



Bulletin 1

Skills shortages in the UK economy

April 2018

Barely a week goes by without a story in the news about **skills shortages in the UK economy**, whether at the macro level, in particular sectors or regions. These skills shortages are set to **grow in the coming years** as a result of Brexit and the Fourth Industrial Revolution.

Yet, with the closure of the UK Commission on Employment and Skills (UKCES) there is now **no organisation keeping track of the size and shape of skills shortages** in the UK. What results is a disparate and confusing picture.

EDGE'S REGULAR BULLETIN ON SKILLS SHORTAGES

The Edge Foundation has stepped forward to convene a **Skills Shortage Analysis Group** bringing together the key organisations and academics with an interest to share plans, research data and messages.

The Group will support us to produce a regular series of **Skills Shortage Bulletins** presenting key recent data and analysis in one place for the first time.

BULLETIN 1 – ENGINEERING

This is the first of those bulletins. It features latest data from organisations including CBI, British Chambers of Commerce and the DfE, as well as a specific focus on Engineering, highlighting the **need for 203,000 people with Level 3+ engineering skills** per year to meet expected demand. The second bulletin will cover the digital sector, and the third will look at creative industries.

The key messages from the data are clear. There are **significant skills shortages** across our economy, those **shortages are growing** and they are **costing our businesses dear** – more than £1.7bn according to Open University research.

Employers are looking for individuals with work experience and **key skills like resilience, adaptability and creativity** above the paper qualifications that are often only used to sift. Many are concerned that recruits from education are **not sufficiently prepared for work**. This may be exacerbated by a narrow approach to recruitment.

Do get in touch (oneyton@edge.co.uk) if you have views or would like to contribute – it is essential that we all work together on this vitally important issue.

OLLY NEWTON, Director of Policy and Research, Edge Foundation





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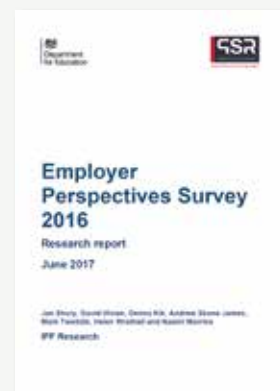
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DfE Employer Perspectives Survey 2016

(Published June 2017)



The Employer Perspectives Survey is a huge survey of more than 18,000 employers looking at what drives their decisions on recruitment and people development as well as their engagement with Apprenticeships. The survey was carried out by IFF Research on behalf of DfE and the report can be downloaded [here](#).

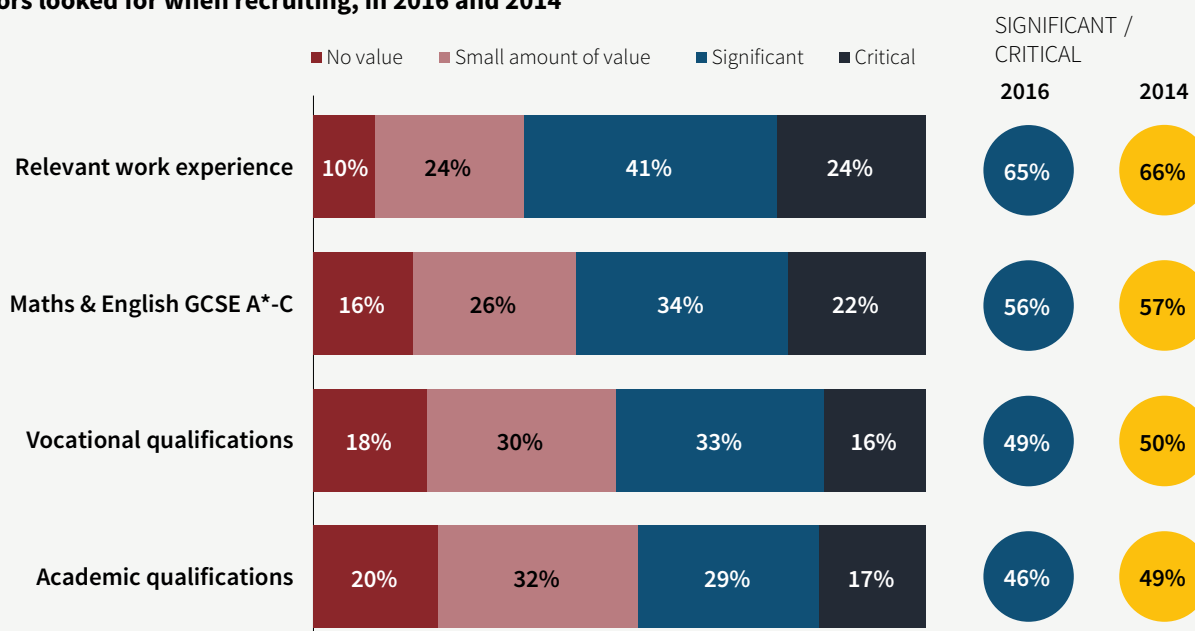
The results showed that 48% of businesses had successfully recruited in the last year, an increase from 46% in 2014 and 43% in 2012. By contrast **5% of employers reported having vacancies but not having recruited in the last 12 months**, which may have been down to skills shortages.

When asked about the factors they look for when recruiting, **more than half (52%) said that academic qualifications were of little or no value when recruiting, while two-thirds (66%) said that work experience was significant or critical.**

While recruitment increased, the survey pointed to the often **narrow approach that employers took to recruiting new staff as a factor that may be exacerbating skills shortages** – 18% of employers used only one method of recruitment in the last 12 months, with word of mouth or personal recommendation remaining the most common means employers took to fill a vacancy (79%).

The survey reported how well employers feel that education leavers are prepared for work. **Only around half of employers said recruits from education were prepared for work.** Where they felt that recruits were not prepared it was generally because they had a lack of experience of the working world or a poor attitude, emphasising the importance of work placements.

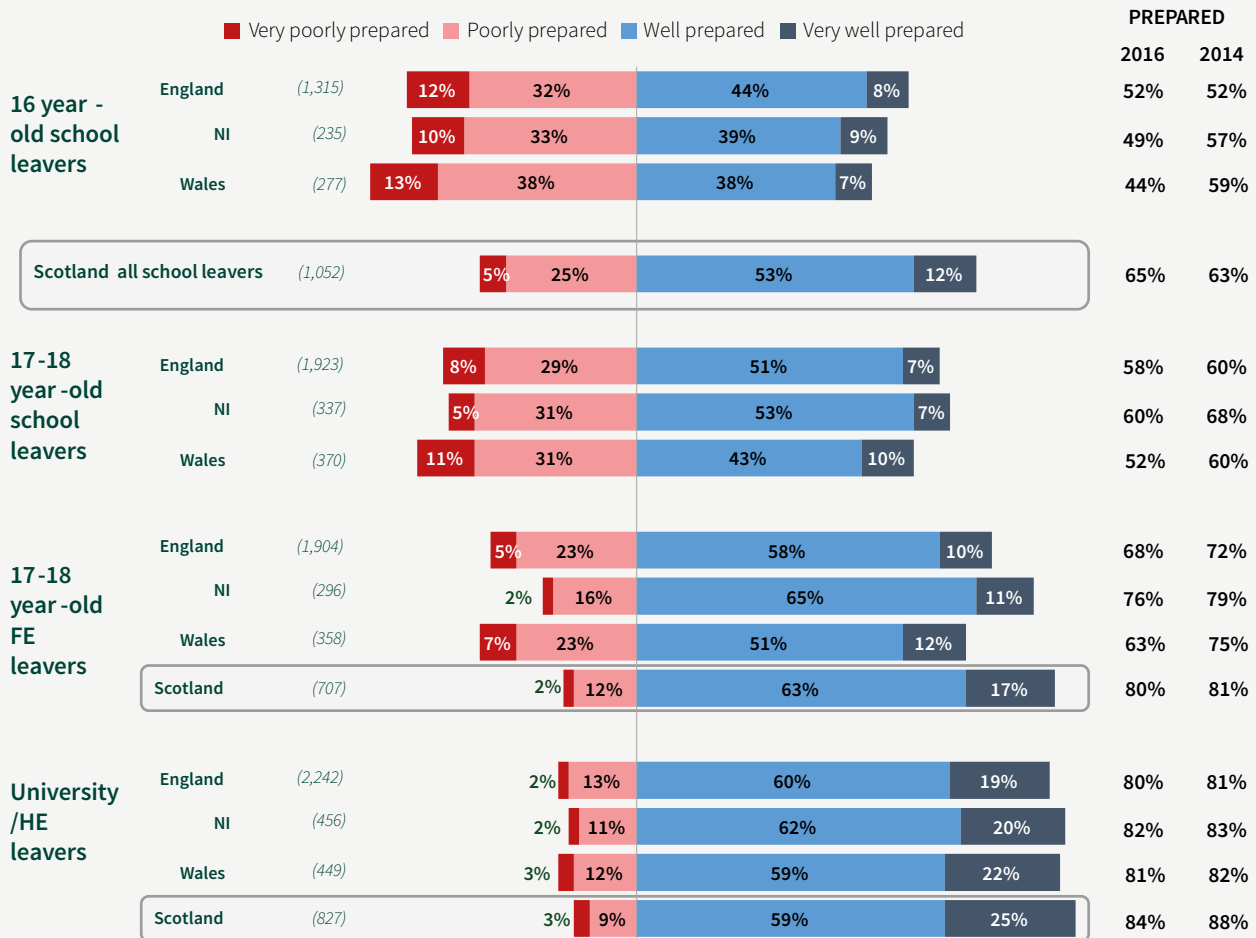
Factors looked for when recruiting, in 2016 and 2014



Source: IFF Research, UK Employer Perspectives Survey 2016

Base: All employers (2016: 18,028, 2014: 18,059)

Preparedness of education leavers for work, by country and in comparison with 2014



Source: IFF Research for DfE, UK Employer Perspectives Survey 2016

Base: All establishments that have recruited each type of education leaver in the previous 2-3 years

The study also looked at what employers are doing to try to fill skills gaps amongst their employees – **73% offered some training to their employees in the last year**, 47% external), **an increase from 69% in 2014**.

Just over a quarter (26%) of UK employers arranged **training in the last year designed to lead to a**

recognised vocational qualification. The vast majority of these (87%) felt that this led to better business performance, but a **sizeable minority of employers (17%) reported that vocational qualifications alone did not meet all their training needs**.



Dr Richard Garrett, Head of Surveys and Research, Skills Policy Analysis, DfE

The UK Employer Perspectives Survey provides valuable insight into the views of more than 18,000 UK employers on their use of and engagement with the skills system. The evidence base from the survey gives a wealth of information on employer motivations and behaviour on skills development to inform the strategic and operational decisions of governments and stakeholders. The survey complements the UK Employer Skills Survey (ESS). ESS provides intelligence on the skills challenges faced by employers within their workforce and when recruiting, the levels and nature of investment in training and development, and the relationship between skills challenges, training activity and business strategy. Findings from the fourth UK ESS survey will be released in Summer 2018.



British Chambers of Commerce Quarterly Economic Survey (Published April 2018)

The British Chambers of Commerce (BCC) publishes a Quarterly Economic Survey based on the responses of over 7,000 businesses. As well as their overall views on the economy and exports, the survey captures information about recruitment. The full results can be downloaded [here](#).

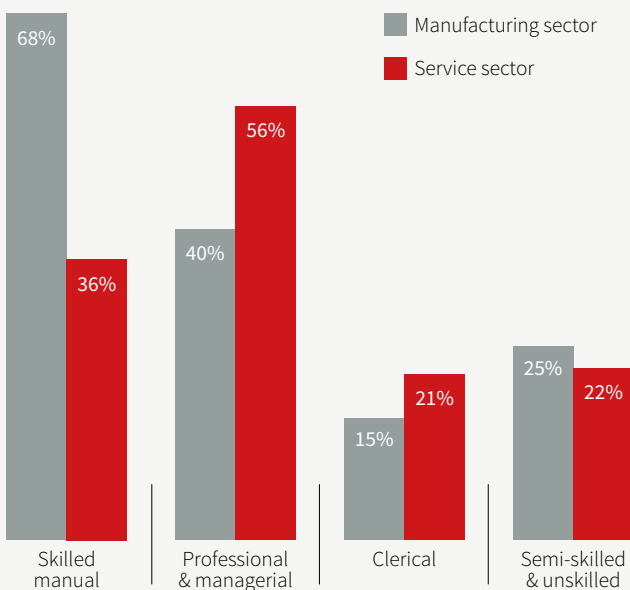
In Q1 2018, the percentage of service sector businesses attempting to recruit remained unchanged at 50%. Of those, the percentage of services firms reporting greater recruitment difficulties fell from 71% to 60%. **Professional and managerial roles are the leading areas of hiring difficulties (56%).**

The percentage of manufacturers that attempted to recruit in the last three months held fairly steady at 67% (up from 66% in the previous quarter). Of those, **69% had recruitment difficulties, down slightly from 75% in the previous quarter but still high by historical standards.**

Of these, skilled manual labour was the leading areas of recruitment difficulties (**68%**) – **remaining at the highest level since records began.**

Jane Gratton, Head of Business Environment and Skills Policy at the BCC said, “*The findings of the survey indicate persistent and pervasive skills shortages in the economy. Firms across all sizes, sectors and regions are struggling to find the skills and labour they need to fill job vacancies, damaging not only the individual firms, but also the wider supply chain. Access to people and skills is now the number one priority for business.*”

Types of jobs firms are facing recruitment difficulties for:

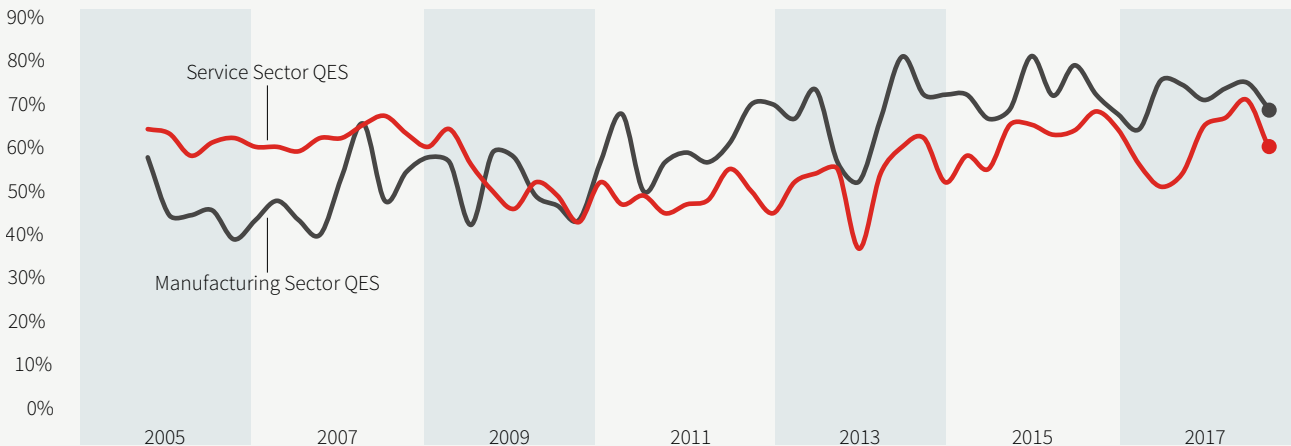


Source: BCC Quarterly Economic Survey for Q1 2018



British Chambers of Commerce Quarterly Economic Survey

Percentage of firms facing recruitment difficulties (of those attempting to recruit)



Source: BCC Quarterly Economic Survey for Q1 2018

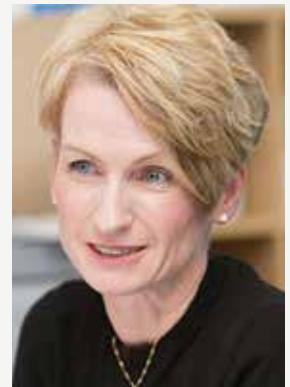
At a time of record levels of employment, firms have to find skills and labour from wherever they can, including recruiting workers from overseas. However, according to the findings of the BCC's Workforce Survey, only a minority of firms (8%) are actively targeting non-UK workers to fill vacancies. They prefer to recruit skills from the local area, normally by word of mouth, or via job recruitment websites."

The survey revealed that two-in-five (40%) businesses have employees from other EU countries on their workforce, while 23% have employees from outside the EU. **38% of businesses say future restrictions on the**

rights of EU nationals to work in the UK would have a negative impact on their business.

Jane continued "This challenges the myth that UK firms are taking the easy option and ignoring local workers in favour of overseas labour. With a softening economy and slowing immigration, the BCC is calling for action to ensure business growth isn't hampered by labour shortages. Business communities need the government to ensure minimum costs and restrictions in the process for hiring EU nationals during and after the Brexit process. We need to ensure the UK's future immigration system is economically responsive, so companies have access to the skills they need.

Labour and skills shortages are set to be the biggest potential drag anchor on business in 2018, since ultimately it is people that make businesses work. Businesses themselves must do more – by training and investing wherever possible in people – but government must also give firms the confidence to put their livelihoods on the line and go for growth."



Skills shortages

CBI / Pearson Education and Skills Survey 2017

(Published July 2017)

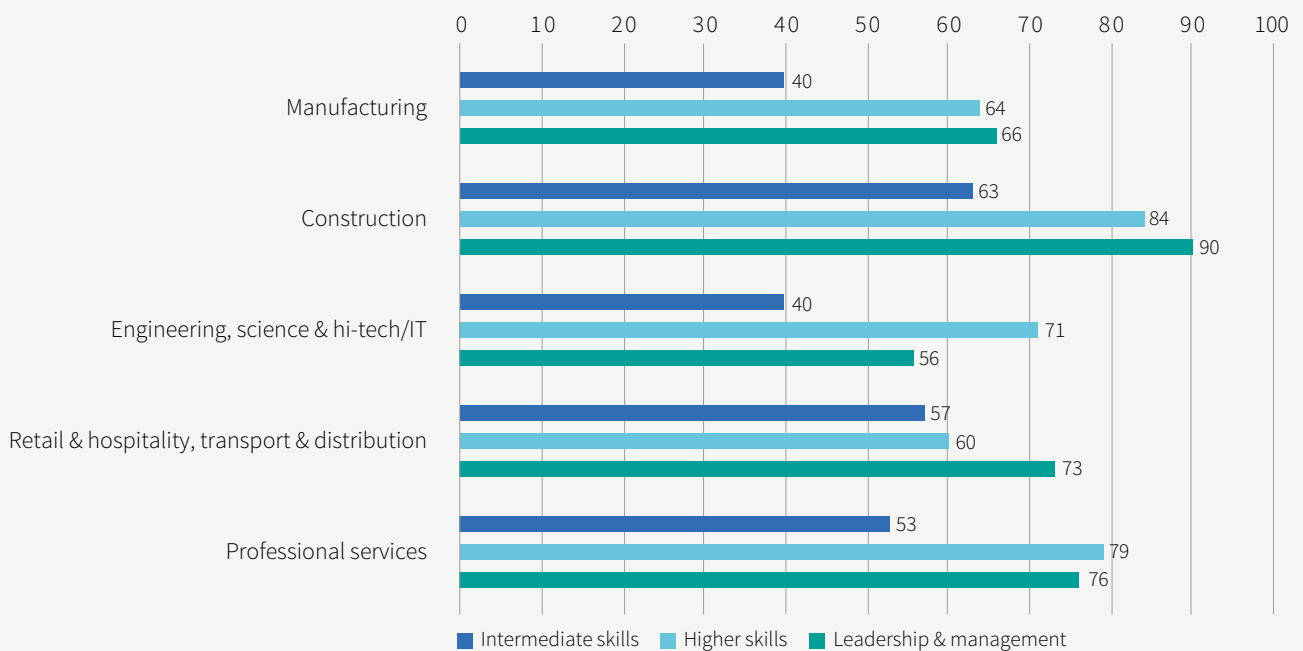


The tenth CBI Education and Skills Survey reached more than 340 businesses, 30% of whom were SMEs. The resulting report, *Helping the UK Thrive*, covers the full range of issues facing businesses and can be downloaded [here](#).

Businesses are clear that the biggest **drivers of success for young people are attitudes and attributes such as resilience, enthusiasm and creativity** – while 86% rated attitude and 68% aptitude as a top attribute, just 34% said the same of formal qualifications.

Three-quarters (75%) of employers expect that they will need **more staff with higher skills** in the years ahead and this demand is strong across all sectors of the economy:

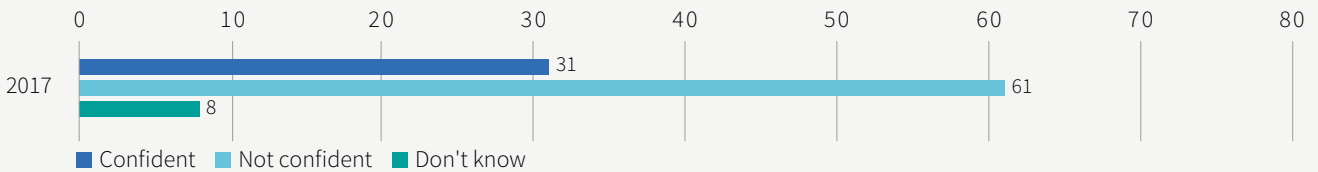
Increased demand for skills over next 3-5 years by sector (%)*



*Firms reporting increased demand minus those reporting decreased demand



Employer confidence about accessing high-skilled employees in future (%)



The majority of firms are confident in their ability to recruit to low and intermediate skilled roles, but this is not the case across all sectors – for example in the construction sector, **a balance of -22% of businesses are not confident about the supply of intermediate skills.**

However, when it comes to filling high-skilled jobs, there are widespread concerns, which are likely to increase in the face of labour market tightness if there is reduced access to migrant

skills as a result of Brexit. **Twice as many businesses are not confident they will be able to recruit enough high-skill employees as are confident** – 61% of firms in total.

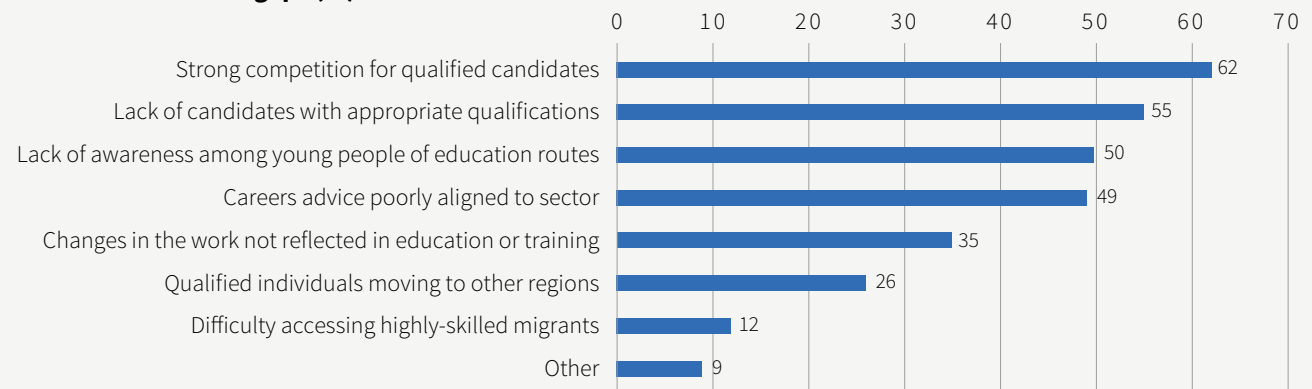
Businesses are also clear about the **main drivers of skills gaps**, with leading factors including strong competition (62%), lack of appropriately qualified candidates (55%) and lack of awareness amongst young people of career routes in their sector (50%):

Employer confidence about accessing high-skilled employees in future by sector (%)*

Sector	2017
Manufacturing	-49
Construction	-49
Engineering, Science, Hi-Tech & IT	-22
Professional services	-13

* Net balance of firms reporting 'confident' minus those reporting 'not confident'

Main drivers of skills gaps (%)



Source for all graphs: CBI / Pearson, *Helping the UK Thrive (2017)*

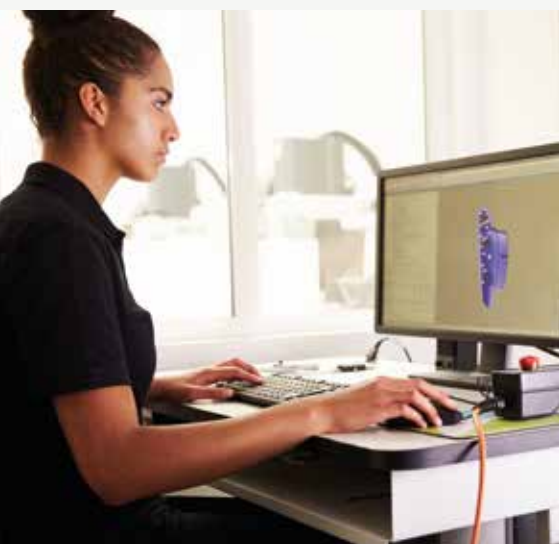
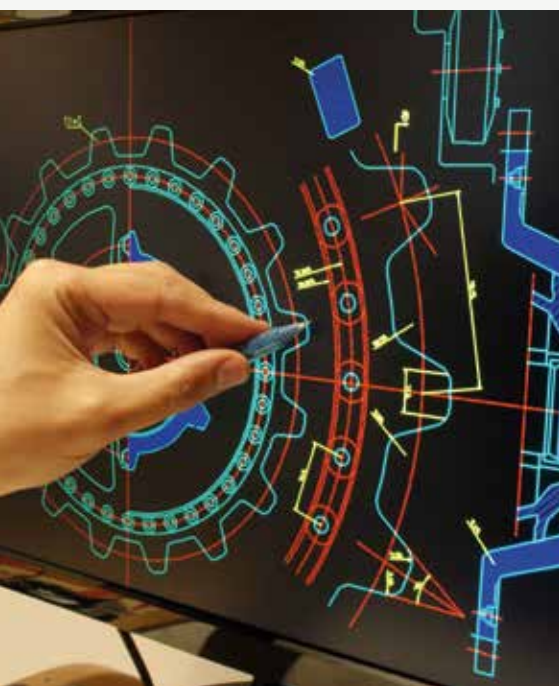


Neil Carberry, Managing Director of People and Infrastructure, CBI

With employment high and technological change happening fast, firms across the country report issues with access to skills. Action on skills for young people and for those already in work must be at the heart of our industrial strategy.

Skills shortages

58%
of employers
said that skills
shortages had
damaged their
organisation



Open University Business Barometer

(Published July 2017)

- Research conducted amongst 400 businesses in April-May 2017, including 300 SMEs.
- 90% of businesses surveyed had found it difficult to recruit workers with the right skills in the last 12 months.
- As a result, the recruitment process is taking longer than expected for three quarters (75%) of employers – on average almost two months longer than expected.
- This creates additional costs in recruitment fees and temporary staff estimated at £1.7 billion.
- More than half (56%) of businesses surveyed had to increase wages above market rates in order to attract the right skills. On average by £4,150 for SMEs and £5,575 for larger organisations.
- Many organisations (53%) ended up hiring at a lower level and use training to develop the skills they need in the role.

Construction skills shortages

- In the quarterly RICS UK Construction and Infrastructure Market Survey for Q1 2018, 60% of respondents cited labour shortages as a serious constraint on growth.

- At the end of 2017, just 12% of respondents were confident that the Government's target to increase housing delivery to 300,000 units per year would be met.

- The Federation of Master Builders (FMB)'s quarterly State of Trade Survey reinforced this by showing that of construction SMEs:
 - 68% struggled to hire bricklayers
 - 63% struggled to hire carpenters and joiners
 - 46% struggled to hire plasterers
 - 30% struggled to hire floorers

Skills shortages are sky rocketing and it begs the question, who will build the new homes and infrastructure projects the Government is crying out for.

Brian Berry, Chief Executive, FMB



Spotlight on: **Engineering**

Engineering UK 2018: The state of engineering



Engineering is integral to the UK’s ability to innovate, attract investment, and develop infrastructure. It sits at the heart of technological advances in industrial digitalisation, automation and artificial intelligence. It is also integral to the delivery of major infrastructure projects such as Crossrail, High Speed 2, and fibre-optic broadband. Altogether, 203,000 people with Level 3+ engineering skills are needed each year to meet expected demand.

The contributions the engineering sector makes to the economy are considerable. In 2016, **engineering enterprises employed 19% of the UK labour force and generated 23% of its £5.3 trillion turnover.** And this already significant economic contribution is only expected to increase: by 2020, the engineering sector’s direct contribution to the Gross Domestic Product (GDP) is projected to increase to £608Bn.

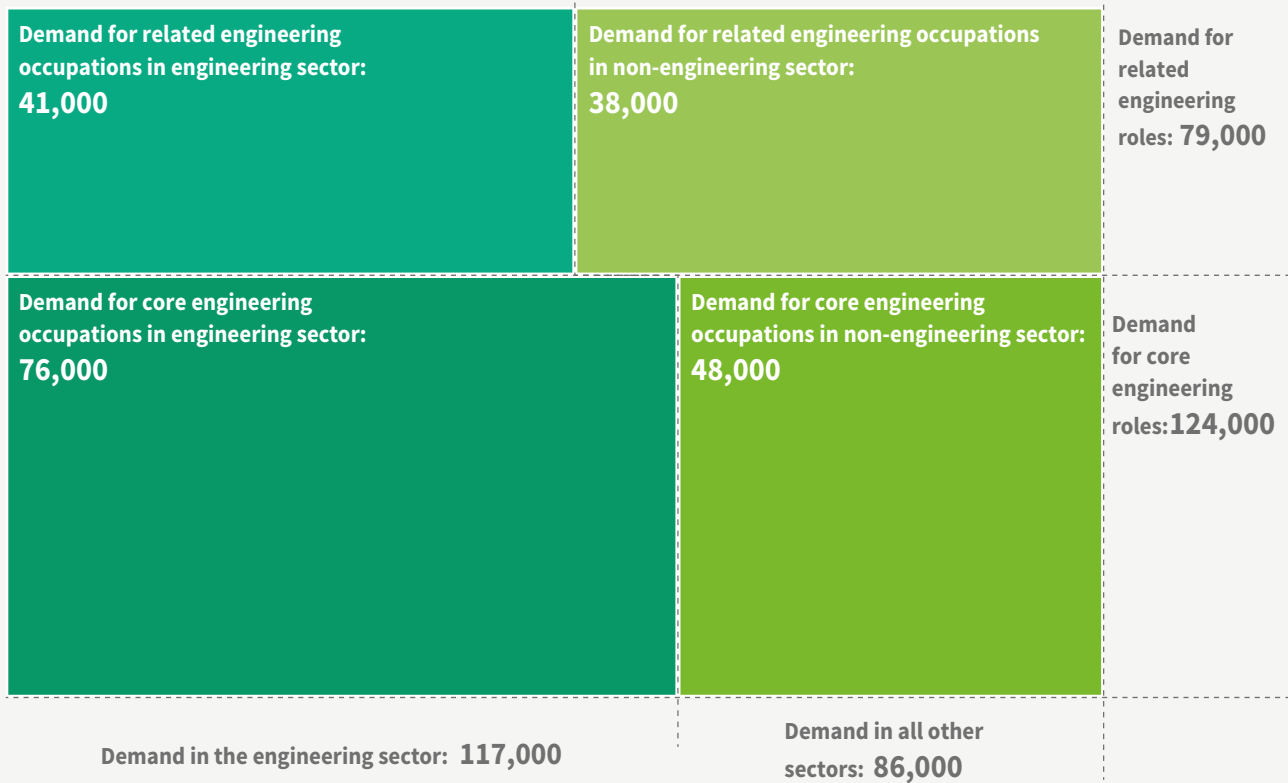
Critical to the continued economic and societal contributions of the engineering sector is the supply of skills and talent. While the engineering skills shortage has been a longstanding issue in the UK, technological advancements and an increasing fusion of the digital, physical, and biological are leading to new fields of engineering – and exacerbating already high demand for highly skilled labour.

Beyond the vital role it plays in the UK economy, engineering is also fundamental to improving quality of life and developing solutions to some of society’s most pressing challenges. Far from the hard hat stereotype, engineering is a diverse discipline that touches every part of daily life, with applications in fields ranging from renewable energy, to cybersecurity, to biotechnology.

A bespoke extension of *Working Futures* undertaken by Warwick Institute for Employment Studies on behalf of EngineeringUK estimates that between 2014 and 2024 there will be 1,240,000 graduate and technician core engineering jobs across all industries as a result of both replacement demand (i.e. the result of people leaving the labour force) and expansion demand (i.e. new jobs).



Projected annual net requirement by sector and core/related engineering occupation – UK



Source: Engineering UK 2018: The state of engineering

Assuming that this is uniformly distributed across the ten years, this translates to **124,000 Level 3+ core engineering roles to be filled every year.**

Alongside this, an additional annual requirement for **79,000 “related” roles requiring a mix of engineering knowledge and skill alongside other skill sets is anticipated.** Altogether, this means **203,000 people with**

Level 3+ engineering skills are required per year to meet expected demand.

That 42% (86,000 roles) of the projected requirement for Level 3+ engineering occupations is expected to occur outside of the engineering sector demonstrates the importance of engineering skills across all industry sectors.



Spotlight on: Engineering

It is evident that given the current supply of engineering talent coming from the educational pipeline through apprenticeships and higher education, **there is a critical shortage of engineering skills**. The shortfall in meeting annual demand for core **engineering roles requiring Level 3+ skills is estimated at between 37,000 and 59,000**.

If all those estimated to be eligible to take up graduate engineering roles did so, the shortfall of graduates would be at least 22,000; since many do not, the shortfall is significantly higher. And altogether – when looking at total demand for Level 3+ engineering skills across core and related engineering roles more broadly – **the annual shortfall is projected to be at least 83,000, and up to 110,000**.

The increasing demand for high skilled roles is a concern for many employers. In the latest Skills and Demand in Industry Survey conducted by the Institution of Engineering and Technology (IET) in 2017, almost half (46%) of engineering employers surveyed reported they had experienced recruitment difficulties due a lack of suitably skilled candidates, and a quarter noted skills gaps or limitations in their existing workforces.

The majority anticipated this would be a key difficulty going forwards, with **three in five ranking the recruitment of people with the right engineering skills as the top challenge** in achieving their business objectives in the next three years (61%). Of those reporting a lack of skills in the labour market, 70% expressed a concern in the supply or quality of young people entering or seeking to enter the engineering industry.

In the context of strong demand for engineering skills and a changing political and economic landscape, it is essential that young people are encouraged to study STEM subjects and pursue engineering-related qualifications. Actions to address the skills shortage in engineering include:

1. Streamline the STEM outreach landscape. The engineering and STEM outreach communities need to make it simpler for schools to connect with employers and other providers to access high quality, engineering focused STEM engagement activity.

2. Understand what works. The engineering and STEM outreach communities must develop a better understanding of what engineering-focused careers interventions work.

3. Address the STEM teacher shortage. The government should work with the engineering and education communities to increase the supply and retention of specialist STEM teachers, including engineering teachers. This has been a long-standing issue, and one that requires innovative approaches to address.

4. Safeguard against the potential negative implications of Brexit. The government must ensure the UK's exit from the European Union does not exacerbate the engineering skills shortage. In particular, it is vital that the higher education sector maintains its status as world class and welcoming to talent across the world.



Spotlight on: Engineering

5. Ensure apprenticeships are of high quality.

Further work is required to raise awareness of apprenticeships among young people and their influencers. In addition, apprenticeship reforms, such as the levy on employers, must be reviewed to ensure they are having their intended effect.

6. Raise understanding and awareness of engineering.

The engineering community should ensure young people have a full understanding of the excitement and variety a career in engineering offers, and the potential contribution they can make as an engineer.

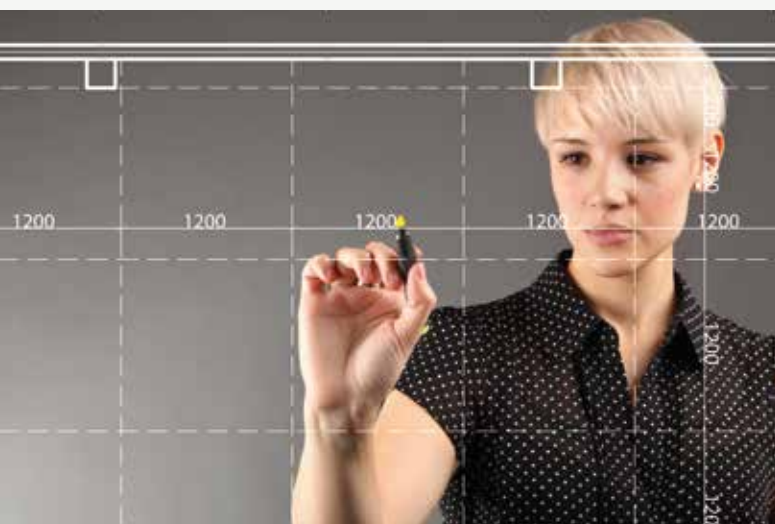
7. Improve diversity and inclusion. The engineering community must improve its diversity and inclusion record. A better understanding of the barriers for women, black and minority ethnic communities and people from disadvantaged backgrounds to pursue pathways into, and careers in, engineering, is urgently needed.

In February 2018, EngineeringUK published its annual report, 'Engineering UK 2018: The state of engineering.' Now in its 20th year, the report provides a comprehensive analysis of engineering's economic contribution and the composition of its workforce, as well as the extent to which the supply through the education and training pipeline is likely to meet future needs and demand for engineering skills. The report can be accessed at www.engineeringuk.com/research

Toby Peyton-Jones

HR Director, Siemens plc

Siemens manufactures leading technology here in the UK for both the domestic and export markets. To remain an attractive location for new investment, a skilled and progressive workforce is a major factor. With technology advancing so rapidly, we will only address skills shortages with a dynamic employer demand-led system that delivers not just the engineering skills of today but also the skills of tomorrow. In particular, we need the hybrid or Meta Skills where mechanical, electrical and digital skills are combined with capabilities like problem solving, project management and finance. These are uniquely developed when you combine learning, and doing and learning and earning. The recent apprenticeship reforms including the levy and the Institute for Apprenticeships, imperfect through they are at the moment, provide for the first time in over 20 years some stable cornerstones to build on. As Engineering UK's report rightly points out, we know what the problem is - we now need a steady nerve to keep everyone working together to align the new ecosystem to deliver.





Ten essential concepts for thinking about skills

Francis Green, Professor of Work and Education Economics, LLAKES Centre, UCL Institute of Education

Sometimes discussions of Britain's skills problems are impeded because terms are used in different and inconsistent ways. I believe it helps us to think through to the best policies and strategies if we can be as clear as possible about what we are talking about. Drawing on the wisdom of economists, sociologists and psychologists, it is best to think of 'skill' in broad terms, rather than in an old-fashioned narrow sense. Here is my brief run-down of ten essential concepts for skills analysts:

1. **Skill** is a personal characteristic which can produce value, and which can be enhanced through education, training and development. **Skill** in this broad sense is close to the notion of **competence**. It is not the same as educational qualification or training certificate, even though sometimes qualifications and certificates are used as approximate indicators of skill.
2. Some skills are **specific skills** to certain occupations, organisations or situations. Skills used in particular occupations are sometimes referred to as **technical skills**.
3. Others are **transferable skills**, that is, they could be used in more than one context; and where transferable skills can be used in very many contexts, they are often called **generic skills** or **transversal skills**.
4. Generic skill domains fall into three areas: **cognitive skills**, associated with thinking activities (verbal, numeracy, problem-solving, IT, and the facility to learn new skills); **interactive skills** (communication and engagement with others); and **physical skills** (strength and dexterity).



Ten essential concepts for thinking about skills



5. **Basic skills** refer to a threshold set of skills normally needed for getting a low-skilled job and to be able to acquire further skills.
6. A **skill shortage** occurs when an employer cannot recruit workers from the open labour market with the required skills. It is important to distinguish this situation from vacancies that are hard to fill because the working conditions are poor.
7. A **skills gap** occurs when an organisation's employees do not have enough skills to meet the organisation's objectives. In this situation, the organisation must either provide the necessary training, or try to recruit externally, or modify its objectives. While this definition of **skills gap** has come to be adopted by skills experts, it must be admitted that the phrase is sometimes used in a quite different and loose sense – to refer to a national skills problem, rather similar to the notion of a **skills deficit** (see below).
8. **Skills underutilisation** refers to a situation where a worker possesses work skills that are not being fully utilised in his/her job.
9. **Underemployment** refers to a situation where a worker is qualified to a level, or in a subject, that would not be required for a new applicant to get and do the job. Sometimes, **underemployment** is termed **overqualification** or **overeducation**, but these terms are less advisable because it must be remembered that education has wider purposes than just for employment. **Underemployment** is related to **skills underutilisation**, but only loosely. Note also that the phrase **underemployment** is also sometimes used in the context of working time.
10. A **skills deficit** is where **both** the skills supply and demand are too low compared to what they could be, as indicated by the skills being learned and used in other economies with different labour markets and skill systems. Such a situation is concerning because having lower skills supply and demand than we could have almost certainly implies worse economic and social outcomes. Where a skills deficit is identified, it calls for two-pronged policies to stimulate increases in both the supply of and the demand for skills.

For more information, see **References** on page 16



Annexes

Forthcoming relevant publications

Date	Organisation	Publication
May 2018	Royal Institute of Chartered Surveyors (RICS)	UK Construction and Infrastructure Market Survey – Q1 2018
May 2018	Federation of Master Builders (FMB)	State of Trades Survey – Q1 2018
19 July 2018	Cardiff University / Institute of Education	British Skills and Employment Survey
July 2018	British Chambers of Commerce (BCC)	Quarterly Economic Survey
Summer 2018	DfE	Employer Skills Survey
Summer 2018	Edge Foundation	Skills Shortages Bulletin 2
August 2018	RICS	UK Construction and Infrastructure Market Survey – Q2 2018
August 2018	FMB	State of Trades Survey – Q2 2018
3 October 2018	Cardiff University / Institute of Education	British Skills and Employment Survey
October 2018	BCC	Quarterly Economic Survey
November 2018	RICS	UK Construction and Infrastructure Market Survey – Q2 2018
November 2018	FMB	State of Trades Survey – Q2 2018
Autumn 2018	Edge Foundation	Skills Shortages Bulletin 3

References

- For a more detailed discussion of the concepts in Francis Green's article, see the first three chapters of his book: Green, F. 2013. *Skills and Skilled Work. An Economic and Social Analysis*. Oxford: Oxford University Press.
- British Chambers of Commerce, Quarterly Economic Survey (April 2018) – <http://www.britishchambers.org.uk/policy-maker/economic-data/quarterly-economic-survey>
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