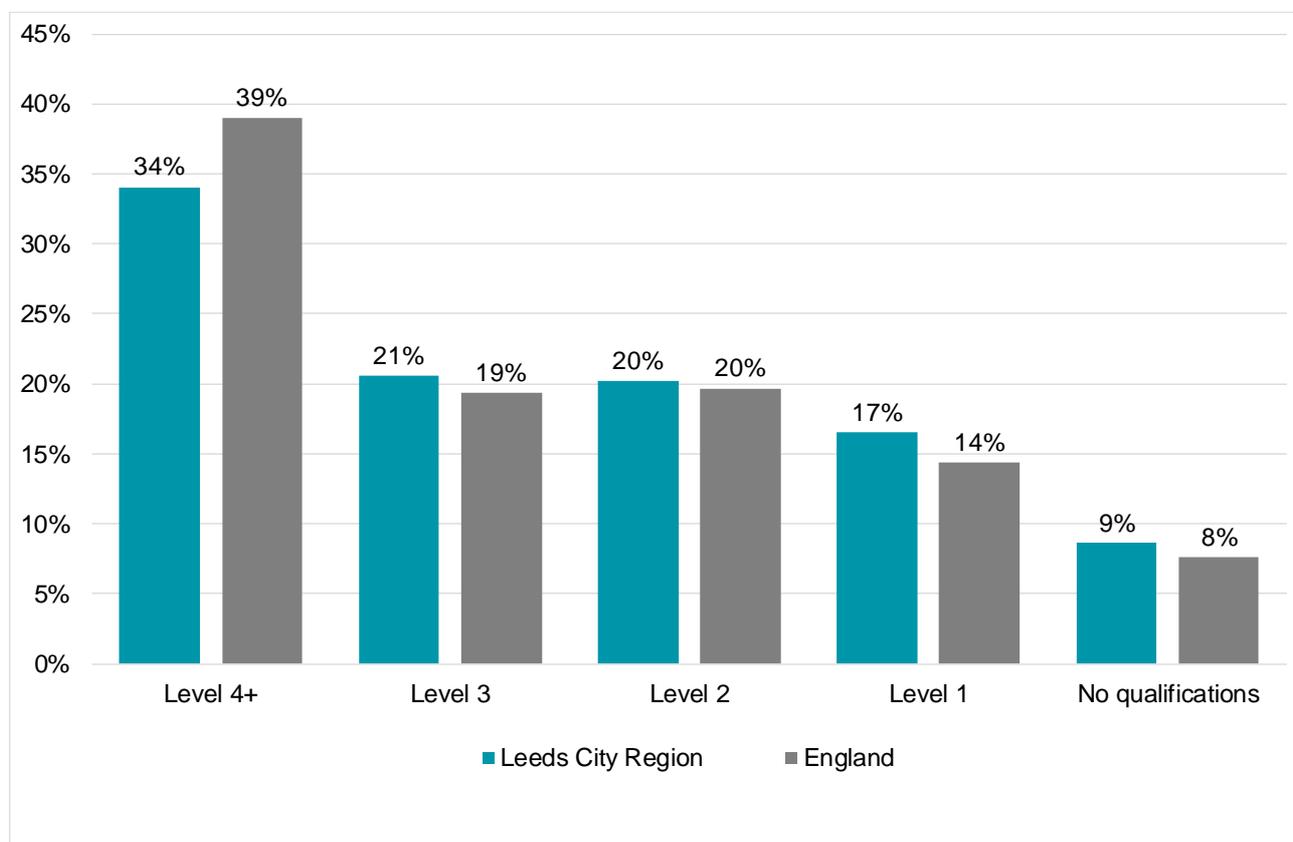
One of the key challenges facing the City Region is a deficit in its skills base relative to other parts of the UK. As we have seen, there is a strong link between the skills profile of local areas and their relative productivity performance.

In 2018 the proportion of people of working age in the City Region qualified at level 4 and above saw no change, remaining at 34%. This follows a 3 percentage point improvement in 2017. Meanwhile the national average (England) saw a small improvement of 1 point in 2018 to 39%, resulting in a slight widening of the gap between the local and national position.

In real terms, this 5 point gap with the national average is equivalent to 95,000 fewer people locally with higher level qualifications.

More positively, after four years without change, the proportion of working age people with no qualifications in the City Region fell from 10% in 2017 to 9% in 2018, leaving a single point gap with the national average, which remained at 8%.

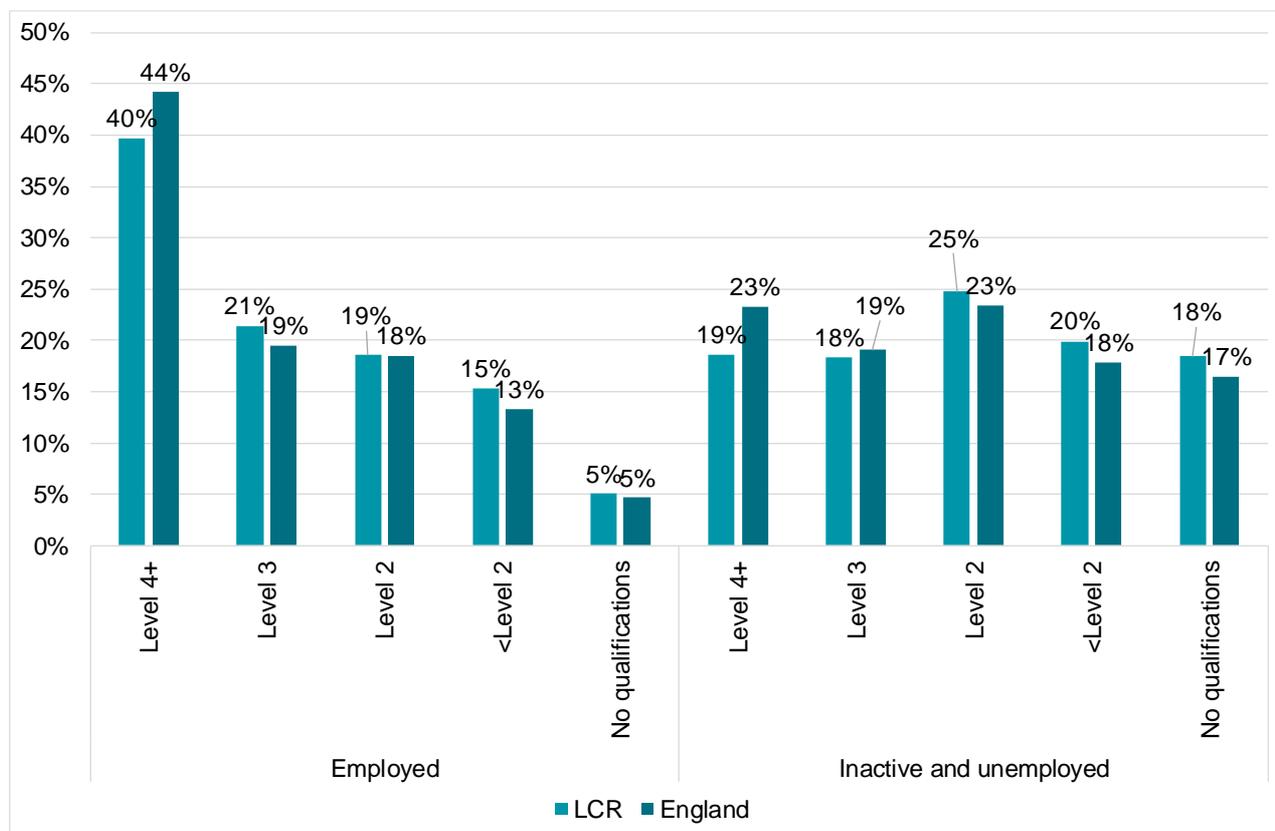
Profile of highest qualification held by working age (16-64) population, 2018



Source: Annual Population Survey, January – December 2018

The overall qualification profile of the City Region conceals marked differences at district level. For example, the proportion qualified at level 4 and above is 9 points higher than the national average in York and 5 points higher in Harrogate, at 48% and 44% respectively. Conversely, in Wakefield it is 14 points lower (at 25%) and 12 points lower in Bradford (at 27%). Moreover, 14% of the working age population in Bradford have no formal qualifications.

Profile of highest qualification held by working age (16-64) population by economic status, 2018



Source: Annual Population Survey, January – December 2018

The deficit with the national average in terms of qualification performance applies to people in work as well as the unemployed and inactive. The main gap is at level 4+, both for people in employment and for the inactive and unemployed. The proportion of unemployed and inactive people in the City Region qualified at this level is 7 points lower than nationally, whilst the equivalent gap for the employed is 4 points.

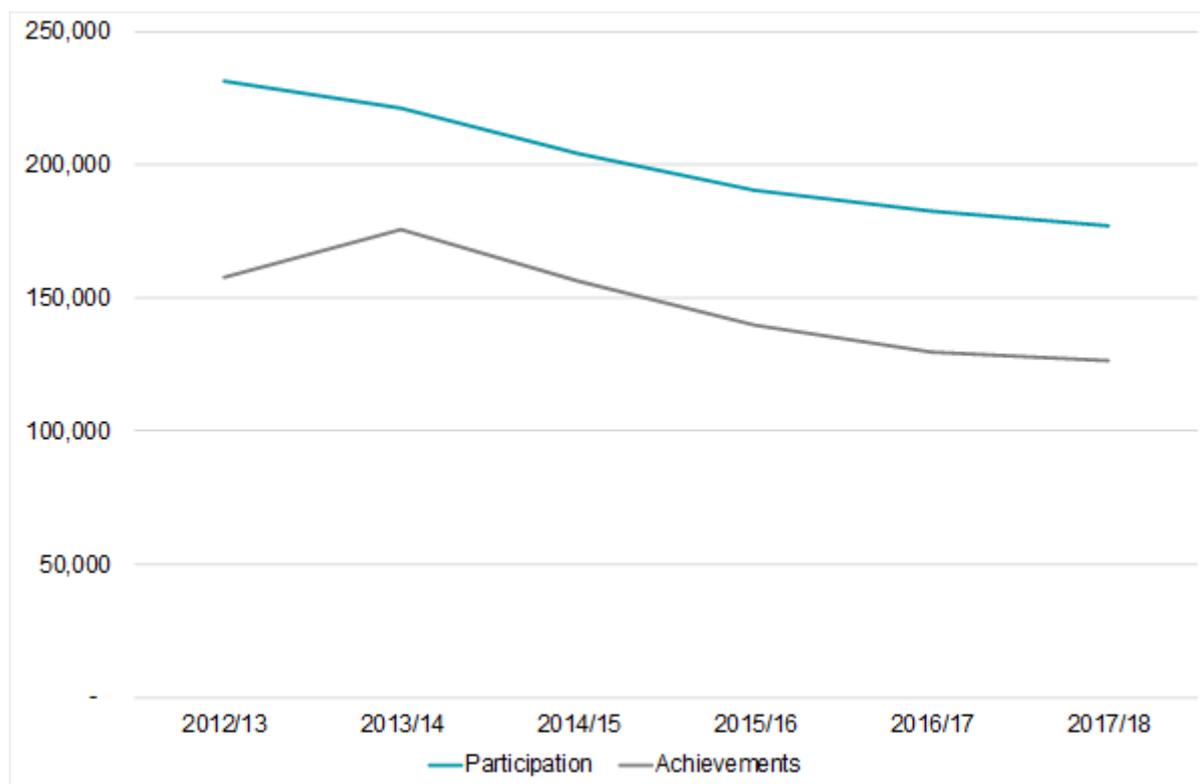
The level of participation in FE and Skills programmes continues to fall

Turning to the pipeline of skills delivered through the local skills system, between 2016/17 and 2017/18 academic years the number of participants on FE and Skills programmes¹² in the City Region fell by 3% from 183,000 to 177,000. Looking at the period from 2012/13 to 2017/18, however, the decline amounted to 23%, a decline of more than 50,000.

Achievements on these programmes saw a similar rate of decline of 20%. The picture for the City Region broadly reflects the rate of decline at national level.

¹² Participation is defined as the number of funded learners undertaking learning in an academic year. The FE and Skills category includes learners who are studying a course in an FE College, training provider or within their local community; and employees undertaking an Apprenticeship or other qualification in the workplace.

Participation on FE and Skills programmes, Leeds City Region



Source: Department for Education

All broad areas of provision saw a degree of decline in participation over this period in the City Region but with some variation:

- In spatial terms, Leeds district saw the smallest decline, falling by 14% between 2012/13 and 2017/18, whilst Harrogate fell by 39% and Wakefield by 33%.
- Full level 2 courses saw pronounced decline of 29% between 2016/17 and 2017/18 alone whilst Full level 3 courses fell by 8% over the same period.
- Participation fell by 3% for adults (19+ years) and by 2% for young people (under 19) between 2016/17 and 2017/18. Over the longer period from 2012/13 the fall was more much more pronounced for adults, at 27%, compared with 14% for under-19s.

Apprenticeship take-up fell by more than a quarter in 2017/18

Apprenticeships are a key means for employers to grow their own skills and to address their specific needs, particularly in areas of skills shortage, as well as providing workers with a sustainable career pathway. There were 22,250 apprenticeship starts in Leeds City Region during the 2017/18 academic year.

Based on figures for 2017/18, the latest full year for which data are available, the City Region saw a fall in the overall number of apprenticeship starts of 26%, or 7,900 in absolute terms, following a decline of 3% in 2016/17.

The academic year saw a significant fall in intermediate apprenticeships of 40%, a fall of 6,400 in absolute terms. This means that apprenticeships at this level have seen a considerable fall in their share of total starts, from 60% in 2014/15 to 43% in 2017/18. At the same time advanced apprenticeships fell by 18% (-2,170 starts). In contrast, higher apprenticeship starts continued to grow, albeit from a relatively low base, seeing an increase of 630 or 31%.

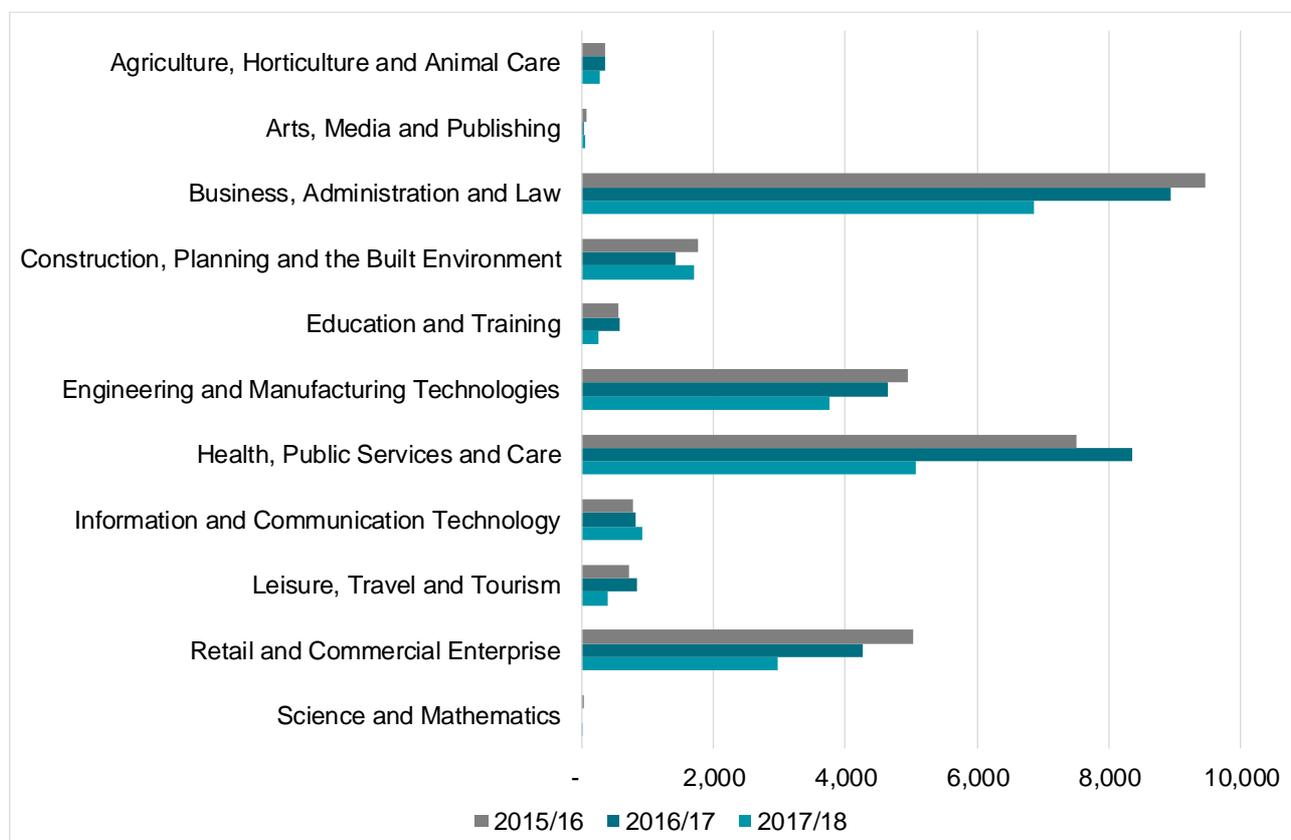
Adult apprenticeship saw the biggest impact. Starts among people aged 25+ fell by -5,350 or -37%, versus an overall rate of decline of 26%; and this age group accounted for two-thirds of the total decline in starts. The fall for under 19s was much less pronounced at -11% whilst starts for 19-24 year olds fell by 21%. The pattern of decline was similar to the national average, although 25+ starts fell to a greater degree in the City Region.

The two largest subject areas for apprenticeships locally, based on 2017/18 figures, are *Business, administration and law* and *Health, public services and care*, accounting for 31% and 23% of total starts respectively. With regard to key skill shortage areas, *Engineering and manufacturing* is the largest priority subject area with 17% of starts but *Construction* (8% of the total) and *Information and communication technology* (4%) are both relatively small.

Two of the three key skill areas saw growth in starts: *Construction, Planning and the Built Environment* (+280, +20%) and *Information and Communication Technology* (+100, +12%). The third, *Engineering and manufacturing*, saw a decline of 19%.

All other subject areas also saw a decline in starts. The areas of greatest absolute decline with regard to subject area were *Health, Public Services and Care* (-3,280, -39%), *Business, Administration and Law* (-2,060, -23%) and *Retail and Commercial Enterprise* – (1,300, -30%).

Trend in apprenticeship starts by subject area, Leeds City Region



Source: Department for Education.

A concern is that higher apprenticeship availability is currently narrowly concentrated in a few subject areas, with 90% of higher level starts falling within the two subject areas of *Business, administration and law* and *Health, public services and care* (within these broad subject areas starts are mainly for *Management* and *Care leadership* apprenticeships). With regard to priority skill areas, higher apprenticeship provision is currently limited to the *Information and Communication Technology* subject area, with no higher apprenticeship take-up in *Construction and the built environment* and *Engineering and manufacturing*, although relevant standards are in the pipeline.

Provisional figures suggest partial recovery in apprenticeship take-up

Provisional data for the first three quarters of 2018/19 point to a partial recovery in the number of apprenticeship starts in the City Region. The number of starts during this period was 14% higher than in the equivalent period of 2017/18; although this is stronger than the national figure of 7% the City Region has still not recovered the ground lost at the end of 2016/17 and into 2017/18.

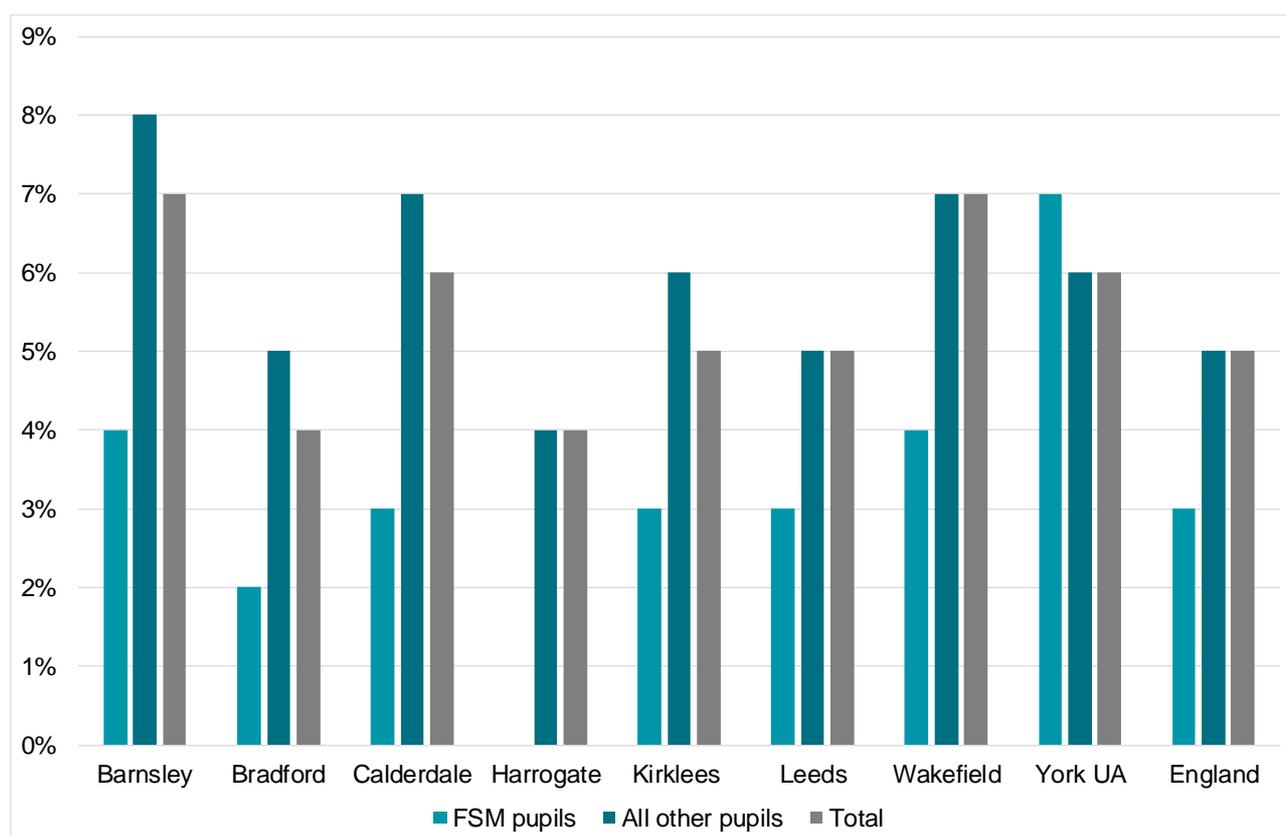
It is notable that higher apprenticeships doubled in the City Region over this same period, whilst intermediate apprenticeships continued to fall. This raises the question of whether there are signs of underlying structural change in the way in which apprenticeships are used by employers, with levy payers (who account for around 54% of total starts locally)

focusing on the development of the management and other higher level skills of existing employees. Consideration needs to be given to the future balance between addressing high level skills needs and the needs of lower-skilled workers as well as providing opportunities for young people.

Disadvantaged pupils are less likely to enter an apprenticeship in most parts of the City Region

In considering the supply of skills within the City Region, we need to take account of the inclusiveness of the skills pipeline, as well as the extent to which it is sufficient to meet needs. In the case of apprenticeships, which should provide an important mechanism for social mobility, there are issues about the degree to which they are inclusive.

Proportion of pupils entering apprenticeships following completion of key stage 4, by free school meal status



Note: Analysis shows 2016/17 destinations for the 2015/16 cohort (state-funded mainstream schools). Data not available for Craven and Selby.

Source: Department for Education.

Across all districts of the City Region (with the exception of York) disadvantaged pupils are less likely to enter an apprenticeship than other pupils on the completion of key stage 4. The national average figures also show a gap but this is less pronounced than for a number of districts in the City Region.

Take-up of apprenticeships is highly segmented by subject. For example, 84% of starts on *Health, public services and care* apprenticeships were for women and girls but the proportion for *Construction, planning and the built environment* was only 5%. National research shows that male-dominated apprenticeships such as construction and engineering offer better pay and prospects than those in which women are concentrated.

Moreover, the pattern of decline by subject and level seen in 2017/18 had significant implications for females. The number of starts for women and girls declined by 34% (-5,590), double the rate of decline experienced by males. The fall in female starts accounted for 70% of the total decline in starts, largely as a result of steep declines in *Health and social and administration*.

Ten per cent of apprenticeship starts in the City Region during the 2017/18 academic year, were from people with an ethnic minority background, a similar proportion to the 2016/17 figure. This mirrors the national average, also 10%, but is somewhat lower than the 13% of the working population of the City Region who are from ethnic minorities.

The City Region enjoys a net inflow of HE students but relatively few engineering and built environment graduates take up employment in Yorkshire and the Humber

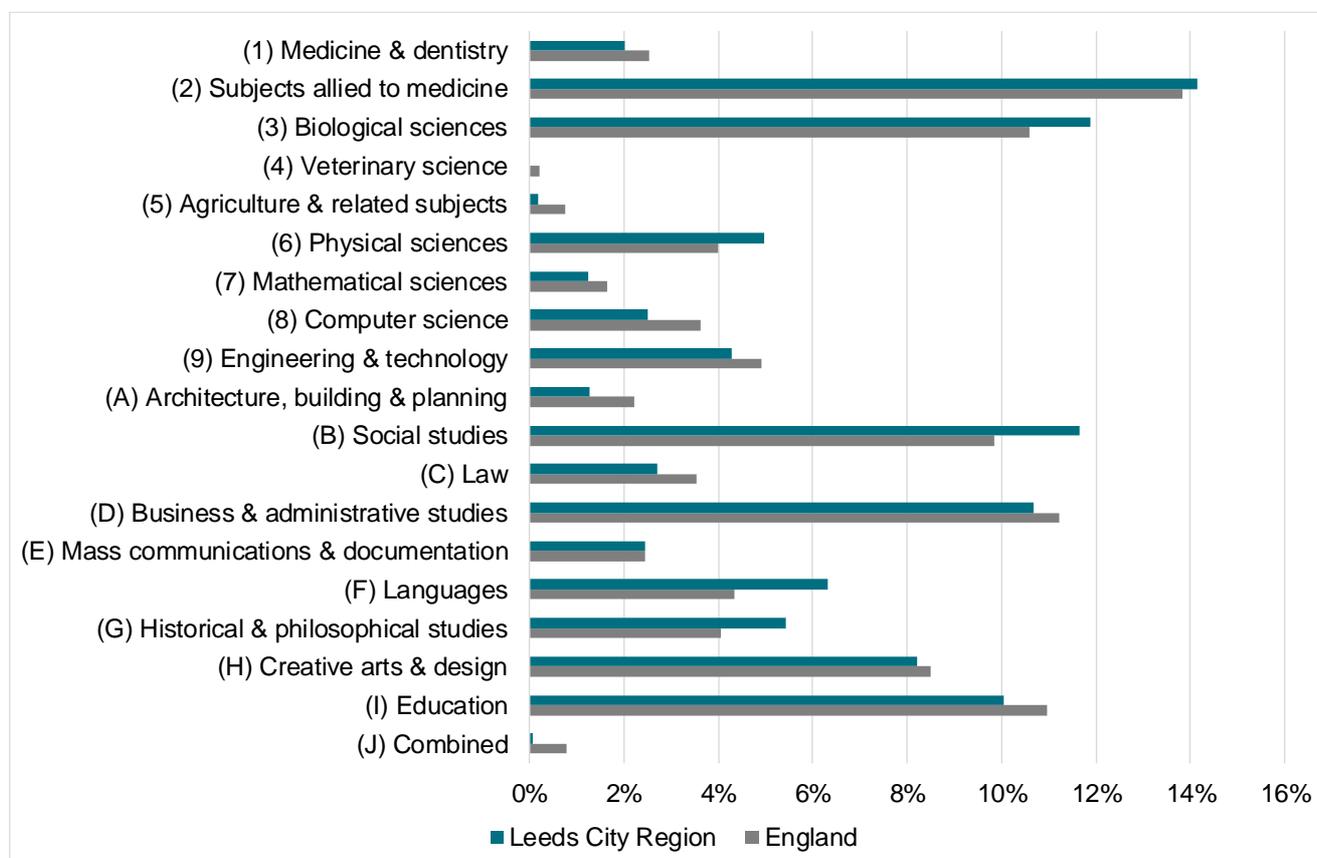
With 116,400 students enrolled during the 2017/18 academic year, Leeds City Region has the largest higher education sector outside London. There was a net inflow of 39,000 students into the City Region during the year, based on the fact that there were 42,000 HE students from the City Region who studied elsewhere, compared with 81,000 students from outside the City Region (including foreign students) who came to study at local institutions.

Attraction and retention of graduates in the regional economy is key to maximising the economic benefits of higher education. In 2016/17, around 57% of qualifiers from the City Region institutions were in employment in Yorkshire and the Humber six months after graduation. This rate has remained fairly constant over recent years.

The total number of student enrolments at City Region institutions has remained stable in recent years at around 116,000, whilst the number of UK-domiciled qualifiers has also been stable at approximately 30,000. However, there have been changes in the profile of students qualifying in particular subjects. With regard to priority subjects, the number of UK-domiciled qualifiers in *Architecture, building and planning* grew markedly in 2017/18 by 20% or around 70 qualifiers. *Computer science* also grew significantly, by 8% or 55 additional qualifiers. *Engineering and technology* remained largely static, with growth of 2%, 24 additional qualifiers.

The subject profile of qualifiers from the City Region's HEIs is somewhat different to the national average, particularly with reference to subjects in key skill shortage areas. *Architecture, building and planning, Computer science* and *Engineering and technology* all account for smaller proportions of total qualifiers than is the case nationally. Conversely, the City Region is above average in terms of *Biological and Physical sciences, Social studies* and *Languages*.

Higher education qualifiers by subject area, 2017/18 academic year



Note: UK domiciled students only

Source: Higher Education Statistics Agency

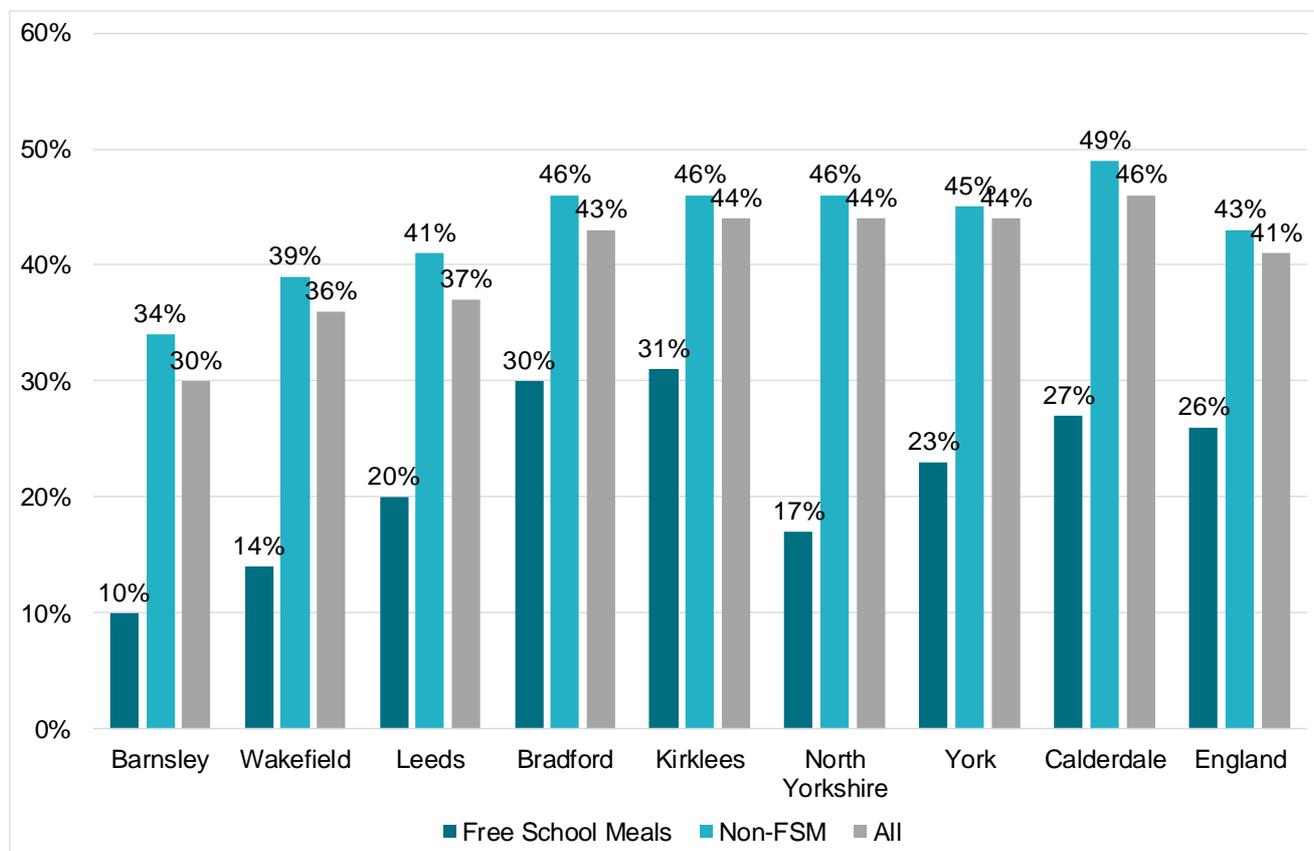
The extent to which qualifiers are retained in the City Region varies by subject, based on the most recent figures for 2016/17¹³. For *Computer science* the retention rate, at 65%, is higher than the average of 57%. For the other key subjects retention rates are relatively low, at 53% for *Architecture, building and planning* and only 43% for *Engineering and technology*.

Disadvantaged pupils less likely to enter higher education in the City Region

Access to higher education offers a key mechanism for promoting social mobility. Accordingly, the LEP's Employment and Skills Plan sets out a commitment to support people of all ages and communities to progress into higher level learning. However, as with apprenticeships there are issues around low entry rates of disadvantaged young people into higher education.

¹³ These retention rates show the proportion of qualifiers from institutions in the City Region who were employed in Yorkshire and the Humber six months after graduation.

Proportion of students entering higher education by free school meal status and district



Note: Entered HE by age 19 in 2016/17 academic year

Source: Department for Education

Performance on overall entry rates varies by City Region district. Pupils in Barnsley, Wakefield and Leeds are much less likely to go into higher education than the national average. Conversely, Calderdale, Kirklees and Bradford, together with York and districts in North Yorkshire have relatively high rates.

The districts with low entry rates also have very low entry rates among disadvantaged pupils eligible for free school meals: 10% in Barnsley, 14% in Wakefield and 20% in Leeds; this compares with a national average rate of 26%.

However, a number of areas with strong overall performance, particularly York and North Yorkshire also perform poorly with regard to entry rates for pupils eligible for free school meals and demonstrate the widest gap between the disadvantaged and non-disadvantaged.

It is notable that Bradford and Kirklees have the highest entry rates for disadvantaged pupils in the City Region and the lowest “disadvantage gaps” and both outperform the national average.

Many employers admit that they under-invest in training

Improvements to the skills base of the City Region depend to a large degree on ongoing investments by employers in workforce development. People who are already in employment will remain the mainstay of the labour force for some time to come.

The scale of employers' investment in workforce development also shows its key role within the skills landscape. From an extrapolation of spend per person trained taken from the Employer Skills Survey it is estimated that employers in the City Region invest close to £2bn per annum on workforce development.

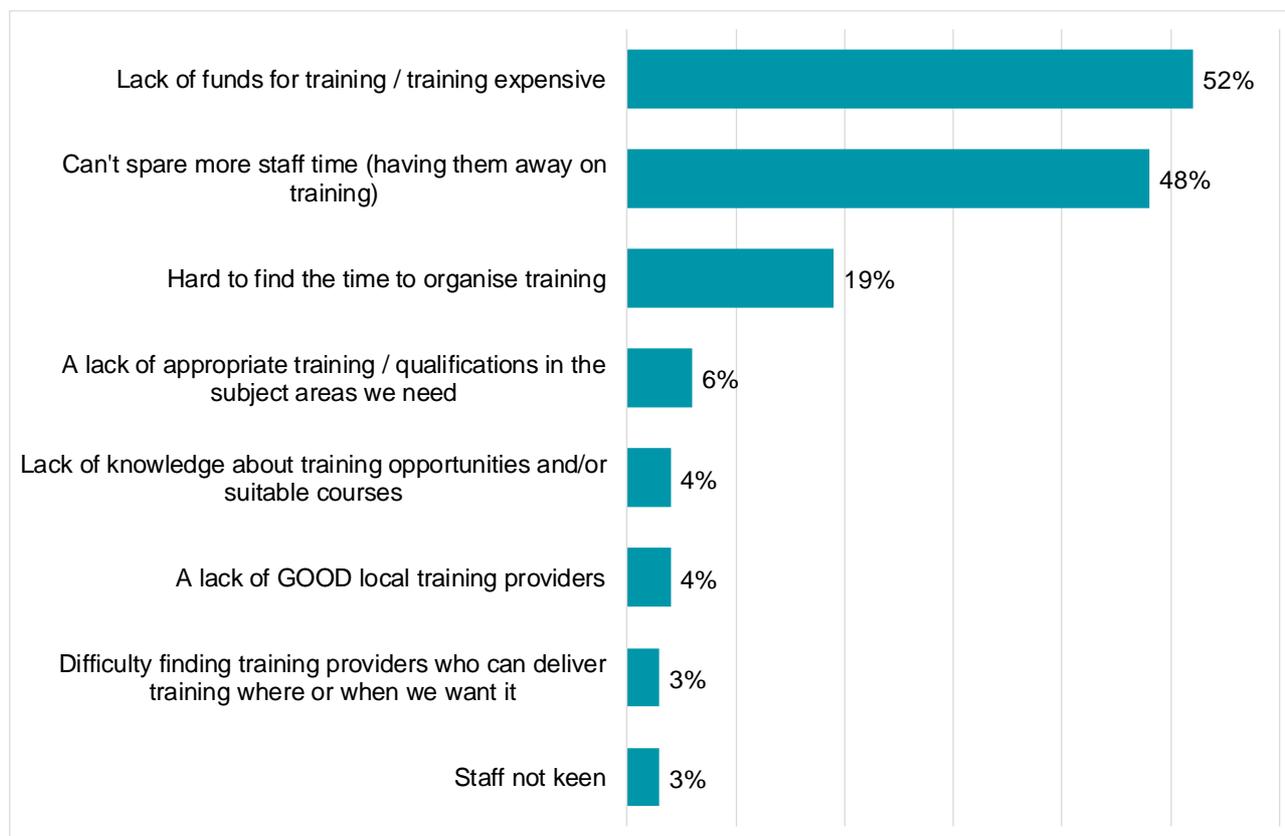
The Employer Skills Survey 2017 shows that around two-thirds (65%) of employers in the City Region provide training to their staff, similar to the England average of 66%. At the same time 59% of staff receive training, somewhat below the national average of 62%. There has been little change in the City Region's performance against these indicators between 2017 and the previous survey in 2015.

Among the third of local establishments who do not train, a majority (72%) say that no training is needed but a significant minority (the remaining 28%) say that they would have liked to have done some training.

Among those employers who did invest in training, around two-fifths would have liked to have done more.

The overall picture is that approximately two-fifths (41%) of employers would have liked to have done more training (or some training in the case of non-training employers). We can view this as an acknowledgement by many employers that they are under-investing relative to the skills needs of their business.

Barriers to providing more training among employers who would have provided more training if they could, Leeds City Region



Source: Employer Skills Survey 2017

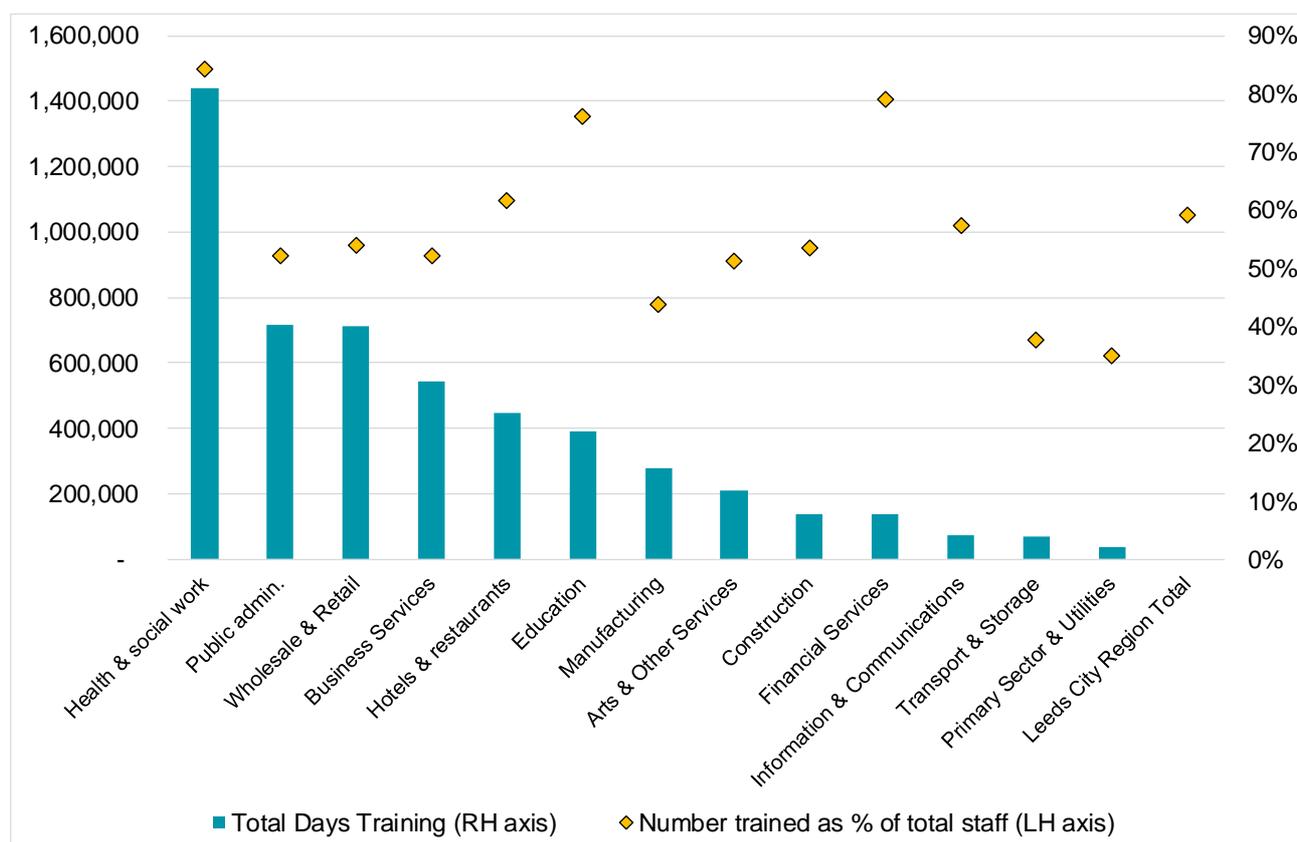
Among employers who would have provided more training if they could, the chief barriers to doing more were a lack of funds for training (52% of respondents) and an inability to spare staff time for training (48%), followed by a lack of time to organise training. Issues around the availability of suitable training provision were identified by small proportions of respondents to the Employer Skills Survey. The key challenge therefore is to make the case for training as a business investment that will deliver suitable returns in the form of improved business performance.

The largest volume of training is undertaken in the health and care sector

Looking at the sector profile of the training that is undertaken, it is clear that *Health and social care* holds a dominant position, both in terms of the number of days of training provided and the proportion of staff receiving training. The sector accounts for 28% of all training days delivered, with 84% of all staff receiving training in a 12 month period. *Public administration* and *Wholesale and retail* are the next largest sectors, in volume terms, each accounting for 14% of total training.

Although the total volume of training delivered in the *Financial services* sector is fairly small relative to many other sectors, a high proportion of staff working in the sector receive training. At 79% the prevalence of training is second only to *Health and social care*. The participation rate is also very high for the *Education* sector at 76%.

Training activity by industry sector, Leeds City Region



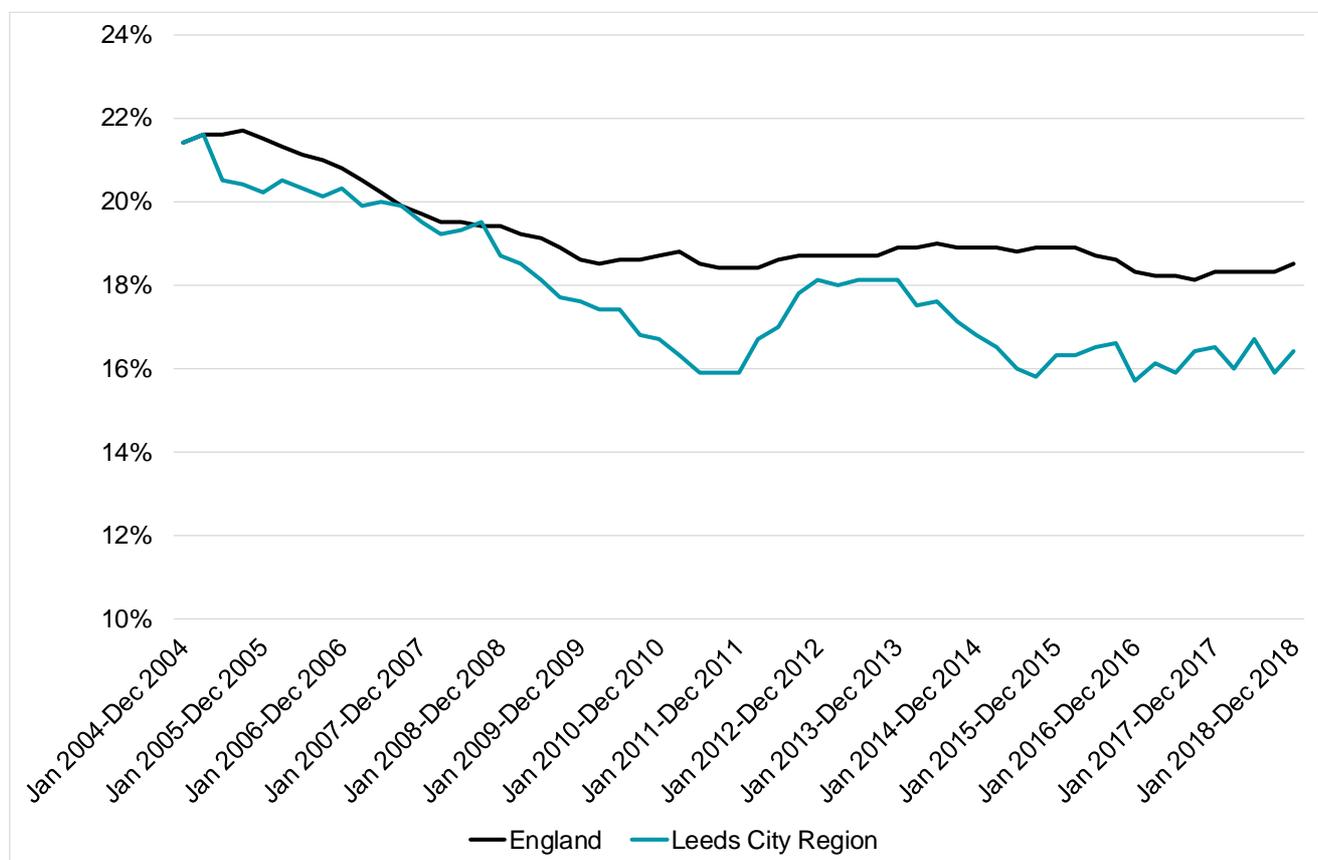
Source: Employer Skills Survey 2017

At the other extreme, workers are least likely to receive training in the *Primary and utilities*, *Transport and storage* and *Manufacturing* sectors.

With regard to the average number of training days provided per staff member, the *Public administration* sector has easily the highest figure at 15, followed by *Health and social care* with 8 and *Hotels and restaurants* with 5. This is in comparison with an all-industry average for the City Region of 3.9. In the *Transport and storage*, *Primary and utilities* and *Manufacturing* sectors, the figure are 1.1, 1.5 and 2.0 respectively.

Data from the Annual Population Survey shows that the proportion of people receiving job-related training declined both nationally and locally between 2004 and 2010, with the extent of the decline being more pronounced in the City Region. Since then the proportion of workers receiving training has remained below the national average on a fairly consistent basis and with little sign of recovery in recent years.

Proportion of people receiving job-related training in previous 13 weeks



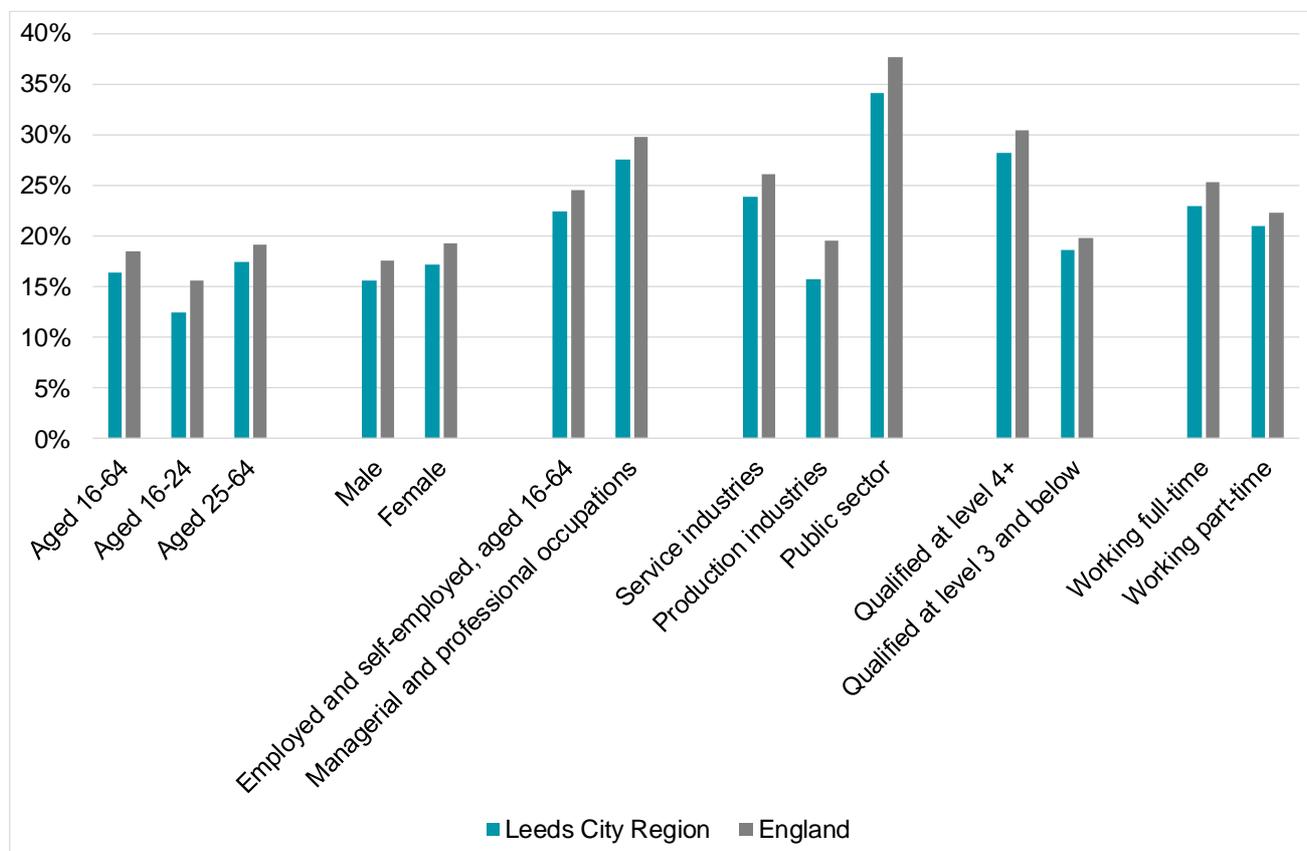
Source: Annual Population Survey

Looking at individual access to training, data from the Annual Population Survey shows that local people are less likely to undertake job-related training than nationally, with 16% receiving training in the previous 13 week period compared with the national average of 19%. Leeds City Region performs consistently below average with regard to access to training for various groups in the workforce relative to national counterparts.

There is unequal access to job-related training

Some workforce groups are significantly less likely to undertake job-related training than others, with a potential impact on prospects for pay and progression. Arguably, people who could most benefit from skills development are least likely to be provided with access to it. The pattern broadly reflects that seen at national level.

Proportion of people receiving job-related training in last 13 weeks by labour market group



Source: Annual Population Survey, Jan – Dec 2018

First of all, there are important differences in access to training by industry. Workers in the production industries are less likely to participate than their counterparts in the service industries but people employed in the public sector are the most likely by far to receive job-related training – around twice as likely as workers in the production sector.

Workers who are already qualified to a high level are, by a significant margin, more likely to receive training than their less qualified colleagues. 28% of people qualified at level 4 and above received training compared with 19% of those qualified at level 3 and below.

Finally, females are somewhat more likely than males to receive training, but to a large extent this reflects their strong representation in public sector employment.

Clearly these inequalities of access to work-related training serve as a potential barrier to career progression and to the fulfilment of individuals' potential.

A small minority of local businesses have adopted high performance working practices

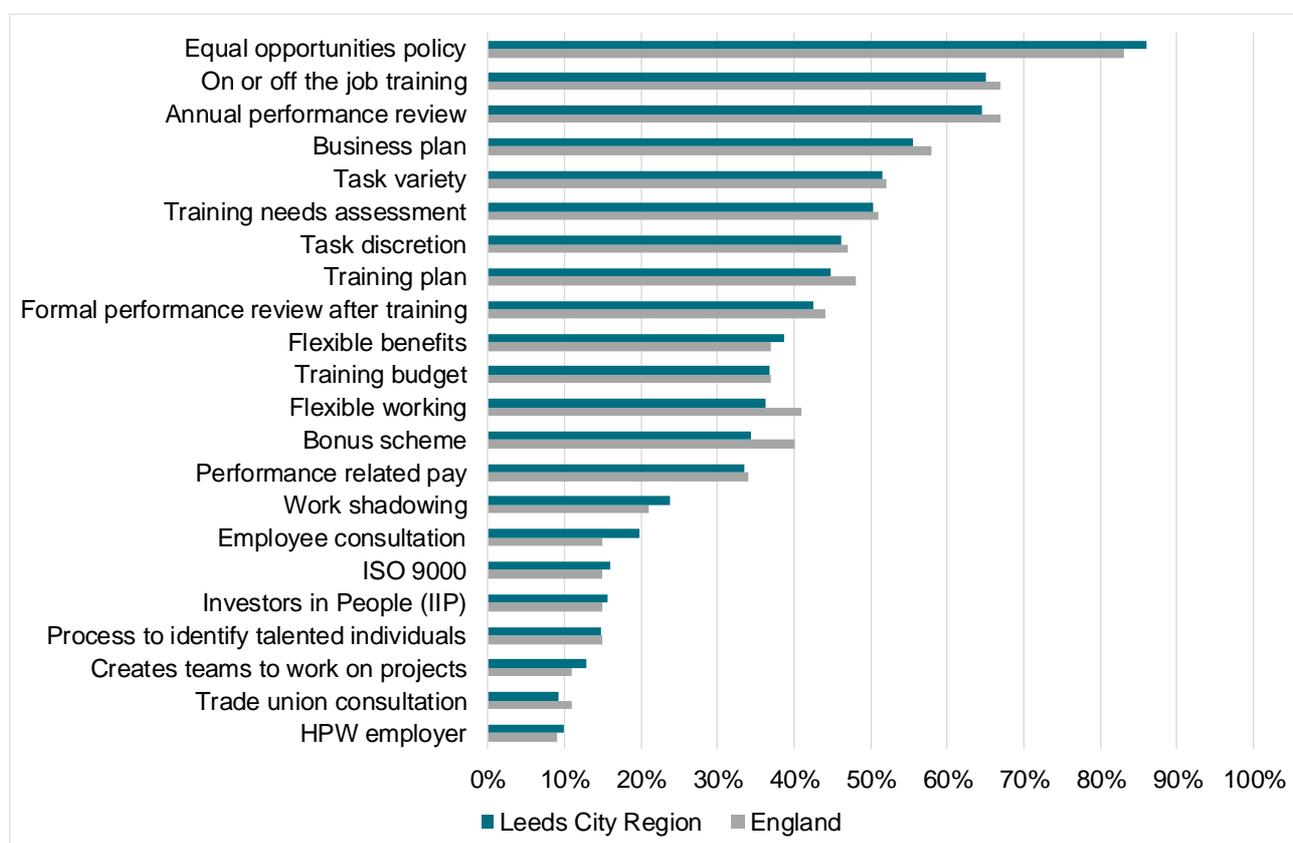
High Performance Working (HPW) is a general approach to managing organisations that aims to stimulate more effective employee involvement and commitment in order to achieve high levels of performance. These practices represent an important transmission

mechanism between the skills of the workforce and enhanced business performance and productivity.

The figure, below, presents indicators relating to 21 practices that make up HPW. Different practices have differential levels of adoption. For example, almost all organisations have an equal opportunities policy but only around 1 in 10 create teams to work on projects or have processes to identify talented individuals.

Overall, 10% of employers nationally are classed as higher performance working employers in the sense that they have adopted 14 out of the 21 practices. However, the proportion falling into this category locally is much smaller at only 4%.

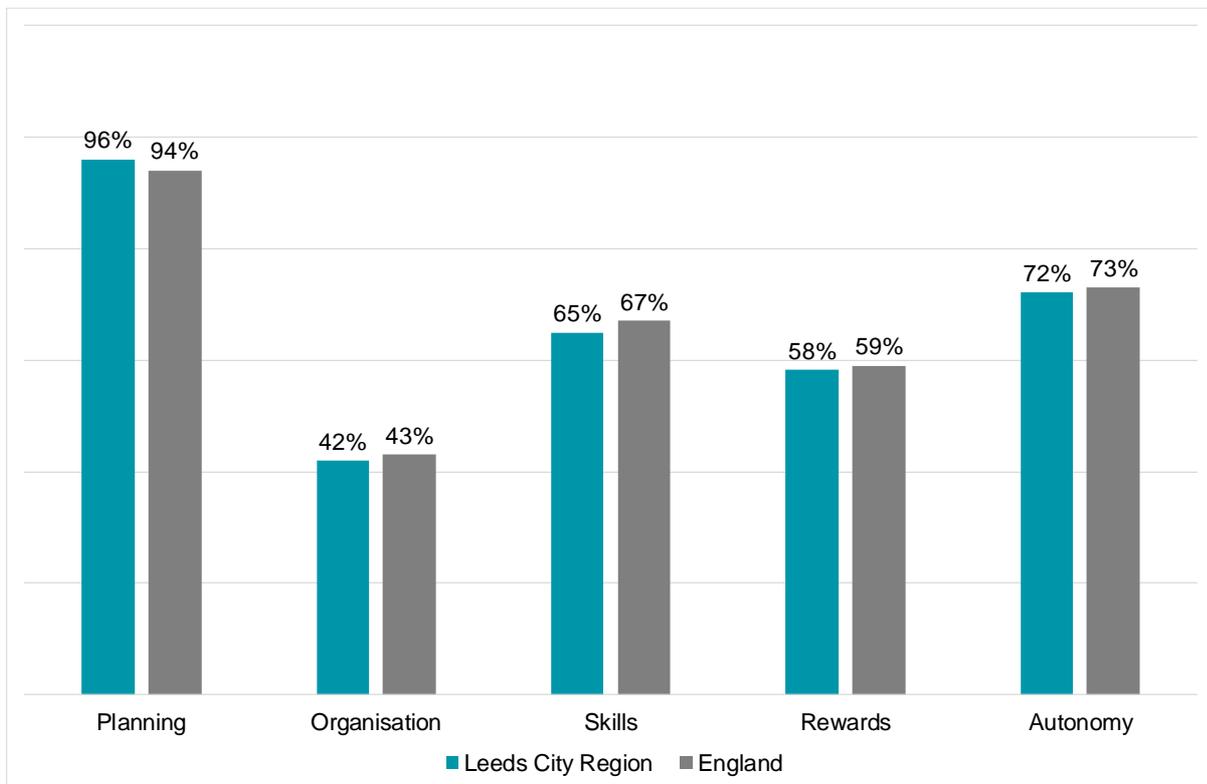
Proportion of private sector employers adopting higher performance working practices



Source: Employer Skills Survey 2017

The 21 HPW practices can be sub-divided into 5 categories – autonomy, rewards, skills, organisation and planning. Local employers are generally more likely to have adopted at least one practice around formal plans (e.g. a training plan) and least likely to have practices in place around organisation – working in teams; or rewards e.g. performance related pay.

Proportion of employers adopting one or more HPW practice in each factor group



Source: Employer Skills Survey 2017

5 Mapping of skills demand and supply

Skill mismatches reflect an imbalance between supply and demand in the labour market, between the skills available and the skills needed by employers.

This inability to obtain the skilled people that are required is one of the key barriers to business growth and improved productivity for firms.

Skills mismatches are often short term, as the operation of the market leads to an increase in the supply of people with the necessary skills, but in some cases they are acute and persistent, with significant implications for business performance. This kind of market failure presents a policy priority but also offers an opportunity for individuals considering their career options to target areas of unmet demand.

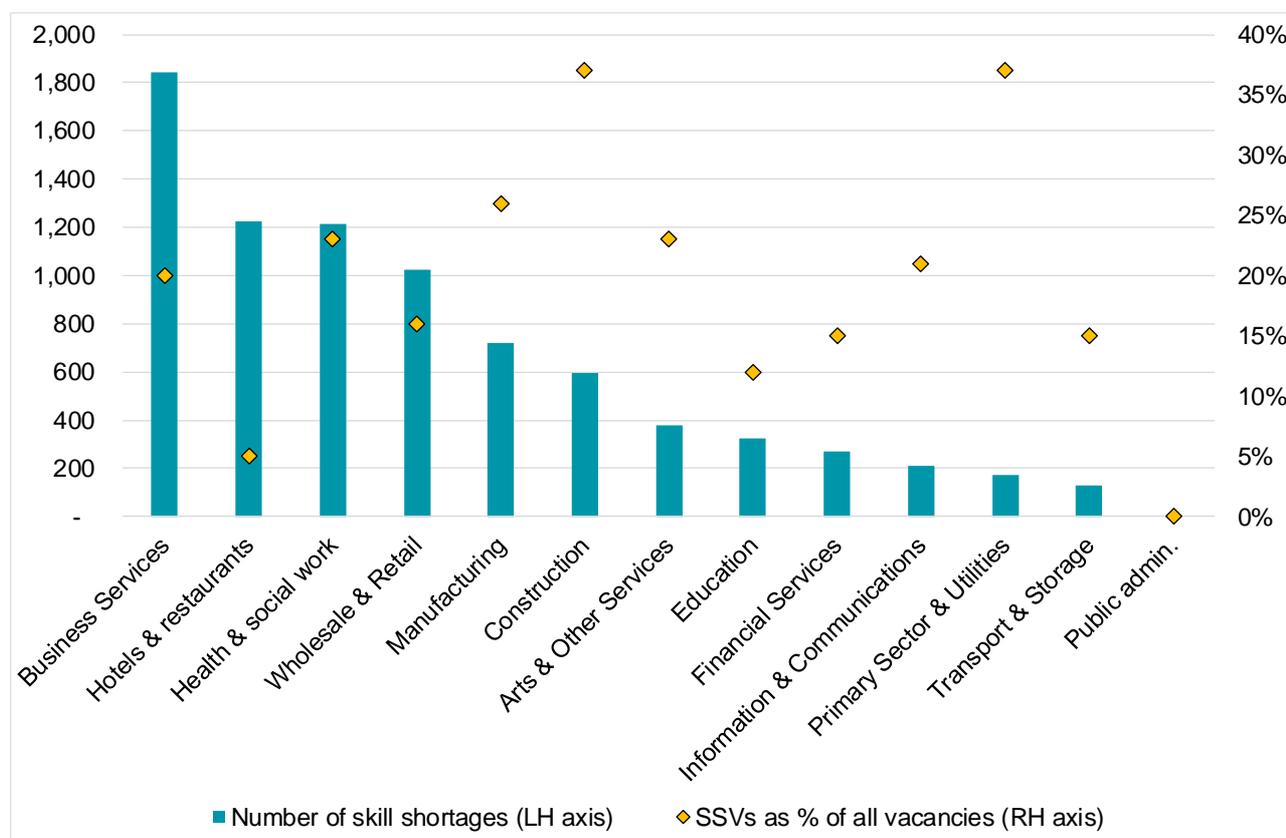
Skill shortages are most numerous in high employment service sectors but are most acute in primary, construction and manufacturing sectors

Skill shortages arise when employers find it difficult to fill their vacancies because candidates lack the necessary skills, qualifications and experience to do the job.

The Employer Skills Survey provides information on the number of vacancies and skill shortage vacancies that employers have at a single point in time. Skill shortages do not occur in large numbers and are not widespread. They tend to be concentrated in particular industry sectors and occupations but where they do exist they can be acute and persistent.

According to the 2017 iteration of the survey there were 8,100 skill shortage vacancies in the City region at the time of the survey, with 6% of employers reporting one or more shortage.

Volume and density of skill shortage vacancies by industry sector, Leeds City Region



Note: Density measure shows skill-shortage vacancies as a proportion of all vacancies

Source: Employer Skills Survey 2017

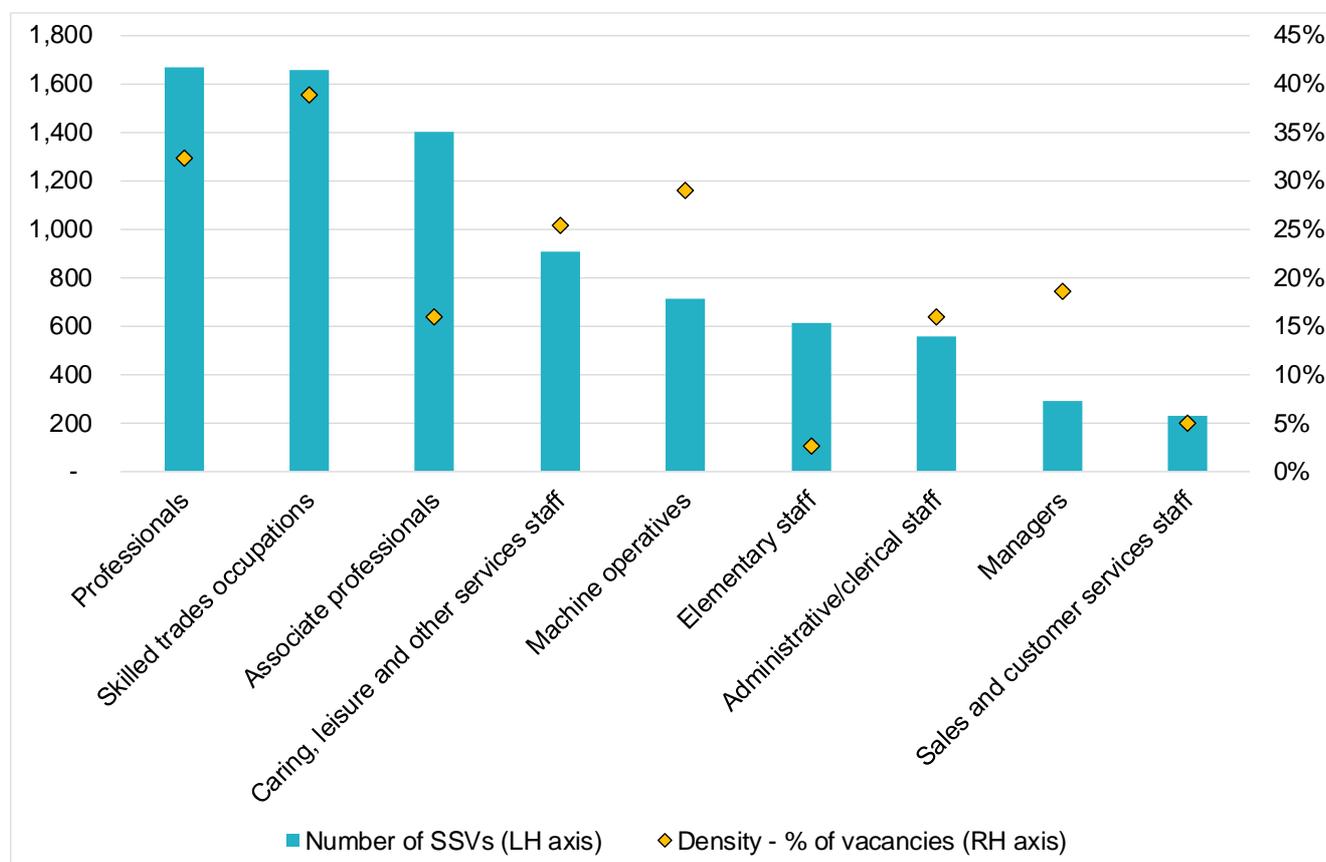
Based on the proportion of all vacancies that are skill shortage vacancies, they are most acute and have the most damaging effect in *Construction, Primary and utilities* and *Manufacturing*. The evidence shows that skill shortages are endemic in these sectors.

The largest numbers of skill shortage vacancies fall within sectors that employ large numbers of people, including *Business services, Hotels and catering, Health and social work* and *Wholesale and retail*. However, they are much less acute in these sectors and in the case of hospitality the proportion is low.

Shortages are most numerous and most acute in professional and skilled trades occupations

The occupational pattern of skill shortage vacancies provides an insight into the particular types of jobs that employers find difficult to fill and the types of skills that are in short supply relative to demand.

Volume and density of skill shortage vacancies by occupation major group, Leeds City Region



Note: Density measure shows skill-shortage vacancies as a proportion of all vacancies

Source: Employer Skills Survey 2017

Professional and skilled trades occupations have the highest volume of skill shortages and are also the most acutely affected in terms of the proportion of vacancies that are affected. Shortages are also relatively acute in operative roles. This suggests that employers face problems in acquiring intermediate and high-level vocational / technical skills.

With regard to the skills that employers found difficult to obtain from applicants, core job-specific skills are the most common area of deficit, being associated with 65% of skills shortages overall, rising to 76% of professional shortages and 71% of skilled trades shortages. A lack of complex analytical skills (such as solving complex problems) is also widespread (60% of shortage vacancies), as is a deficit of digital skills (37%).

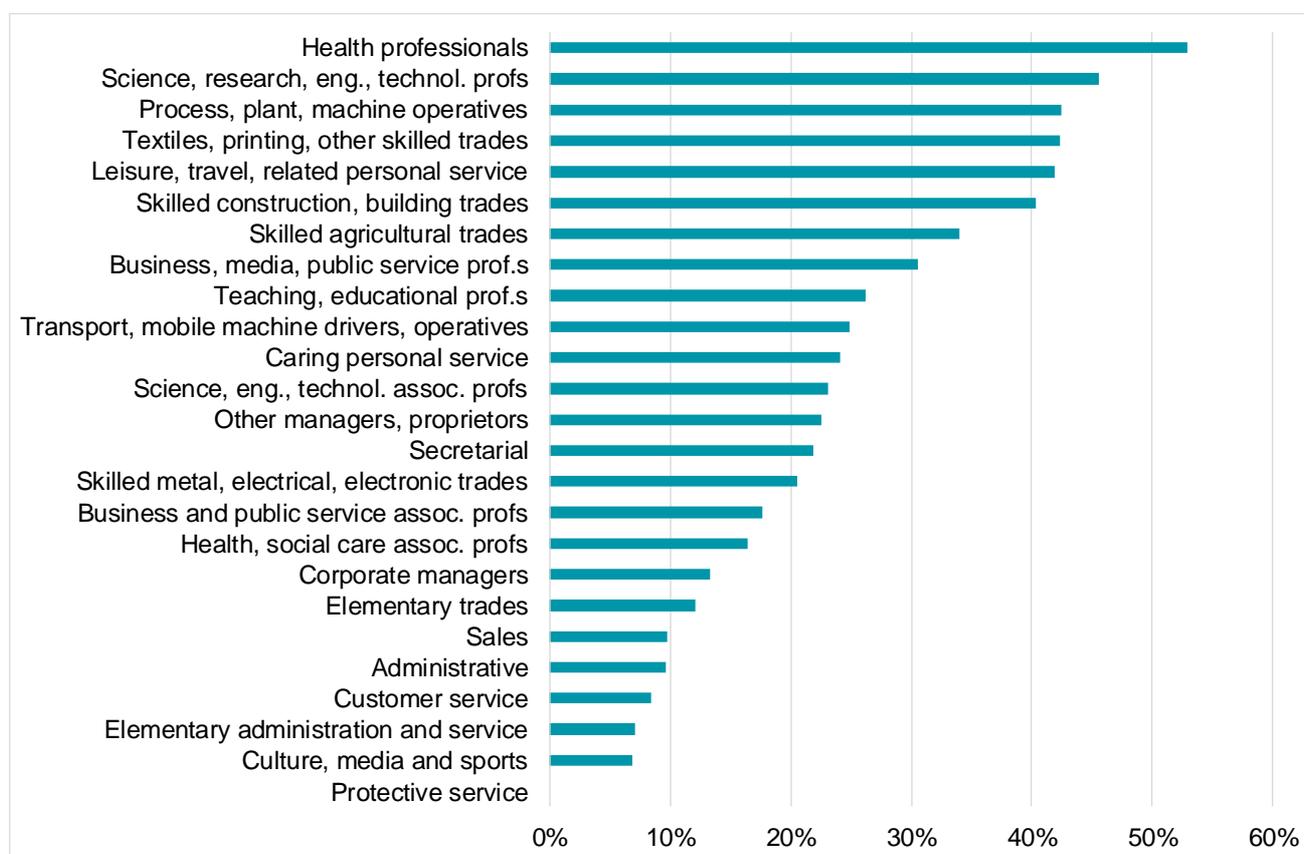
More specifically, health professionals and STEM professionals face acute shortages

More detailed occupational data on shortages is available for Yorkshire and the Humber, providing a clearer insight into the nature of the challenge and the types of job-specific skills that are in deficit.

The occupations with the greatest density of shortages, those in which shortages are most acute, are health professionals (including nurses and doctors), STEM professionals (including digital professionals and engineering professionals) and process operatives.

These occupations are, in the main, closely aligned to the LEP's priorities of digital, engineering and manufacturing and construction and health and care. In each case the prevalence of skill shortages in these occupations has been considerably higher than the average for all occupations since 2011, demonstrating their persistent nature.

Density of skill shortages by occupational sub-major group, Yorkshire and the Humber



Note: Density measure shows skill-shortage vacancies as a proportion of all vacancies

Source: Employer Skills Survey 2017

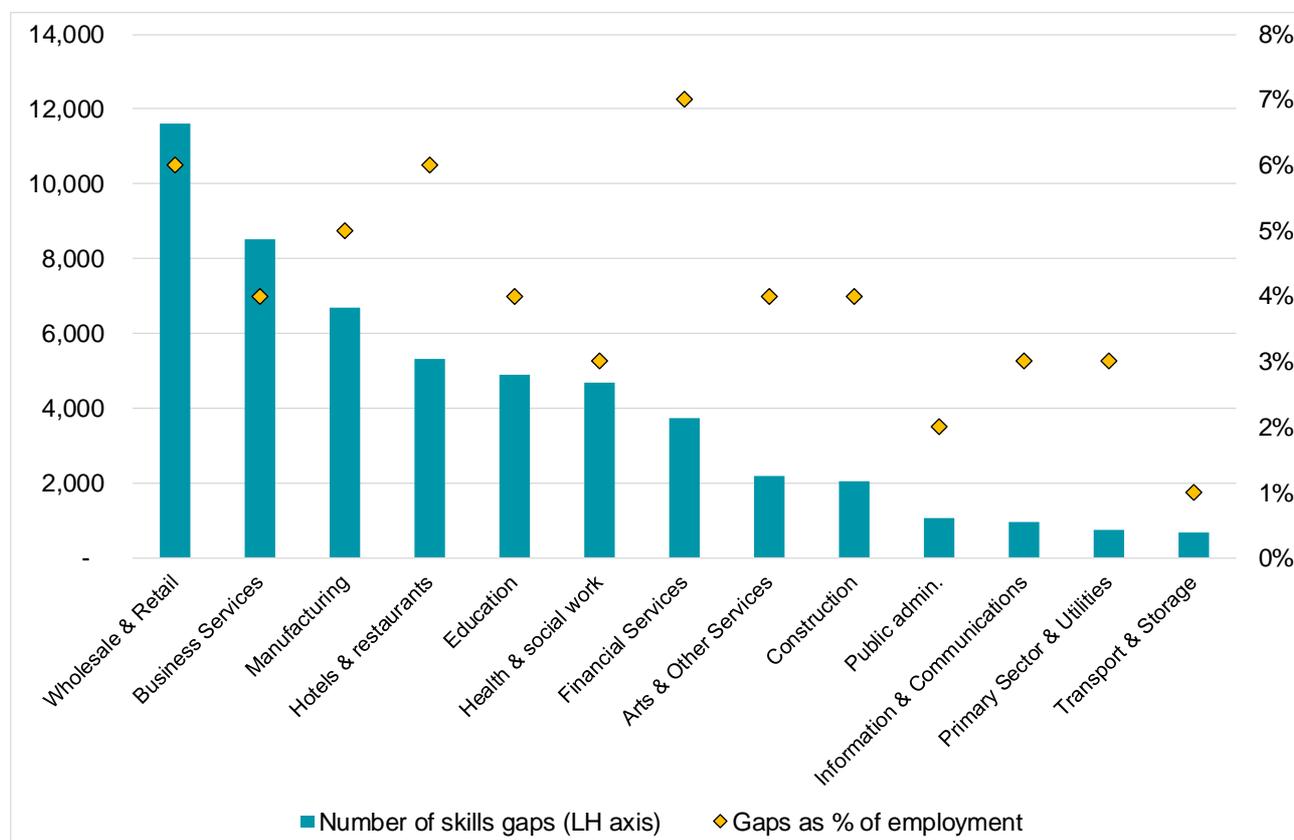
Skills gaps are another form of mismatch and occur when existing staff within an organisation lack the full proficiency needed to meet business objectives. The pattern of skills gaps and the types of skill that need improving provides a useful indication of employers' needs for workforce development.

One in seven employers are affected by skills gaps

Skills gaps are more widespread and numerous than skill shortages. There were 53,000 skills gaps in 2017, equivalent to approximately 4% of total employment in the City Region.

Around 14%, or one in seven, of employers are affected by gaps. The incidence and volume of skills gaps in the City Region have both fallen slightly since 2015.

Volume and prevalence of skills gaps by industry sector, Leeds City Region



Note: incidence measure shows the proportion of employers with a skills gap who report a gap in a given occupation.

Source: Employer Skills Survey 2017

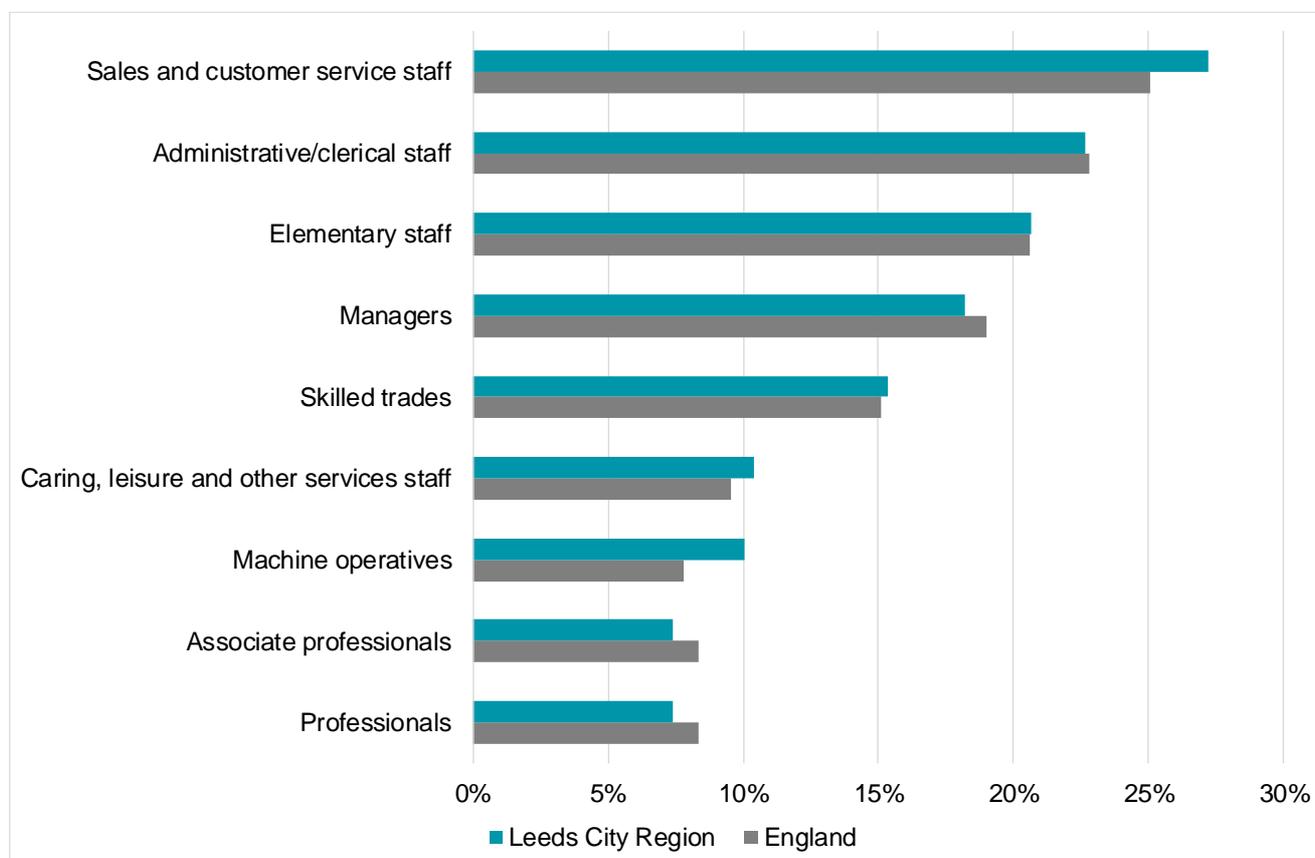
The highest volumes of gaps are not surprisingly seen in high employment sectors, including *Wholesale and retail*, *Business services* and *Manufacturing*.

The prevalence of gaps, in terms of the ratio of gaps to employment, is highest in *Financial services*, *Hotels and restaurants* and *Manufacturing*.

Sales and customer service and administrative staff are most affected by skills gaps

Employers are most likely to report skills gaps in respect of *Sales and customer service* staff, *Administrative* staff and lower skilled *Elementary* staff. Higher skilled *Professional* and *Associate professional* occupations are least susceptible to gaps. However, it is notable that a significant proportion of employers who report skills gaps say that management level staff are affected. This has clear implications for wider business and productivity performance. It also reflects the fact that employers identify a widespread upskilling need for managers, as highlighted in section 3.

Incidence of skills gaps by occupation



Note: incidence measure shows the proportion of employers with a skills gap who report a gap in a given occupation.

Source: Employer Skills Survey 2017

Looking at how occupational skills gaps map onto sectors, the data suggests that:

- The high prevalence of gaps in *Financial services* is mainly linked to a lack of proficiency among *Administrative* and *Sales and customer service* staff
- In the *Hotels and restaurants* sector many of the gaps affect *Elementary* hospitality roles, including serving staff etc.
- In the *Wholesale and retail* sector, *Sales* staff are a key source of skills gaps
- In *Manufacturing* many of the gaps affect *operative* roles
- In *Education*, teachers and teaching assistants account for a high proportion of skills gaps.

Many skills gaps are due to a deficit of technical skills among workers, including job-specific skills and operational skills, such as knowledge of the organisation's products and services.

Technical skills that need improving in respect of skills gaps, Yorkshire and the Humber



Note: Base for analysis is skills gaps followed up
Source: Employer Skills Survey 2017

A lack of the required soft skills is more common than technical skills deficits, this includes a lack of skills in areas such as time management, team working, customer handling skills and persuading / influencing others.

Soft skills that need improving in respect of skills gaps, Yorkshire and the Humber



Note: Base for analysis is skills gaps followed up
Source: Employer Skills Survey 2017

For managers with skills gaps the main types of skill that need to be improved include core management skills, complex problem solving skills, as well as operational skills.

Many skills gaps are short term and associated with high rates of staff turnover, in the sense that the workers are new to the role or their training is not yet complete. The link between staff turnover and skills gaps is further illustrated by the pattern of staff retention problems. According to the Employer Skills Survey 8% of employers in the LEP area report that they have specific jobs in which they face difficulties in retaining staff, the same proportion as the national average. However, the incidence of retention difficulties is much higher, 14%, in the *Hotels and restaurants* sector.

In some cases gaps are due to wider organisational changes such as the introduction of new working practices or new technology. In other instances, gaps are associated with management issues, such as staff lacking motivation.

Skills underutilisation is widespread

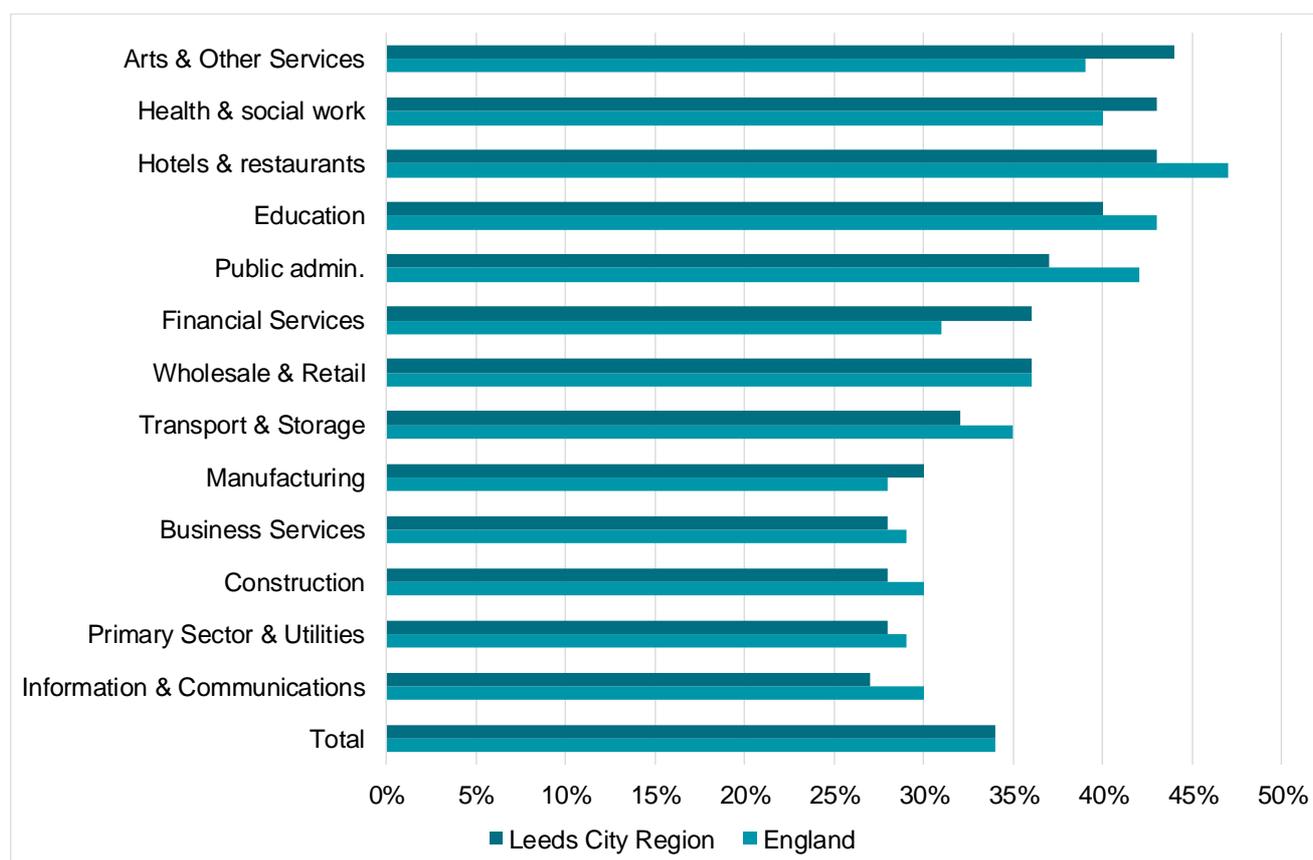
Skills mismatches are not only due to skills deficits. It is important to understand the extent and nature of skills underutilisation as this issue implies a significant mis-allocation of resources in view of the large-scale investment in higher education by individuals and

the state. An inability to use acquired skills and knowledge has a de-motivating effect on workers and represents a missed opportunity for employers to maximise productivity.

Just over a third (34%) of employers in the LEP area say that they have workers whose skills / qualifications are in advance of those needed for the job, in line with the national average of 34%. In volume terms, survey estimates suggest that 9% of total employees fall into this category, also a similar proportion to the national average.

Employers in *Arts and other services*, *Health and social work* and *Hotels and restaurants* are most likely to indicate that they have underutilised staff, whilst establishments in *Business services*, *Construction*, *Primary and utilities*, and *Information and communication* sectors are least likely to say that this is the case. However, even for the latter group of sectors the incidence of underutilisation is above a quarter.

Proportion of employers with underutilised staff by sector



Note: Underutilised staff are employees who have both qualifications and skills that are more advanced than required for their current job role

Source: Employer Skills Survey 2017

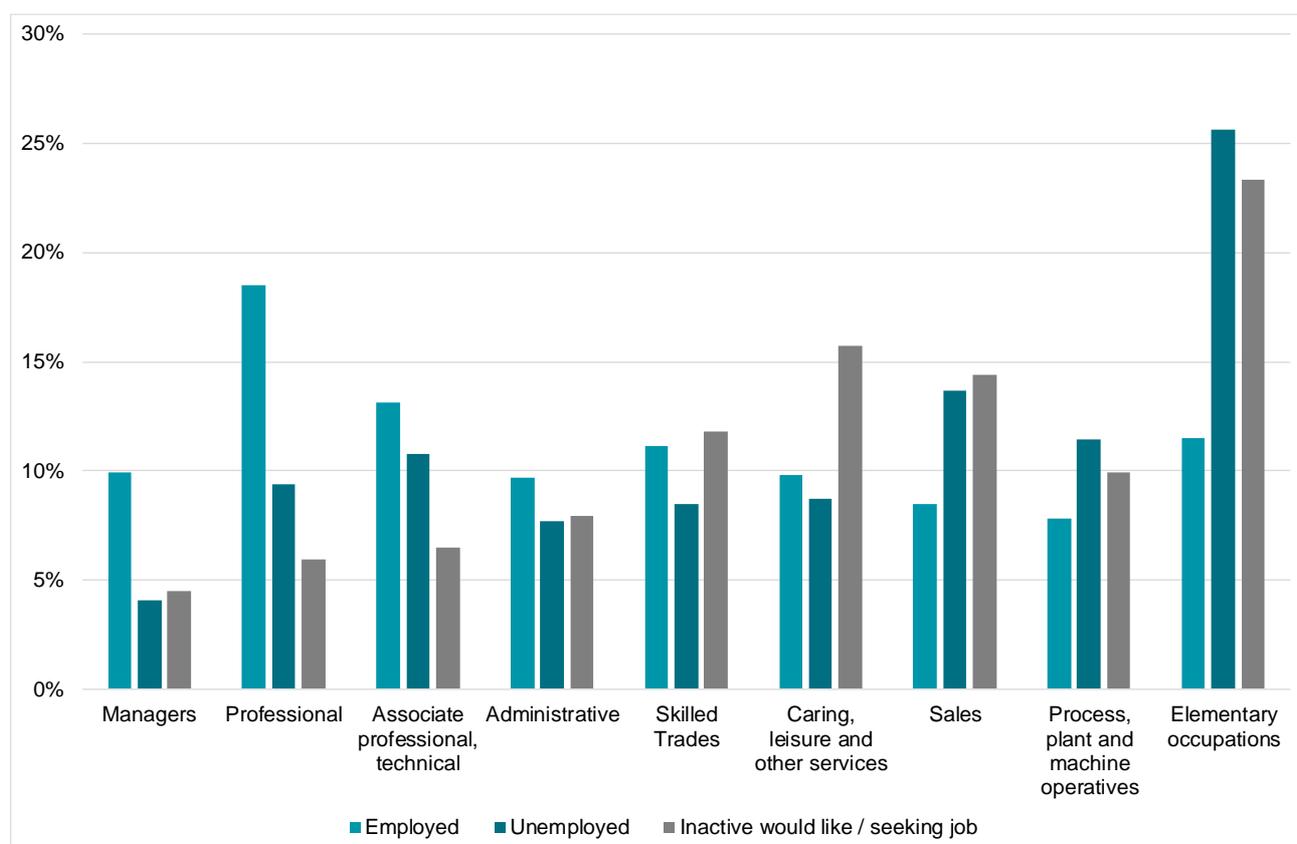
The distribution of underutilisation by sector in the LEP area is similar to the national average with some exceptions. It is higher than average in *Public administration*, *Manufacturing* and *Financial services*; but slightly lower than average in a range of other sectors.

Other measures suggest that underutilisation is more widespread and on a larger scale than either skill shortages or skills gaps. Data for the Yorkshire and the Humber region indicate that 290,000 people working in non-graduate roles (as their main job) hold qualifications at level four and above. This is equivalent to 20% of all people working in non-graduate roles. Workers with under-utilised skills are most likely to be employed in *Administrative, Customer service, Secretarial* and *Caring* roles. This kind of mismatch represents a waste of human capital and a missed opportunity to maximise productivity. Improved information, advice and guidance is a key mechanism for enabling people to invest in the right economically valuable skills that will allow them to fulfil their potential.

Structural joblessness is still a major feature of the local labour market

Structural joblessness is another form of skills mismatch, in those instances where the occupational and qualification profile of the jobless is misaligned with demand from the labour market. As noted above, in spite of a reduction in the number of people who are unemployed on the ILO definition, there are still around 140,000 jobless people who are either unemployed or inactive but would like a job.

Occupational profile of the unemployed and inactive (based on last job), Yorkshire and the Humber

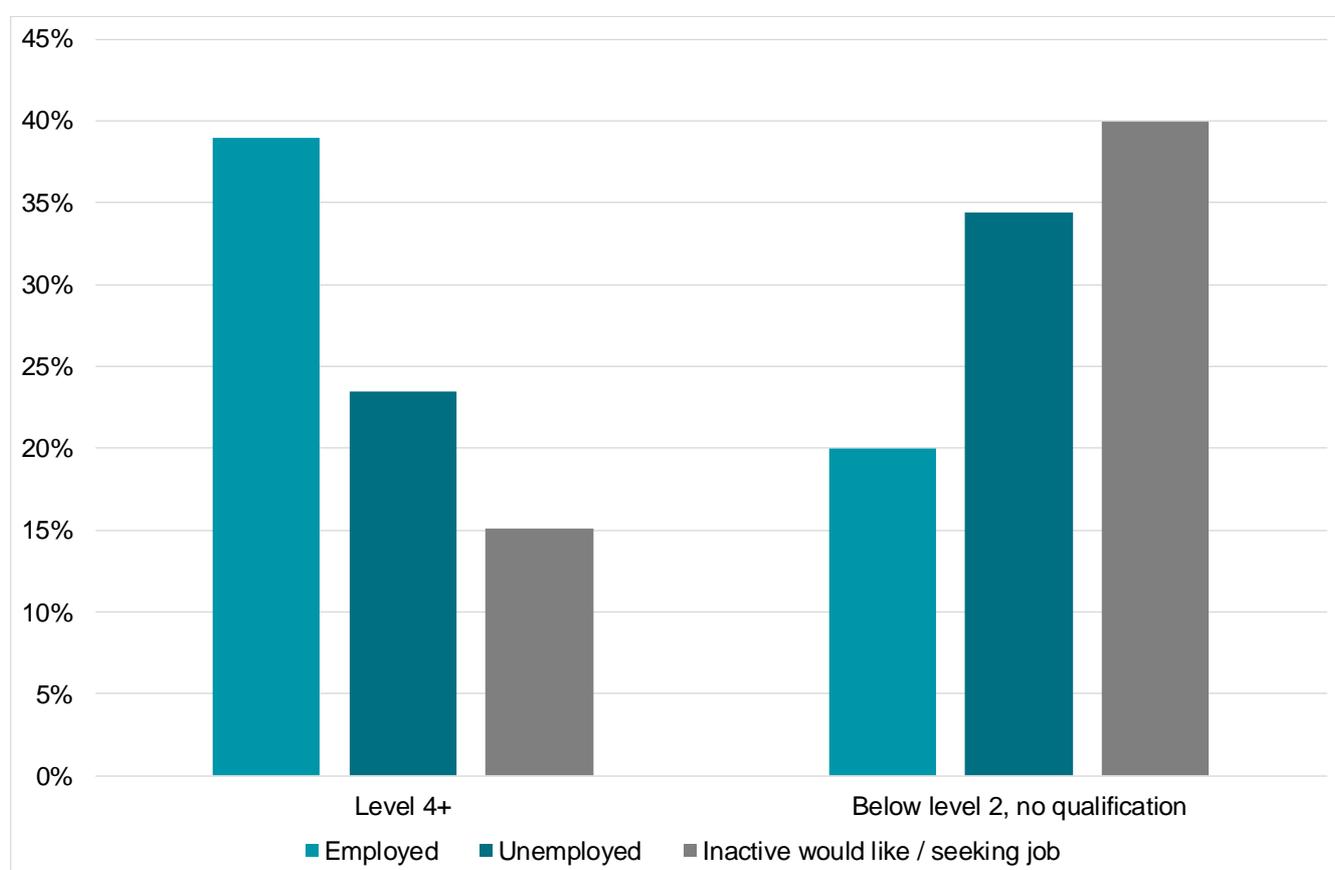


Source: Labour Force Survey, October to December 2018

There are marked differences between the occupational profile of people in work and of unemployed and inactive people; this is even more marked if we consider the profile of

jobs growth in the labour market, which is largely concentrated in higher skilled occupations. The occupational background of both the unemployed and inactive is strongly weighted towards lower-skilled occupations, principally *Elementary* and *Sales, Customer service* and *Operative* roles (plus caring roles in the case of the inactive). The proportion of unemployed and inactive people with a background in higher skilled *Management, Professional* and *Associate professional* is half that of employed people. This implies a mismatch between the skills and experience of the unemployed and the profile of demand in the labour market.

Level of highest qualification held by the unemployed and inactive, Yorkshire and the Humber



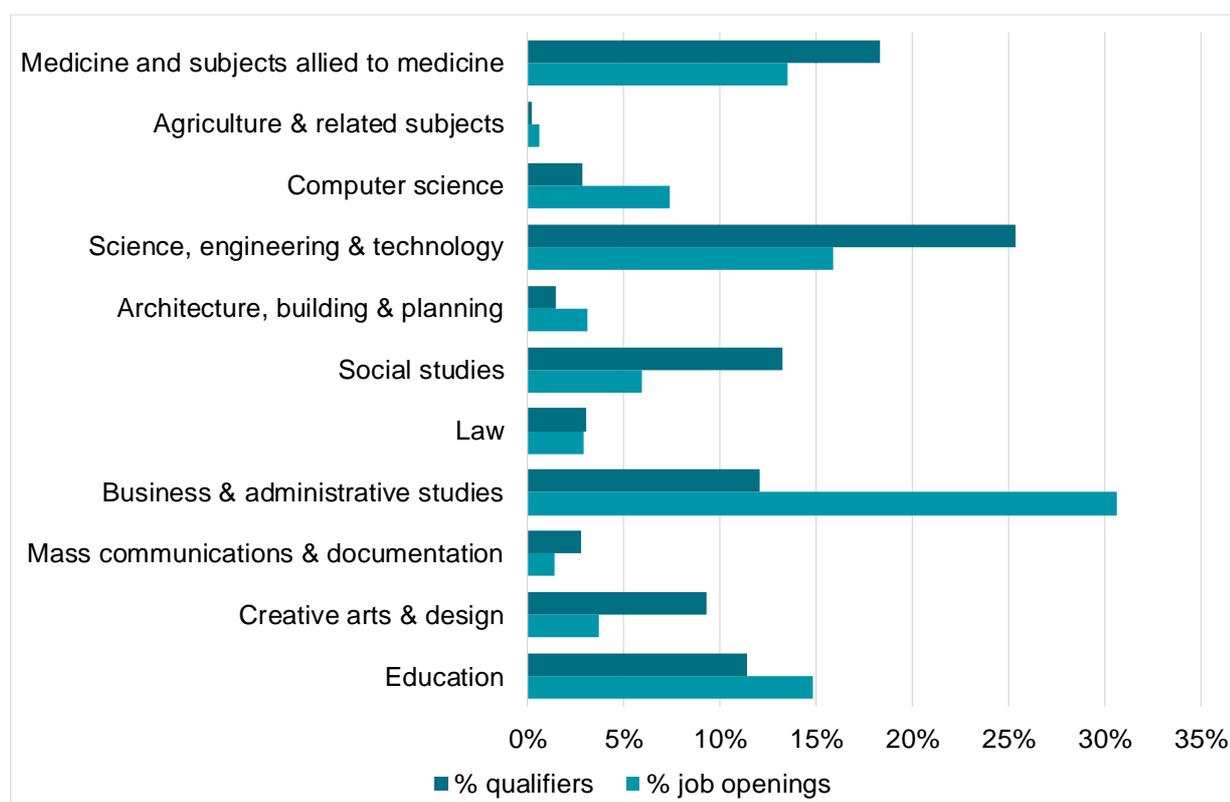
Source: Labour Force Survey, October to December 2018

The unemployed and inactive are also disadvantaged by their qualification profile. Both groups are less likely to hold a qualification at tertiary level than the employed and are more likely to hold a low-level qualification or have no formal qualifications at all. Inactive people who are seeking or would like a job are twice as likely to have no / low qualifications and less than half as likely to be qualified at level 4 and above.

There are stark differences between the subject profile of HE achievements and the profile of labour market demand

One way of assessing the relevance of HE provision to the needs of the local labour market is to compare the profile of provision to that of projected future job openings. This involves mapping subject categories to occupations¹⁴. Clearly, there is a major caveat around the transferability of skills. Many people find that study in a particular vocational area proves to be of value across a range of occupational settings. In addition HE institutions are serving the national labour market (or even an international one) rather than confining their efforts to meeting local needs.

Comparison of subject profile of higher education qualifiers with projected job openings in related occupations



Note: Limited to qualifiers with UK domicile
Source: HESA data for 2017/18 academic year

There are several areas where supply is low relative to estimated demand. Key instances are *Computer science* and *Architecture, building and planning*. Both are particularly important as priority skills areas for the City Region. However, the most obvious area of apparent undersupply is for *Business and administrative* qualifiers, suggesting that the

¹⁴ Those subjects that do not have a reasonably straightforward relationship with an occupational group have been excluded. Examples include academically-focused subjects such as history, philosophy and theology, which have a generic rather than job-specific focus.

considerable expected demand in the labour market for people to work in management and a range of business and finance roles is not reflected in local higher education provision.

Conversely, there are subject areas in which supply, reflected in the proportion of qualifiers relative to the proportion of openings, appears to be high. This is the case for *Creative arts and design*, *Mass communications and documentation* and *Social studies*. Further evidence of oversupply is provided by relative low annualised graduate earnings in these subjects at national level¹⁵.

More surprisingly the proportion of people who qualify in *Science, engineering and technology* outweighs demand for directly related roles in the labour market. This is a clear example where skills are highly transferable and can be applied across a range of settings, with demand from employers extending well beyond the specific occupational field. This view is substantiated by the strong graduate earnings associated with specific subjects like *Mathematical sciences*, *Engineering and technology* and *Architecture, building and planning*.

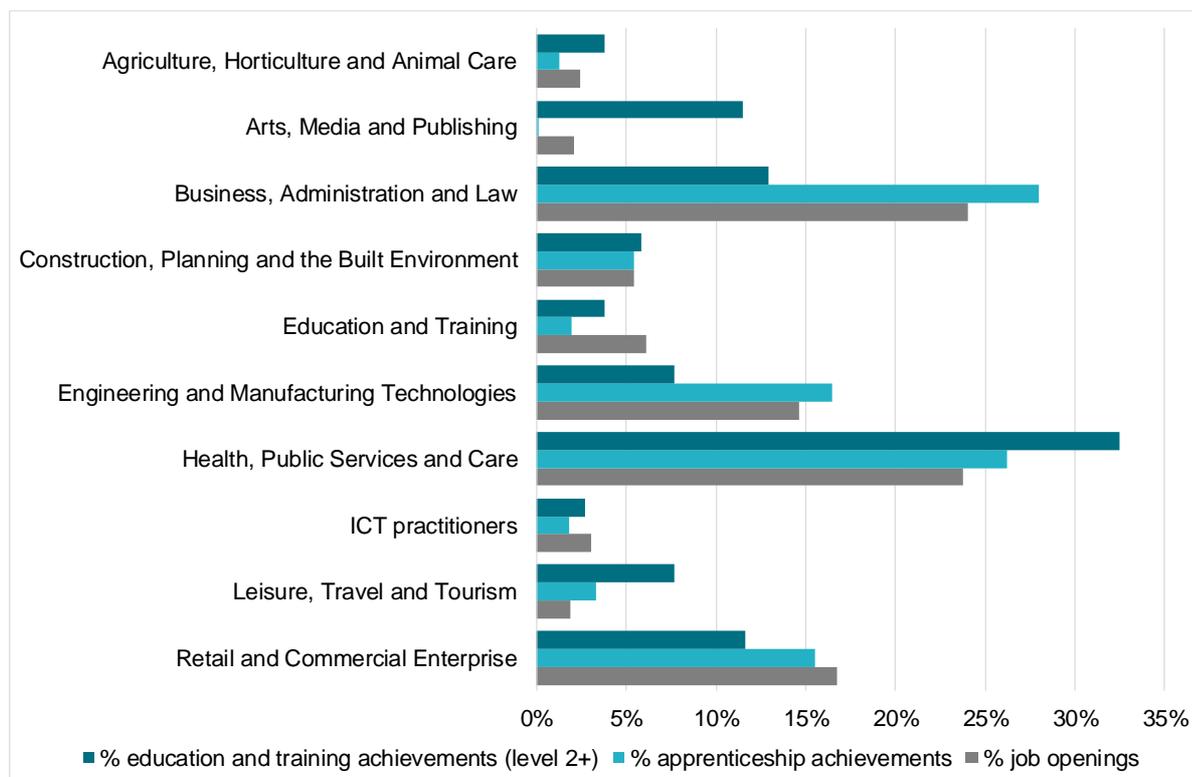
A similar approach to comparing supply and demand is applied to further education, below.

There are disparities between the profile of FE provision and labour market demand

There is a broad alignment between the subject profile of apprenticeships and the profile of future job openings. One might expect a good match since apprentices, by definition, are in employment.

¹⁵ Department for Education (2016) Employment and earnings outcomes of higher education graduates: experimental statistics using the Longitudinal Education Outcomes (LEO) data: further breakdowns. DfE: London.

Figure: Comparison of subject profile of FE / Skills achievements vs projected job openings in related occupations, Leeds City Region



Source: LEP calculations based on ESFA data (2017/18) and Working Futures projections

However, the profile of education and training achievements (mainstream FE) does not align in the same way. There are a number of areas where achievements outweigh job openings, most notably *Arts, media and publishing* and *Leisure, travel and tourism*. *Agriculture, horticulture and animal care* and *Health, public services and care* also account for a high proportion of education and training achievements relative to job openings.

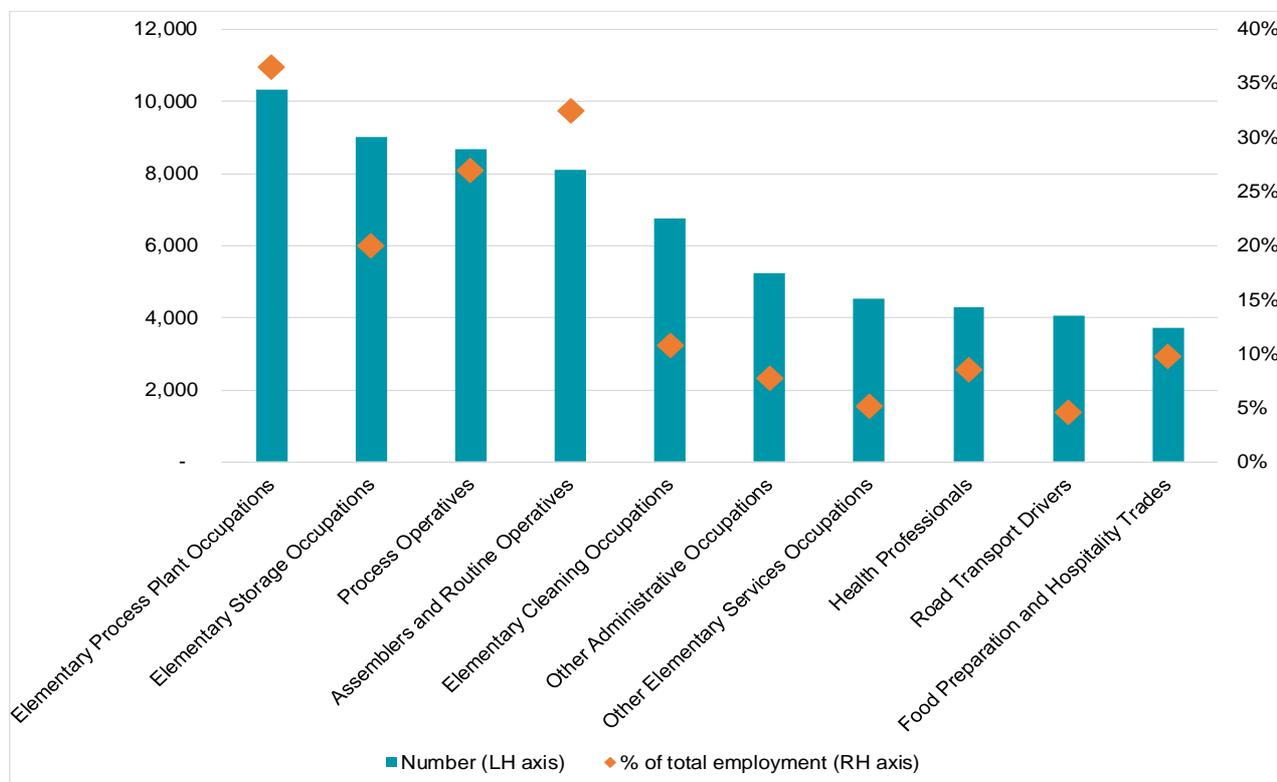
Conversely, there are areas that are markedly under-represented in terms of FE achievements, most notably *Business administration and law*, *Engineering and manufacturing* and *Retail and commercial enterprise*. *Construction* is in alignment with labour market demand.

EU migrants account for a significant proportion of workers in Yorkshire and the Humber

The presence of migrant workers can be seen as a mismatch between the skills / labour requirements of employers and the available supply of indigenous workers.

Across Yorkshire and Humber there are around 140,000 EU migrant workers equivalent to 5% of total employment in the region, somewhat lower than the England average of 8%.

Occupations with the highest level of EU migrant employment, Yorkshire and the Humber



Source: Annual Population Survey, Jan – Dec 2018

EU migrant employment is concentrated in particular sectors, most notably manufacturing (25% of the total) wholesale and retail (20%) and health and social work (9%). At a more detailed level, particular industries, especially sub-sectors of manufacturing, rely on EU migrant labour to a significant extent. Key examples include *Food manufacturing* (within which EU migrants comprise 23% of employment), *Manufacture of electrical equipment* (34%) and *Manufacture of furniture* (also 34%). Outwith manufacturing there is a high prevalence of migrant employment in *Wholesale* and *Warehousing*.

EU migrants are concentrated in routine and low-skilled occupations and this is where labour supply issues could be concentrated as a result of Brexit

As the chart shows, the occupational groups with the highest level of employment among EU migrants are classified as lower-skilled *Elementary* occupations, including process plant roles (such as packers, bottlers etc.), storage occupations, service roles (such as kitchen assistants and bar staff) and cleaning occupations. Routine *Operative* occupations, both assemblers and process operatives, also have a significant level of EU migrant employment. A third of all workers in *Elementary process plant* roles and a similar proportion of *Assembly operatives* are EU migrants.

Occupations related to agriculture do not feature in the chart and the available data for York and the Humber indicate that there are few EU migrants working in *Agricultural*

trades and Elementary agricultural roles. However, it is likely that official data understate the prevalence of migrant labour in this part of the economy.

Only around a quarter (24%) of EU migrant workers in Yorkshire and the Humber are employed in higher skilled *Management, Professional and Associate professional* occupations, much lower than the UK average of 38%. EU migrant employment is highest in *Health professional* (including nursing) occupations, together with *Teaching professionals*.

Although lower-skilled occupations are where the direct impact of Brexit could be greatest in the form of disruption to labour supply, there could still be significant implications for skills. For example, some employers may decide to move to a more skills-intensive business model founded on capital investment in labour-saving equipment.

NINo data suggest a reducing influx of EU migrant workers

There is evidence that the influx of EU migrants into the local labour market is continuing to reduce. According to figures from the Department for Work and Pensions the number of EU nationals registering for a National Insurance number (NINo) within the LEP area in 2018/19 was 10,100; this represents a decline of 23% between 2017/18 and 2018/19, following a fall of 18% in the previous year¹⁶. This means that registrations are 42% lower than at their peak in 2014/15.

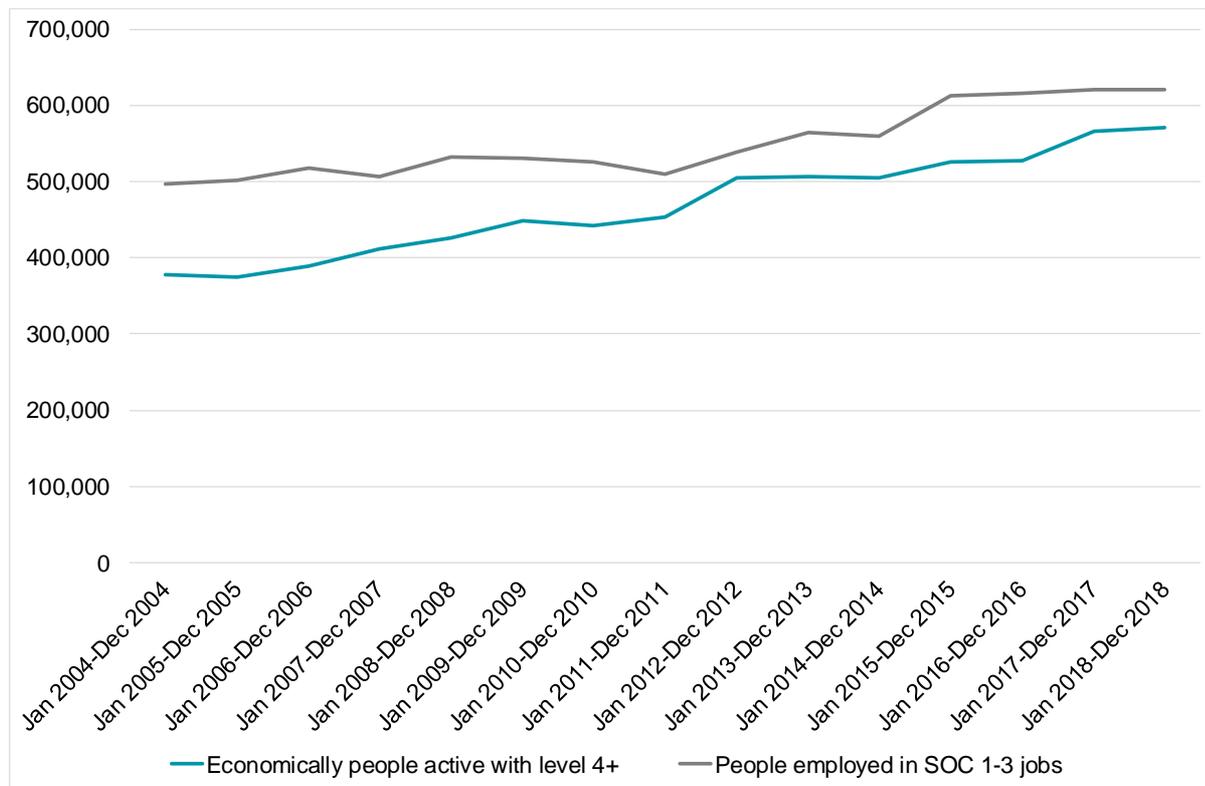
The gap between the number of high skilled people and the number of people in high skilled jobs continues to narrow

How is supply measuring up to growing demand for higher skilled workers? The chart, below, shows that we have more people working in high skilled jobs in City Region workplaces than we have economically active people qualified at level 4 and above. Using this broad measure, demand for higher level skills still outstrips supply.

However, longer-term trends point towards a narrowing of the gap, reflecting the position nationally. In spite of the strong growth in the number of people employed in higher skilled occupations, the ratio of people with higher level qualifications to the number of people employed in higher skilled jobs has increased from 0.80 in 2008 to 0.92 in 2018.

¹⁶ A NINo is generally required by any overseas national looking to work or claim benefits / tax credits in the UK, including the self-employed or students working part time. NINo statistics are a measure of in-flow to the UK, primarily for employment, including both short-term and long-term migrants and include foreign nationals who have already been in the country but not previously required a NINo as well as migrants who may have subsequently returned abroad.

Trends in numbers of high skilled people and the level of high skilled employment, Leeds City Region



Note: People qualified at level 4+ is a residence-based measure whilst people employed in SOC 1-3 jobs is a workplace-based measure.

Source: Annual Population Survey

6 Conclusions

In this concluding section we consider the main skills needs facing the City Region and review the effectiveness of the local skills system in responding to these needs.

Key skills needs

The broad-based nature of replacement demands means that there are likely to be continued recruitment needs and skills development needs across the occupational spectrum.

However, the nature of these skill development needs is changing as automation and other drivers shape the range of tasks that are undertaken in particular jobs, with the demand for skills to perform routine tasks continuing to decline. Routine operative occupations, retail roles and customer service occupations are among those that are being most radically affected but some higher skilled roles, for example in legal and finance, are also seeing change.

Demand in the labour market will be greatest for those occupational areas that are expected to see strong net growth as well as replacement demands. Most notably this includes a broad-based requirement for higher level skills as well as for care skills. The fastest growing higher level occupations include culture, media and sport roles and health professional occupations. The volume of current recruitment difficulties for care roles suggests that meeting this need will be a key challenge for the future.

There are a number of key areas of current market failure where supply is not meeting demand.

A lack of proficiency among existing managers is widespread among local employers. This has ramifications for business performance but also for the way in which the wider workforce is managed and developed.

Digital skills are an important area of need. There is a strong recruitment need for specialist digital workers in the local labour market and employers often find it difficult to obtain the required skills from candidates for these roles. Skills gaps relating to digital skills at a variety of levels are widespread among existing staff.

The construction sector faces the most acute skill shortages of any sector, with skilled trades and professional level roles affected. A combination of technical skills and more general skills such as project management are in demand.

Engineering skills are another area of acute shortage, both at professional level and in terms of skilled trades occupations that play a crucial role in the manufacturing sector.

Workers employed in the City Region's businesses are subject to a range of skills gaps linked to generic and soft skills, including sales and customer handling skills and self-management skills as well as more complex analytical skills such as problem-solving.

Responsiveness of the system

It is important to recognise that raising demand for skills as well as addressing weaknesses of skills supply is central to addressing the City Region's underperformance on productivity and living standards. The LEP's employment base also has a number of features which could be regarded as structural demand-side weaknesses. For example, it has a deficit of high skilled jobs and the high skilled jobs that it has are relatively poorly paid. Addressing this issue means raising the demand for skills by shifting the local business base to one that is founded on higher value market strategies through the LEP's local industrial strategy.

There is emerging evidence to show that levy paying employers are using apprenticeships to target their high level skills needs, including management skills, with a particular focus on developing their existing staff. Although this is a positive development and needs to be maintained it also needs to be balance with a focus on inclusion: ensuring that young people have the opportunity to build a sustainable career through intermediate and advanced apprenticeship and lower-skilled workers can be supported to progress their career.

The supply of higher qualified people in the City Region continues to grow and the gap with the number of people employed in higher skilled occupations continues to narrow. However, there is evidence of mismatch between supply and demand in the form of skills under-utilisation and skills shortages. This demonstrates the importance of ensuring that individuals have an understanding of the economically valuable skills and career pathways that will enable them to maximise the return on their investment in higher level skills.

Although take-up of higher apprenticeships is growing rapidly it remains narrowly focused in subject terms. Their coverage needs to be broadened if they are to become a more effective tool in addressing the most acute skill shortage areas, including in engineering and digital roles.

There is evidence of misalignment between the subject profile of further and higher education delivery and the profile of demand in the local labour market. The main determinant of the profile of take-up of FE and HE is individual demand, which suggests that an important mechanism for addressing the misalignment is a stronger focus on careers support in order to improve learners' understanding of the relative employment and pay prospects associated with different occupational pathways. In addition, the close alignment of apprenticeship provision with labour market demand demonstrates the importance of direct employer engagement in developing a relevant curriculum offer. This suggests that an increased focus on apprenticeships and on other employer-commissioned provision are also important mechanisms in driving forward this agenda.

The City Region has more than its fair share of acute deprivation at neighbourhood level. Education, skills and training deprivation play a key part in this. It is clear that the skills system is not engaging with these communities effectively creating a need for targeted interventions to tackle the often complex barriers that prevent people from fulfilling their potential.

Progress is still required around making the skills system more inclusive to ensure that all people can benefit and that opportunities around social mobility are maximised. Further progress needs to be made in this area since disadvantaged people are still less likely to gain access to apprenticeship and higher education opportunities. Gender segregation on subject and occupational lines means that women are not pursuing opportunities that have the potential to offer improved pay and prospects.

Local employers perhaps play the most important role in meeting the skills needs of the economy, in terms of the scale of their expenditure on workforce skills and their direct role in applying these skills in the workplace. The key challenge is to increase the proportion of employers who invest to meet the needs of their own business but also adopt the workplace practices that maximise the value of those skills in driving business performance.

This talent management challenge will come to the fore to an even greater extent as employers seek to deal with the rapidly evolving skill requirements arising out of automation, Brexit and other factors. This reskilling challenge will place greater demands on the wider skills system of the City Region, particularly in respect of adult learning. It is therefore a concern that participation in FE and skills programmes is in ongoing decline.

Find out more

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