

**Briefing note:  
Which industries  
face the biggest  
skills challenges?**

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## **About FISSS**

The Federation for Industry Sector Skills and Standards occupies a unique position as the representative body of employer-led, sector skills bodies. These in turn represent the viewpoint of some 180,000 employers on the UK's skills needs. As the certification body for Apprenticeship Frameworks in England, Scotland and Wales and as a provider of commercial software to support Apprenticeship Standards we see the UK wide picture through our relationships with employers, training providers and end-point assessors.

Our Mission is to enable members to contribute to a UK skills system that is world leading.

## **We'd love to hear from you**

If you are an organisation representing employers on skills and would like enquire about membership with the Federation, or if you would like to enquire about consultancy and bespoke cuts of the data please contact us.

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## **Citation**

Boys, J. (2020) *Briefing note: Data on skills challenges by industry sector*, The Federation For Industry Sector Skills and Standards.

## Foreword

This briefing note presents key data on the big skills challenges facing the UK economy. Importantly it is organised by industry sector so that comparisons can be made. The standout point from this exercise is that different sectors face different challenges.

This may seem obvious, but the data lays clear the scale of these differences. Take for example, the proportion of jobs likely to be automated. While 58% of jobs in Accommodation and food services - an industry more commonly referred to as hospitality - are at risk of automation, this falls to just 34% of jobs in Information and Communication. Each industry faces its own unique set of challenges around skills. With specific problems come specific solutions. When we see a high female to male ratio, we see programmes to get girls into STEM. In industries with an ageing workforce, there is a focus on extending working lives and creating a talent pipeline, often through apprenticeship programmes. The Skills Federation will be working with our members over the coming year on a programme of research to explore these themes in more detail and shedding light on the innovative solutions that groups of employers are using to rise to skills challenges.

One might legitimately ask whether Covid-19 makes analysis in reports like this redundant. Our opinion is that it does not. We take a longer-term view. Though true that skills shortages depend on demand which has all but collapsed in some sectors, gaps in the talent pipeline will eventually bite. That is why this note compiles data on themes like automation and the ageing workforce. These are long term and transformative trends that will shape the future of skills. More immediate challenges are recognised too, which is why we've compiled data on EU workers. Data like this helps us understand which industries are most challenged by Brexit. We've also looked at Covid-19 itself. As with previous briefing notes and in line with others, we are using working from home as a proxy for a sector's resilience to Covid-19.

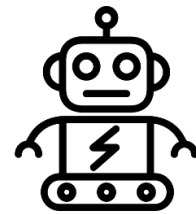


Finally, it's important to note the perspective of this briefing paper. Some of the findings may seem counter-intuitive. For example, when we say that pay rises and automation taking jobs are at the good end of the scale. This is from the point of view of getting enough of the right skills into an industry. Pay rises are good for us as individuals but can be a sign of skills shortages. We all want to work in occupations that are immune from automation, but automation could help alleviate skills shortages.

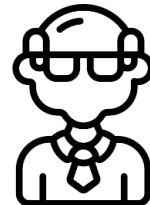
**Jonathan Boys – Director of Evidence and Insight at FISSS**

## Key Challenges<sup>i</sup>

**Automation** - The fourth industrial revolution could alleviate skills challenges, but some industries are more amenable than others. While 58% of jobs in hospitality are at risk of automation, this falls to just 34% of jobs in Information and Communication.



**Ageing workforce** - By extending working lives, this is as much an opportunity as a challenge. Agriculture, forestry and fishing is the sector with the oldest workforce. Over 50% are over the age of 50 compared to just 17% in hospitality.



**Brexit** - Immigration policy will be a more significant challenge for some sectors than others. While only 3% of the Public admin and defence workforce are EU nationals, this rises to 15% for the industry known as households as employers (e.g. gardeners, babysitters, cleaners etc.).



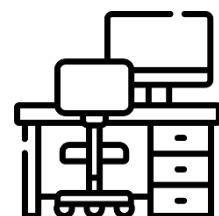
**Staff turnover** - Skills policy often concentrates on the talent coming into an industry. But stemming the flow of talent leaving the industry can build up the stock of skills. Sectors like Education have a low proportion of employees leaving the industry each year (14%) while for Arts, entertainment and recreation it stands at 35%.



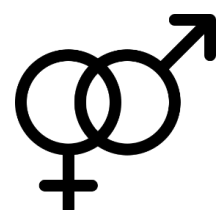
**Pay growth** - This is good for the worker, but it could be a sign of skills shortages. Across the board pay growth from 2018 to 2019 was a modest 2%, but some industries pulled away from the pack. Water supply, sewerage, waste saw real earnings growth of 9.2%.



**Working from home (A proxy for Covid-19 resilience)** - The report uses working from home as a proxy for an industry's ability to weather the lockdown. Over half (53%) of Information and Communication workers work from home, compared to around just 1 in 10 (11%) of Transport and storage occupations.



**Gender balance** - An industry that doesn't draw talent from the full population is disadvantaged. While retail has a relatively even gender ratio, construction has 6.7 male workers for every female worker.

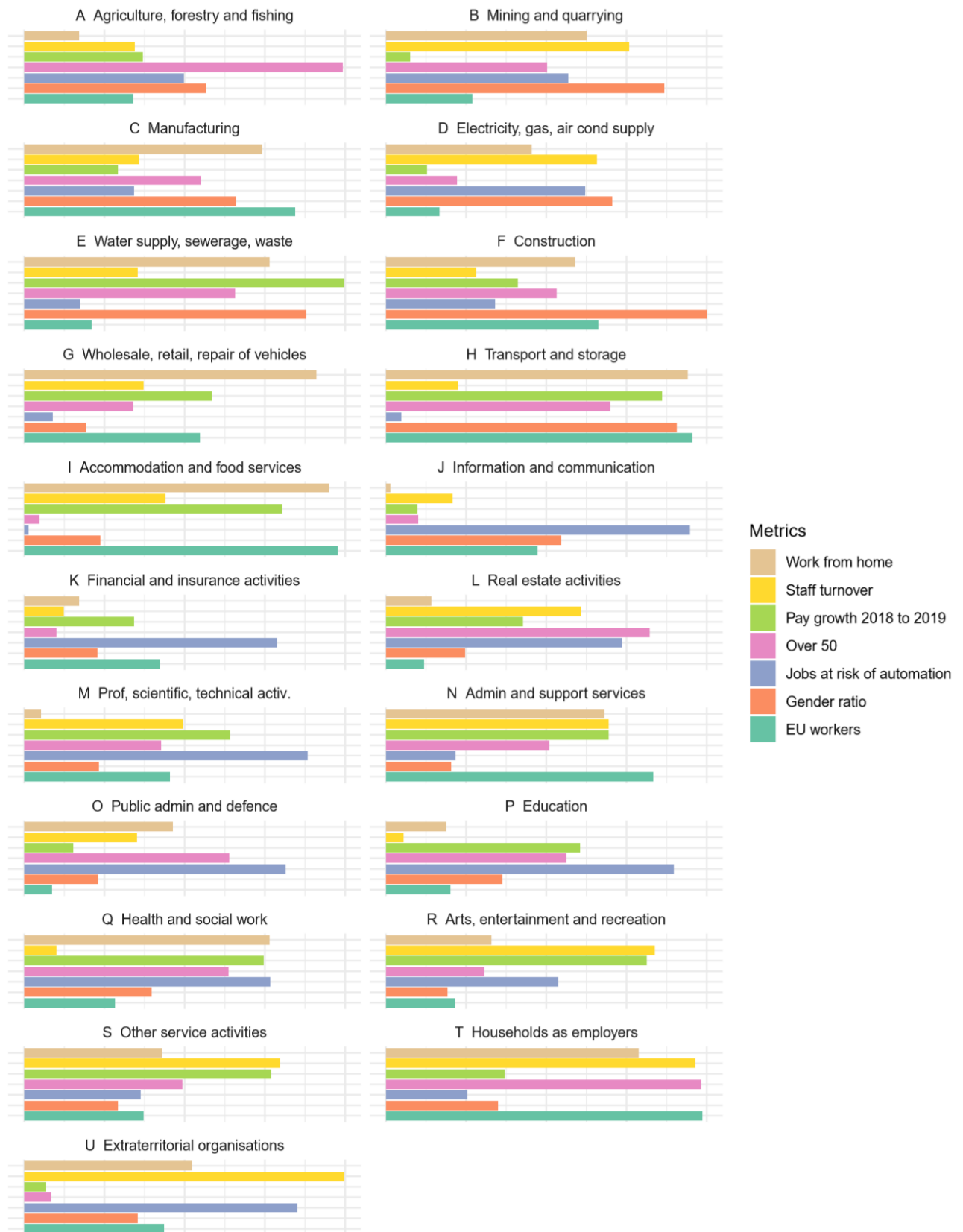


**Table 1: Compendium of skills challenge data by industry sector**

Industry sector	% of jobs at risk of automation	% over 50	% EU workers	staff turnover (% that leave the industry)	Pay growth 2018 to 2019	% ever work from home	Female to Male ratio
All	45%	30%	8%	22%	2%	27%	1.1
A Agriculture, forestry and fishing	45%	50%	6%	24%	0.5%	39%	2.5
B Mining and quarrying	43%	31%	5%	33%	-2.5%	25%	3.8
C Manufacturing	47%	32%	11%	24%	-0.1%	21%	2.9
D Electricity, gas, air cond supply	43%	25%	4%	30%	-1.7%	30%	3.1
E Water supply, sewerage, waste	50%	34%	5%	24%	9.2%	20%	3.9
F Construction	47%	31%	9%	22%	0.8%	26%	6.7
G Wholesale, retail, repair of vehicles	53%	27%	8%	24%	2.1%	13%	1.1
H Transport and storage	55%	35%	13%	21%	4.5%	11%	4.1
I Accommodation and food services	58%	17%	14%	26%	3.8%	10%	0.9
J Information and communication	34%	21%	7%	20%	-2.1%	53%	2.5
K Financial and insurance activities	39%	20%	7%	17%	0.3%	39%	1.3
L Real estate activities	41%	38%	4%	29%	1.0%	40%	0.8
M Prof, scientific, technical activ.	37%	29%	7%	27%	2.5%	46%	1.3
N Admin and support services	49%	31%	11%	31%	2.9%	23%	1.2
O Public admin and defence	39%	33%	3%	24%	-1.4%	29%	0.9
P Education	36%	32%	5%	14%	2.2%	38%	0.4
Q Health and social work	40%	33%	5%	16%	3.3%	20%	0.3
R Arts, entertainment and recreation	44%	27%	5%	35%	3.9%	33%	1.1
S Other service activities	47%	30%	6%	34%	3.5%	30%	0.7
T Households as employers	49%	47%	15%	42%	0.6%	20%	0.4
U Extraterritorial organisations	38%	20%	7%	50%	-2.6%	28%	1.8

Notes: Darker colours indicate a more significant challenge for skills. Some of these may seem counter-intuitive. From an individuals' point of view, we want to be in jobs that are difficult to automate and receive big pay rises, but from a skills point of view, this presents a more significant challenge.

**Figure 1: Relative challenge by industry**



Federation for Industry Sector Skills and Standards

Notes: Here, we have standardised the data in **Table 1** to make quick visual comparisons across industry sectors and metrics.

## Sources

Metric	Source
% of jobs at risk of automation	<p>To calculate the % of jobs in an industry at risk of automation, we first took the ONS's article on the chance of automation by occupation (4 digit SOC):</p> <p>ONS. (2019) <a href="#">Which occupations are at highest risk of being automated?</a></p> <p>We then mapped this to the latest available Annual Population Survey data:</p> <p>Office for National Statistics, Social Survey Division, 2020, Annual Population Survey, October 2018 - September 2019, [data collection], UK Data Service, 2nd Edition, Accessed 30 April 2020. SN: 8598, <a href="http://doi.org/10.5255/UKDA-SN-8598-2">http://doi.org/10.5255/UKDA-SN-8598-2</a></p>
Pay growth 2018 to 2019	<p>This metric used data from the Annual Survey of Hours and Earnings, 2018 and 2019, table 4. Hourly pay, gross, for all employees. 2018 data were indexed to 2019 prices using CPIH.</p> <p>ONS (2019) <a href="#">Earnings and hours worked, industry by two-digit SIC: ASHE Table 4</a></p>
% ever work from home	ONS (2020) <a href="#">Homeworking in the UK labour market</a>
staff turnover (% that leave the industry)	ONS (2019) <a href="#">Employee turnover levels and rates by industry section, UK, January 2017 to December 2018</a>
% EU workers % over 50	<p>These last three metrics used the most recent Annual Population Survey data.</p> <p>Office for National Statistics, Social Survey Division, 2020, Annual Population Survey, October 2018 - September 2019, [data collection], UK Data Service, 2nd Edition, Accessed 30 April 2020. SN: 8598, <a href="http://doi.org/10.5255/UKDA-SN-8598-2">http://doi.org/10.5255/UKDA-SN-8598-2</a></p>
Female to Male ratio	

## Endnotes

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