Working Futures 2014 – 2024

UKCES
UK COMMISSION FOR EMPLOYMENT AND SKILLS

Contents

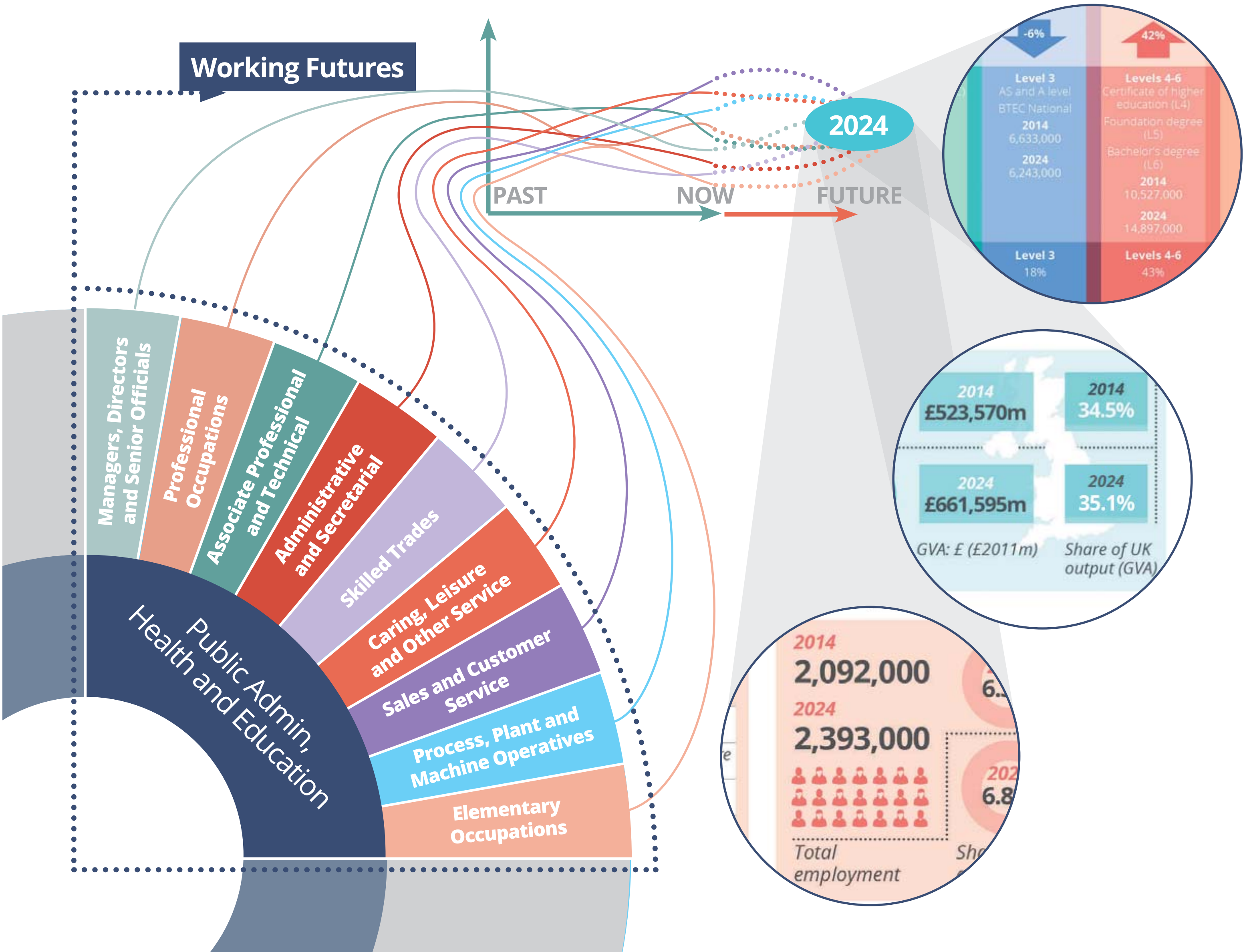
Introduction

This report provides a concise overview of Working Futures 2014-2024. Aimed at the general reader, it focuses on the key messages and complements the more detailed outputs from the study.

The report:

- Examines output and employment trends by sector and builds up short sector profiles.
- Explores the outlook for skills by examining the occupational profile of employment, in terms of changing levels of employment and replacement demands, alongside the formal qualifications held by workers.
- The data is supplemented with occupational vignettes to provide additional context and insight.

There is a wealth of sectoral and spatial detail available within Working Futures that cannot be fully captured in a summary report. Information on how to access the full range of reports and data is provided at the end of this summary.



What is Working Futures?

Working Futures is a comprehensive and detailed model of the UK labour market. It projects the future size and shape of the labour market by considering employment prospects by industry, occupation, qualification level, gender and employment status.

Produced by the Institute for Employment Research and Cambridge Econometrics on behalf of the UK Commission for Employment and Skills, Working Futures 2014-2024 is the sixth in a series of assessments of UK labour market prospects carried out every 2-3 years since 2002.

Why use Working Futures?

The main purpose of Working Futures is to provide a rich source of information that can inform choice and facilitate evidence based rather than anecdotal decision making.

For employers, it gives an indication of future requirements for skilled labour, including by industry sector and occupation.

For individuals, it gives a sense of where the future jobs may be – and whether they're in growth industries, or meeting a need to replace retiring workers.

For education and training providers it gives an insight into the skills that are likely to be in the greatest demand in future.

And for policymakers, it allows us to think about whether we're going to have the right people in the right jobs in the future.

Methodology

The projections are based on the use of a multi-sectoral, regional macroeconomic model, combined with occupational, replacement demand and qualification modules. The results take account of the latest official data published by the Office for National Statistics.

These projections are a baseline founded on rigorous assumptions about some of the key economic, technological and social trends. They provide a benchmark against which we can test our own opinions and expectations. Like all projections, they assume that past patterns of behaviour and performance will continue into the future. They should not be interpreted as a concrete snapshot of the future labour market. The reader should focus on changes in patterns of employment for industries and occupations; the projected values are broad indicators of scale, not precise estimates.

Nevertheless, Working Futures is the leading source on the future of the UK labour market because its 10-year forecasts are:

- **Comprehensive** it covers the entire UK labour market, investigating how different industry sectors' prospects interact, with some expanding and some contracting, and each changing in different ways.
- **Robust** it draws on the full range of published statistics to provide an employment baseline by sector, occupation and local area, and uses sophisticated modelling to forecast how these different dimensions are likely to evolve. Data sources that underpin Working Futures include: The Office for National Statistics' UK National and Regional Accounts, Input-Output Supply and Use Tables, the Labour Force Survey and the 2011 Census.
- **Granular** by providing a breakdown by sector and occupation, it allows us to understand not only the likely broad changes in the labour market, but also the implications for the skills mix in each industry sector.

Macroeconomic and labour market context

The main purpose of Working Futures is to project the shape of future UK employment, particularly in terms of industry sector and occupation. However, the projections need to be grounded in a forecast of the future macroeconomic and labour market context.

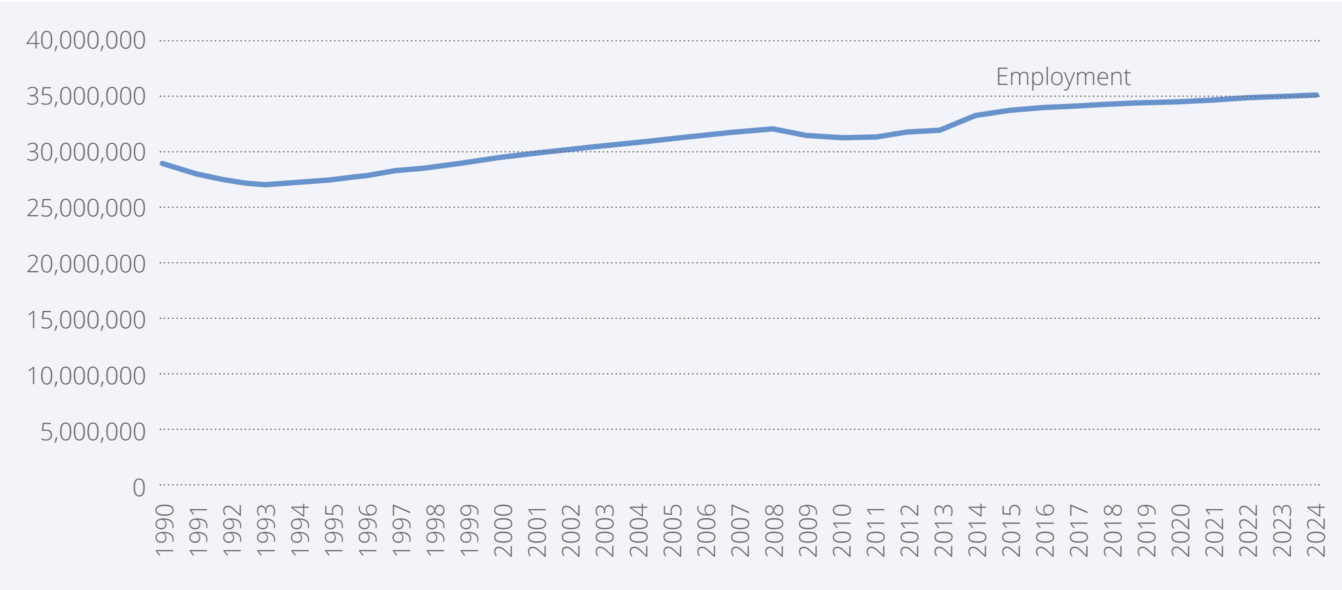
Cambridge Econometrics' MDM-E3 model assesses the prospects for the UK economy, based on the likely path of global economic growth, global exchange rates, UK government spending and UK interest rates.

The forecast indicates that the UK economy is on a path of sustained, moderate growth. It is expected that UK GDP growth will peak at 2.7 per cent in 2016, and average 2.2-2.5 per cent p.a. for the rest of the forecast period to 2024. It is anticipated that this trend will be driven mainly by consumption growth and service-led investment growth.

It should be noted that the forecast is subject to a number of significant risks and uncertainties. These include uncertainties around the outlook for emerging markets, the strength of the Eurozone recovery, prospects for UK productivity growth and the impact of the government's deficit reduction measures.

Overall, the number of jobs in the UK is projected to rise by around 1.8 million between 2014 and 2024; that is, average annual growth of around ½ per cent. This reflects a moderation in the exceptionally strong employment growth (of around four per cent) seen in 2014.

Employment trend 1990-2024



It is expected that women will take the majority of these additional jobs. The largest segment of growth is anticipated to be female full-time jobs, whilst growth in male part-time jobs will outstrip the increase in full-time employment for men.

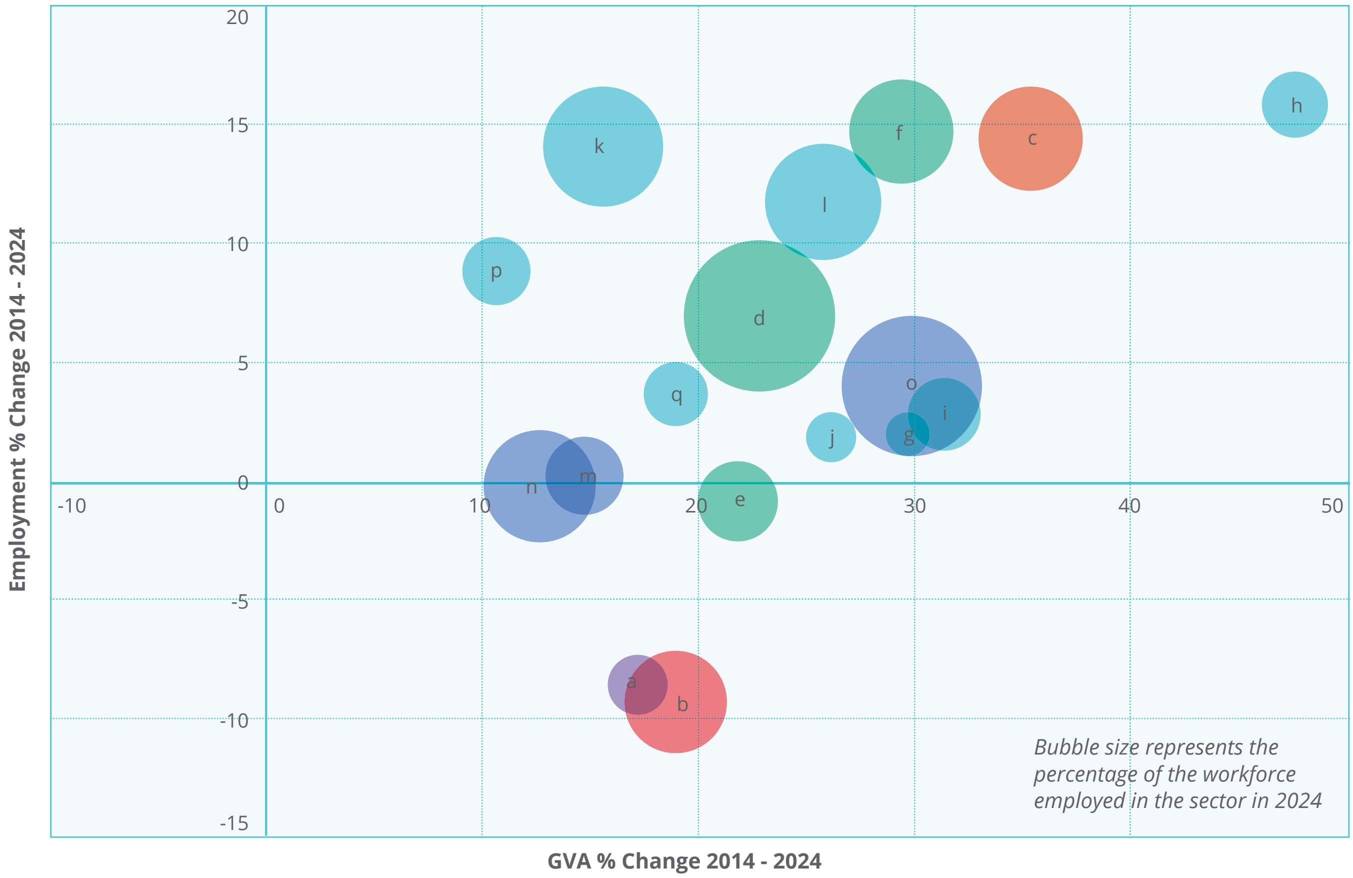
The recent pace of expansion of self-employment is not expected to be sustained into the longer term, with a slight fall in male self-employment projected for the period to 2024 and a static picture for females.

Changes in employment in the UK by gender and status, 2014-24 (000s)

Sectoral prospects

The changing industry mix of employment, which is driven by the evolving pattern of demand for goods and services in the economy, has a significant influence on the demand for skills in the UK labour market. Occupational employment structure varies considerably across industries. Occupations that are concentrated in growing sectors will gain employment in contrast to those concentrated in declining sectors.

The chart provides an overview of the performance of broad sectors of the economy by forecast output and employment change for 2014-2024. Sectors that are projected to see growth in both output and employment are located in the top right quadrant. The size of the bubbles reflects the size of the sector (in terms of the expected level of employment) in 2024.



- a Primary sector & utilities
- b Manufacturing
- c Construction
- d Wholesale and retail trade
- e Transport and storage
- f Accommodation and food
- g Media
- h Information technology
- i Finance and insurance
- j Real estate
- k Professional services
- l Support services
- m Public administration and defence
- n Education
- o Health and social work
- p Arts and entertainment
- q Other services

Note: Public administration and defence excludes H.M. Forces

The following profiles examine the forecast performance of six broad industry sectors, in terms of output and employment. The profiles also examine the influence on the sectors of key drivers, including technological change, globalisation, and public policy.

Sector Profile
Primary sector & utilities

Activity is expected to grow modestly in this sector, leading to a fall in its share of total output. It is anticipated that competition from imports and cost pressures will drive efficiency savings and productivity improvements, leading to a decline in employment over the course of the decade.

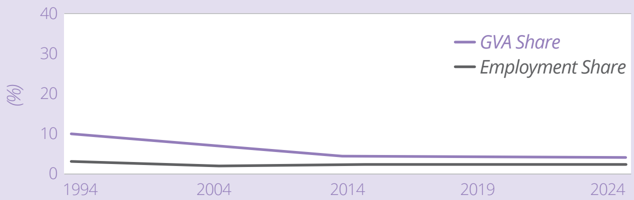
Sub-sectors

- Agriculture, forestry and fishing
- Mining and quarrying
- Electricity, gas, steam and air conditioning
- Water supply, sewerage, waste management

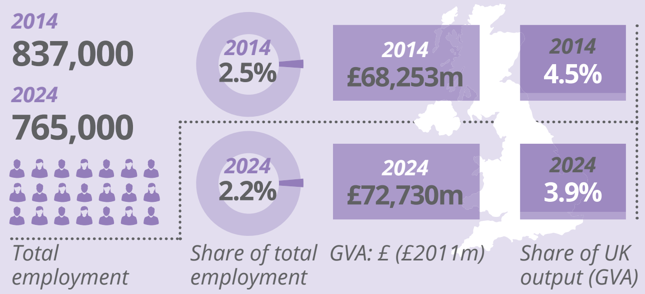
Trends in output, productivity and employment

2014 - 2024	Sector	UK Average
Employment change (n)	-72,000	1,810,000
Employment change (%)	-8.6%	5.4 %
GVA growth (% p.a)	0.6%	2.2 %
Productivity growth (% p.a)	1.5	1.7
Replacement demand (n)[1]	330,000	13,110,000

Sector shares of UK output and employment

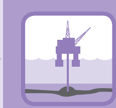


Industry profile



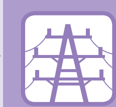
Key factors influencing the sector:

Agricultural output is expected to grow modestly, driven by changing consumer patterns. However, productivity improvements are expected to result in a fall in employment.

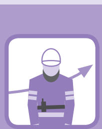


Coal, oil & gas production is expected to fall, due to dwindling domestic reserves and high costs of extraction relative to imports.

Energy policies and environmental legislation are likely to grow in importance, creating long-term opportunities and challenges for the sector.



Utilities output is forecast to grow modestly, driven partly by an anticipated increase in household demand.



Employment levels in utilities will grow more slowly as efficiency measures will reduce labour demand.

Employment by gender and status

- Male full-time **51%**
- Female full-time **14%**
- Male part-time **5%**
- Female part-time **8%**
- Male self-employed **17%**
- Female self-employed **5%**

[1] Replacement Demand is discussed in more detail on page 18.

Sector Profile
Manufacturing

Manufacturing is forecast to grow at a slower rate than the wider economy over the next decade, in the face of intense competition from overseas. Its share of total output will decline slightly. Productivity growth is expected to lead to a continued decline in employment, with traditional roles being particularly affected.

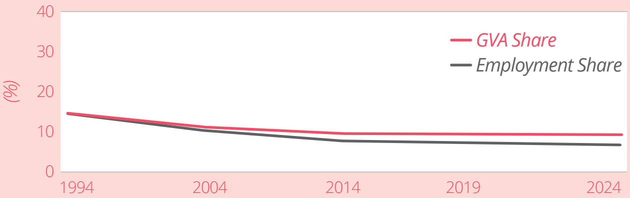
Sub-sectors

- Food, drink & tobacco
- Textiles & clothing
- Wood & paper products
- Printing & recording
- Coke & petroleum
- Chemicals & chemical products
- Rubber & plastic products & other non-metallic mineral products
- Pharmaceuticals
- Metals & metal products
- Electronics
- Electrical equipment
- Machinery
- Motor vehicles
- Other transport equipment
- Other manufacturing & repair

Trends in output, productivity and employment

2014 - 2024	Sector	UK Average
Employment change (n)	-241,000	1,810,000
Employment change (%)	-9.3 %	5.4 %
GVA growth (% p.a)	1.8 %	2.2 %
Productivity growth (% p.a)	2.8	1.7
Replacement demand (n)	885,000	13,110,000

Sector shares of UK output and employment



Industry profile

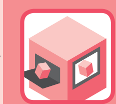
	Total employment	Share of total employment	GVA: £ (£2011m)	Share of UK output (GVA)
2014	2,591,000	7.8%	£147,439m	9.7%
2024	2,350,000	6.7%	£175,430m	9.3%

Key factors influencing the sector:

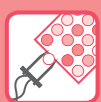
Future output growth in manufacturing is expected to be constrained by increasing competition from overseas manufacturers.

Employment is expected to stagnate or fall despite the growth in output, driven mostly by increasing automation in the sector.

Global population growth, as well as a rising proportion of individuals with middle-class incomes, are expected to increase global consumption of manufactured goods.



New processes and techniques such as 3D printing, additive and composite manufacturing and plastic electronics are changing the shape of production within the sector[1].



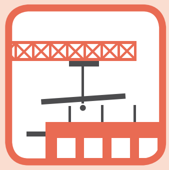
Global growth in advanced manufacturing demand will drive an increase in domestic activity, especially for industries in which the UK has specialised, such as aerospace, pharmaceuticals, and other technology-intensive industries.

The availability of skilled labour will be an important consideration for the employment outlook in the long-term.

Employment by gender and status

- Male full-time **67%**
- Female full-time **17%**
- Male part-time **3%**
- Female part-time **5%**
- Male self-employed **6%**
- Female self-employed **2%**

Sector Profile
Construction



Construction is expected to see the fastest rate of growth of the six sectors, in both output and employment terms, resulting from an anticipated increase in public and private investment.

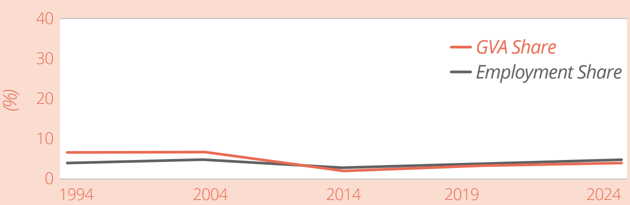
Sub-sectors

- Construction of buildings
- Civil engineering
- Specialised construction activities e.g. demolition, installation, building completion activities

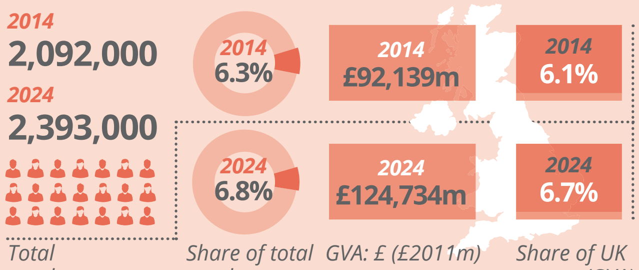
Trends in output, productivity and employment

2014 - 2024	Sector	UK Average
Employment change (n)	**301,000**	1,810,000
Employment change (%)	**14.4 %**	5.4 %
GVA growth (% p.a)	**3.1 %**	2.2 %
Productivity growth (% p.a)	**1.7**	1.7
Replacement demand (n)	**765,000**	13,110,000

Sector shares of UK output and employment



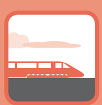
Industry profile



Key factors influencing the sector:

Construction growth will depend on the recovery of lending to the private sector and public infrastructure spending.

Rising population levels in the UK are expected to increase demand for construction of housing and infrastructure.



Long-term, major public infrastructure projects, such as HS2 and Crossrail 2, are likely to contribute to output growth.

Overall, regulatory policies are likely to encourage construction growth particularly as firms seek innovative processes and technologies to adapt to environmental concerns.

New types of demand will encourage technological innovations and stimulate growth. In particular, integrating construction processes with technological developments (e.g. the development of "smart cities") will be an important driver of long-term growth.

Employment by gender and status

- Male full-time **48%**
- Female full-time **7%**
- Male part-time **2%**
- Female part-time **5%**
- Male self-employed **36%**
- Female self-employed **2%**

Sector Profile
Trade, accommodation & transport

Although diverse in composition, the performance of the trade, accommodation and transport sector is largely dependent on the amount of activity in the wider economy. The output of the sector is forecast to grow at a pace similar to the economy average, whilst employment will grow a little faster than average.

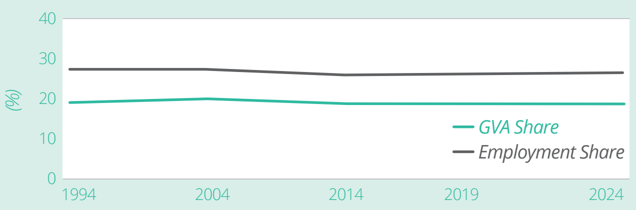
Sub-sectors

- Wholesale and retail trade; repair of motor vehicles
- Transport and storage
- Accommodation and food activities

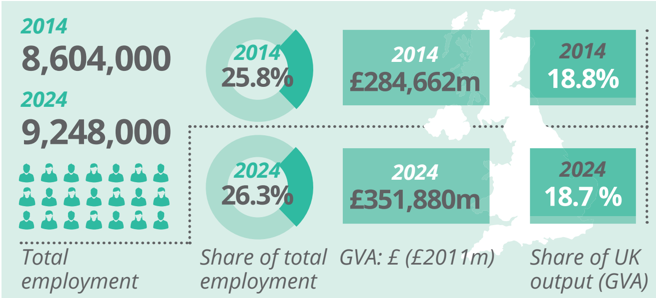
Trends in output, productivity and employment

2014 - 2024	Sector	UK Average
Employment change (n)	644,000	1,810,000
Employment change (%)	7.5 %	5.4 %
GVA growth (% p.a)	2.1 %	2.2 %
Productivity growth (% p.a)	1.4	1.7
Replacement demand (n)	3,490,000	13,110,000

Sector shares of UK output and employment



Industry profile



Key factors influencing the sector:

- The performance of the sector hinges on factors such as household disposable income and business activities.
- The strongest output growth is likely to be observed in air transport services, although there may be capacity constraints, especially in London.
- Changing consumer behaviour, such as a switch to purchasing goods online, are expected to increase demand in postal and courier activities, and transportation and distributional services.
- Retail, accommodation and food services, as well as transportation services are likely to be partly dependent on the outlook for tourism growth, which is expected to be modest.
- Employment growth in the sector is expected to be mainly driven by jobs growth in retail, accommodation and catering.
- Increased automation and technology improvements will reduce labour demand in some traditional roles; such as retail check-out staff.

Employment by gender and status

- Male full-time **34%**
- Female full-time **20%**
- Male part-time **15%**
- Female part-time **23%**
- Male self-employed **5%**
- Female self-employed **3%**

Sector Profile
Business & other services

Business and other services is forecast to see a moderation in its rate of growth in output and employment compared with that seen between 2004 and 2014, although it is expected that it will still outpace growth in the wider economy. As the largest of the six broad sectors it will make a considerable contribution to growth in absolute terms.

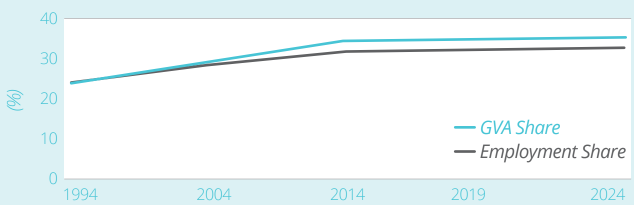
Sub-sectors

- Information technology
- Financial and insurance activities
- Real estate activities
- Professional services
- Support service activities
- Arts, entertainment and recreation
- Other service activities

Trends in output, productivity and employment

2014 - 2024	Sector	UK Average
Employment change (n)	1,029,000	1,810,000
Employment change (%)	9.8 %	5.4 %
GVA growth (% p.a)	2.4 %	2.2 %
Productivity growth (% p.a)	1.4	1.7
Replacement demand (n)	4,228,000	13,110,000

Sector shares of UK output and employment



Industry profile

	Total employment	Share of total employment	GVA: £ (£2011m)	Share of UK output (GVA)
2014	10,523,000	31.6%	£523,570m	34.5%
2024	11,552,000	32.9%	£661,595m	35.1%

Key factors influencing the sector:

Overall, the comparative advantage of the UK, strong investment into the sector, and technological progress are anticipated to be major factors driving long-term growth.

The industries expected to make the largest contribution to growth are financial services, professional, scientific and technical activities, and information technology.

Although the country's comparative advantage in professional and business services will come under pressure in the long-run, these activities will continue to attract investment into the UK over this period.

Technological progress supported by strong capital investment within the information technology industry will be a major factor in stimulating long-term growth, even though it is likely to weaken employment growth in some traditional roles.

The sector is expected to see strong growth in labour demand in the long run; much of this demand is likely to be in high-skilled and low-skilled roles continuing the trend of occupational polarisation.

Employment by gender and status

- Male full-time **39%**
- Female full-time **22%**
- Male part-time **7%**
- Female part-time **16%**
- Male self-employed **9%**
- Female self-employed **7%**

Sector Profile
Public admin, health, education

Current government commitments to reducing the deficit will constrain the sector's growth potential in the medium-term. However, as concerns for budgetary balance decrease, increasing demand is expected to accelerate growth in the sector in the long-term. Job losses in the first half of the period are expected to be more than offset as employment growth picks up between 2019 and 2024.

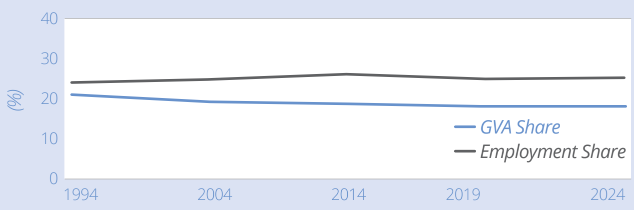
Sub-sectors

- Public administration and defence
- Education
- Health and social work

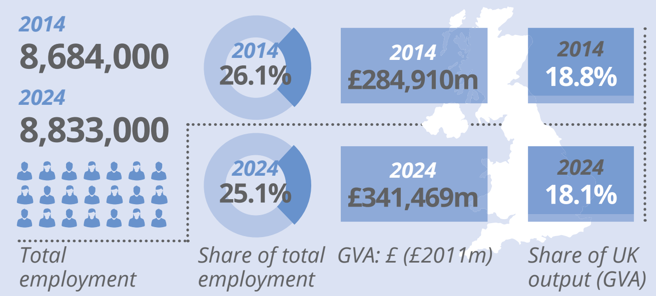
Trends in output, productivity and employment

2014 - 2024	Sector	UK Average
Employment change (n)	149,000	1,810,000
Employment change (%)	1.7 %	5.4 %
GVA growth (% p.a)	1.8 %	2.2 %
Productivity growth (% p.a)	1.7	1.7
Replacement demand (n)	3,411,000	13,110,000

Sector shares of UK output and employment



Industry profile



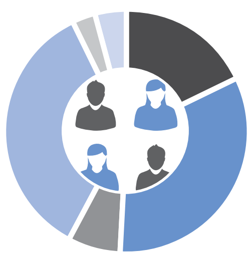
Key factors influencing the sector:

Activity in public administration, health and education are dependent on political decisions, as government is a major component of this sector's demand.

Wider demographic trends, such as the ageing population, will be a major driver of increased demand in the long run.

Activity and employment in education services, especially within private education and higher education institutions, are forecast to increase, driven partly by a rise in export demand.

Employment by gender and status



- Male full-time **18%**
- Female full-time **33%**
- Male part-time **7%**
- Female part-time **35%**
- Male self-employed **3%**
- Female self-employed **4%**

Occupational Change

Building on its assessment of the UK economy and industry sectors, Working Futures provides projections of employment by occupation.

This analysis is useful because it gives an insight into the future prospects for different types of job, addressing the question of where will future jobs be? At the same time, it gives an indication of the kind of skills that are likely to be in greatest demand (explored further below).

This is clearly useful for people making careers decisions but also for other groups with an interest in the labour market, such as education and training providers, employers and policymakers.

With regard to the approach used, data from official sources, including the Labour Force Survey, are used to develop an historical picture of the occupational and qualification structure of employment within industries. A combination of econometric methods and judgement is then used to generate projections of these patterns forward to 2024.

Changes in occupational employment structure are largely driven by longer term trends, including those related to sectoral employment patterns and technological and organisational trends that influence the patterns of demand within sectors.

At a broad level the pattern of change has been extremely resilient. In recent years the underlying trend in occupational employment shares has continued more or less unabated in spite of the recession. For most occupations the trend since the recession is indiscernible from that prior to the crisis in 2008.

Over the next decade these well-established trends are expected to continue.

The pattern we can see is one of polarisation, consisting of strong growth for higher level, white collar occupations and for some lower skilled occupations, particularly service-related jobs that are harder to automate. At the same time levels of employment for middle-skilled occupations are projected to fall. We expect to see the following:

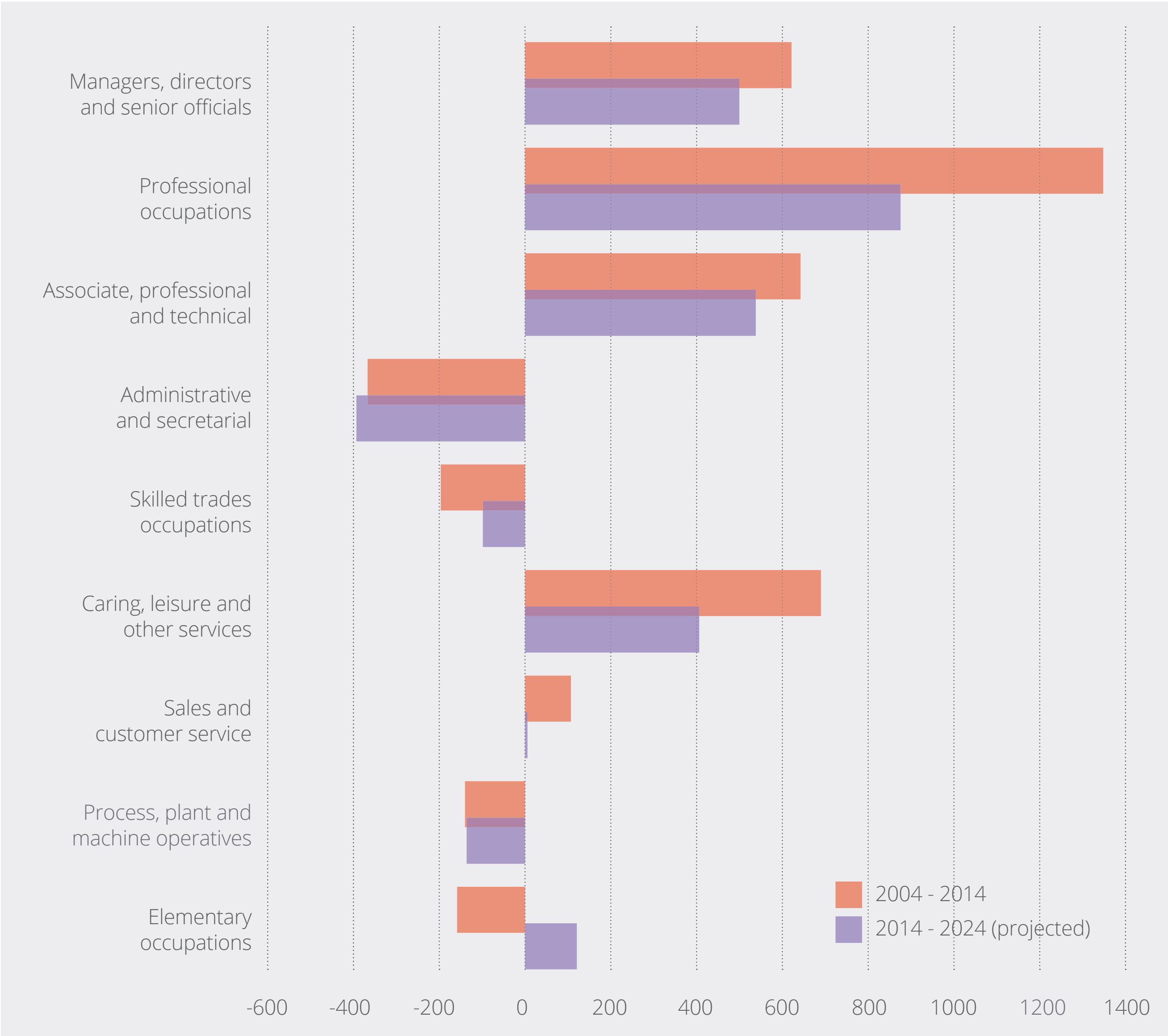
- Significant employment growth is expected for higher level occupations including managers, most professional occupations and many associate professional and technical roles.

- Caring, leisure and other service occupations are also projected to see significant employment growth.

- Net job losses are projected for administrative & secretarial occupations; skilled trade occupations, and process, plant & machine operatives.

- Elementary occupations are projected to experience mixed fortunes with some modest growth in jobs where tasks are not so easily subject to automation, but job losses in other areas.

Occupational change, total employment (000s)



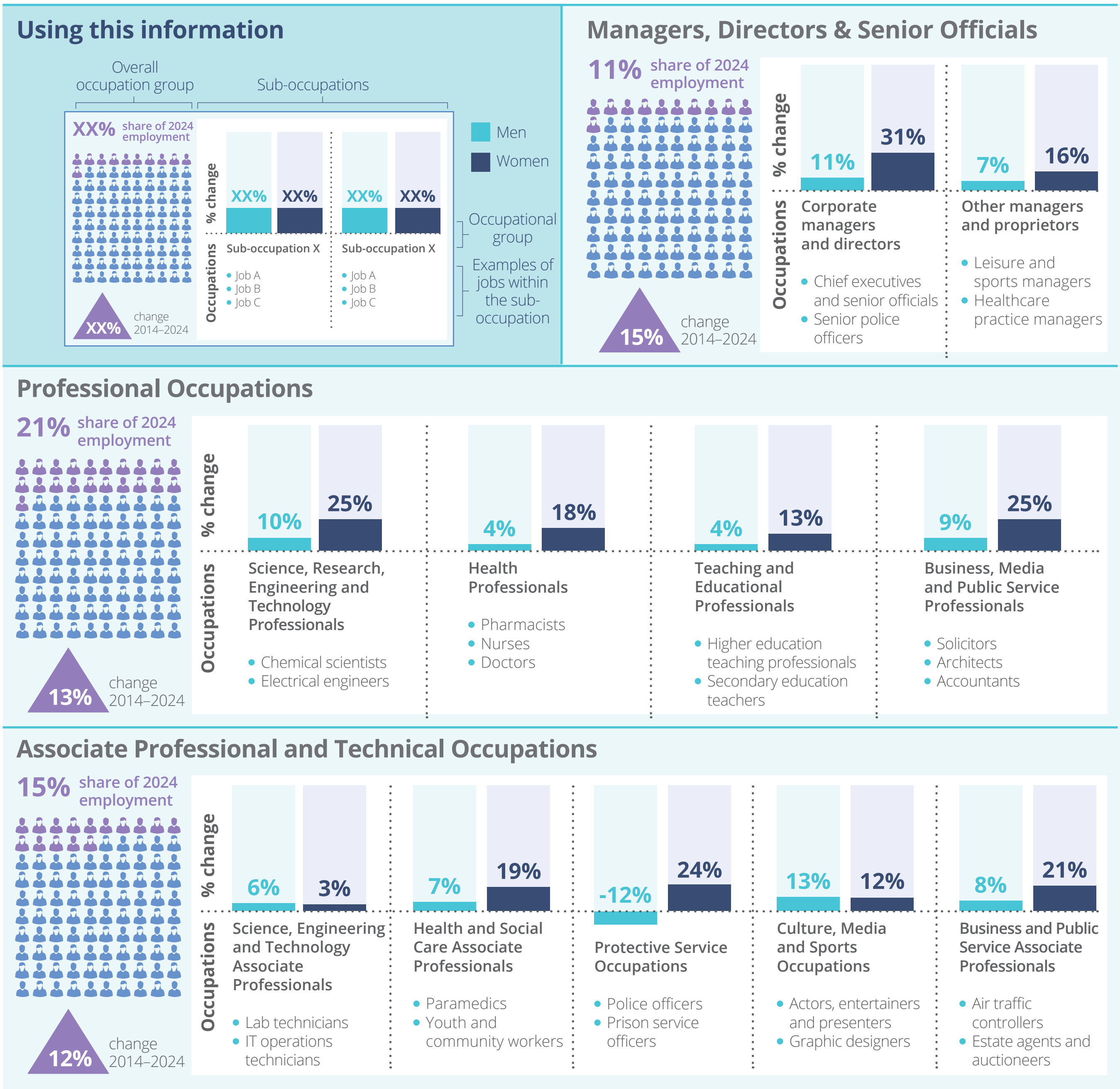
The pattern of change in occupational employment is explored in more detail, below.

Occupations 2024

The following graphic shows projected employment growth rates, by gender, for the 25 occupational sub-major groups, nested within their parent major groups.

The occupational sub-major groups expected to see the greatest employment growth in absolute terms are (in descending order) Caring personal service occupations, Corporate managers and directors and Business and public service associate professionals. Conversely, the groups expected to see the greatest decline are (in ascending order) Secretarial occupations, Process, plant and machine operatives and Skilled metal, electrical and electronic trades.

Within occupations growth prospects vary considerably by gender. For example, it is projected that female employment will, in general, increase more quickly than male employment in higher skilled management, professional and associate professional occupations. On the other hand, prospects for male employment are much stronger than for female employment in administrative and secretarial occupations, for example.



Administrative & Secretarial Occupations

9% share of 2024 employment

-11% change 2014–2024

% change / Occupations

- Administrative occupations: 1%, -6%
  - Book keepers
  - Bank clerks
- Secretarial and related occupations: 4%, -37%
  - Medical, legal or school secretaries

Skilled Trades Occupations

10% share of 2024 employment

-3% change 2014–2024

% change / Occupations

- Skilled agricultural and related trades: 3%, 5%
  - Farmers
  - Groundsmen and greenkeepers
- Skilled metal, electrical and electronic trades: -9%, -20%
  - Welding trades
  - Sheet metal workers
- Skilled construction and building trades: 6%, 31%
  - Plasterers
  - Roofers, roof tilers and slaters
- Textiles, printing and other skilled trades: -15%, 0%
  - Tailors and dressmakers
  - Printers

Caring, Leisure & Other Service Occupations

10% share of 2024 employment

13% change 2014–2024

% change / Occupations

- Caring and related personal service occupations: 26%, 14%
  - Teaching assistants
  - Care workers and home carers
- Leisure, travel and related personal service occupations: 4%, 1%
  - Travel agents
  - Hairdressers and barbers

Sales & Customer Service Occupations

7% share of 2024 employment

0% change 2014–2024

% change / Occupations

- Sales occupations: 2%, -9%
  - Sales and retail assistants
  - Sales supervisors
- Customer service occupations: 24%, 14%
  - Market research interviewers
  - Call and contact centre occupations

Process, Plant and Machine Operatives

6% share of 2024 employment

-6% change 2014–2024

% change / Occupations

- Process, plant and machine operatives: -13%, -29%
  - Coal mine operatives
  - Road construction operatives
- Transport & mobile machine drivers and operatives: 1%, 24%
  - Fork-lift truck drivers
  - Rail transport operatives

Elementary Occupations

11% share of 2024 employment

3% change 2014–2024

% change / Occupations

- Elementary trades and related occupations: -4%, 18%
  - Farm workers
  - Packers, bottlers, canners and fillers
- Elementary administration and service occupations: 12%, -5%
  - Street cleaners
  - Shelf fillers

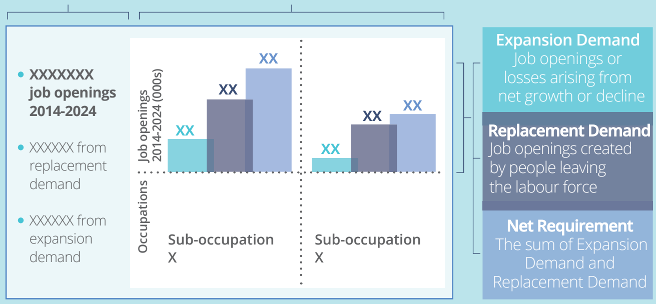
Replacement Demand

Occupational employment data provide a useful indicator of changing patterns of the demand for skills. However, it is important to focus not just on projections of *changing levels* of employment by occupation, but also on *replacement demands* – the job openings created by the outflow of workers from the labour force.

Workers leave the labour market for a variety of permanent and temporary reasons including retirement, family reasons (e.g. maternity leave) and mortality. But the important point to note is that these outflows from the labour force have a significant influence on job opportunities. Over the next decade, replacement demands are expected to generate seven times as many job openings in the labour market as result from net job growth.

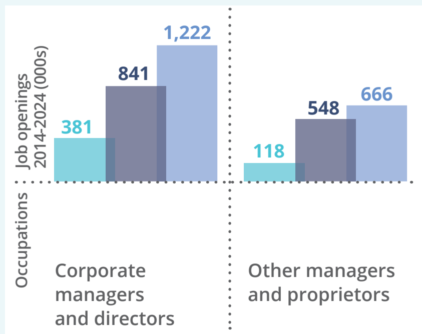
Occupations where employment is growing will require additional workers on top of those being replaced; for example, professional occupations are expected to see substantial net growth and replacement demands in the decade to 2024. Meanwhile, employment in administrative and secretarial roles is forecast to see net decline. However, strong replacement demands mean that there will still be job openings that need to be filled. Even though some occupational areas and industries are likely to see a decline in the number of jobs, replacement demands are usually much more significant than any net change in the level of jobs, meaning that we can still expect job openings across all broad groups. Individuals need to consider this when making careers decisions and employers need to be conscious of the need to replace key workers.

Using this information



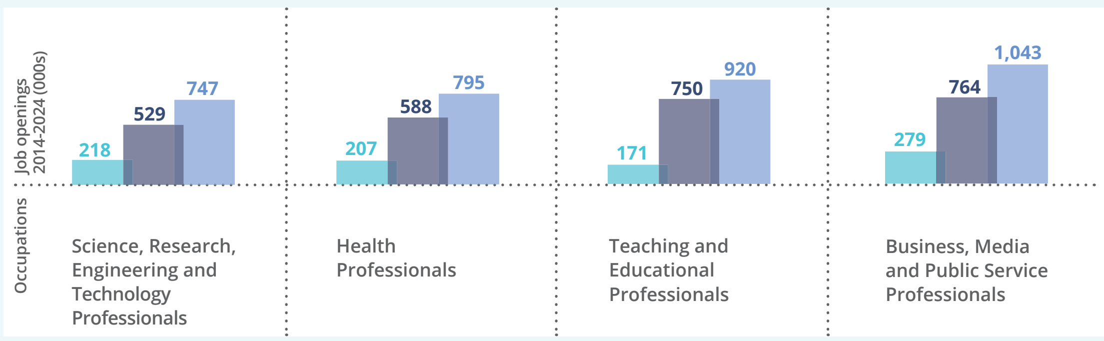
Managers, Directors & Senior Officials

- **1.9 million job openings 2014-2024**
- 1.4 million from replacement demand
- 500,000 from expansion demand



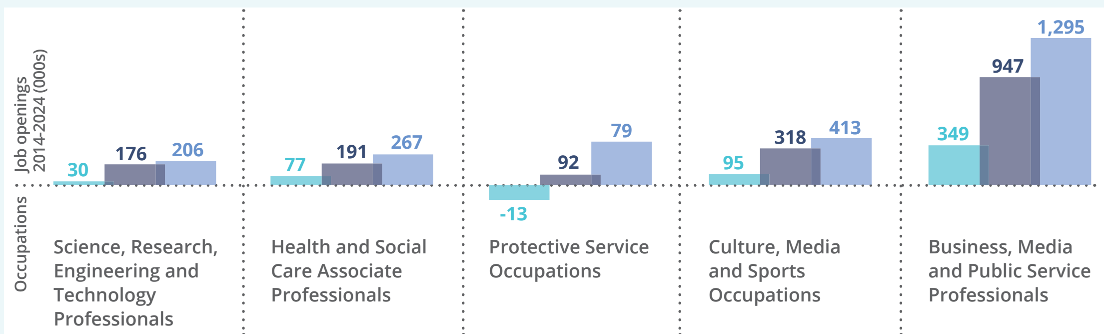
Professional Occupations

- **3.5 million job openings 2014-2024**
- 2.6 million from replacement demand
- 900,000 from expansion demand



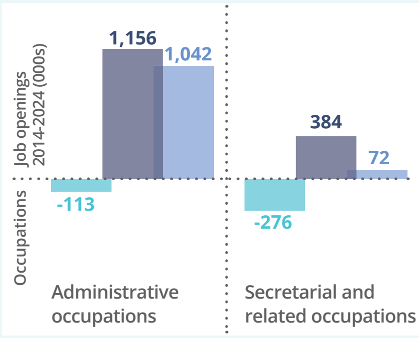
Associate Professional and Technical Occupations

- **2.3 million job openings 2014-2024**
- 1.7 million from replacement demand
- 500,000 from expansion demand



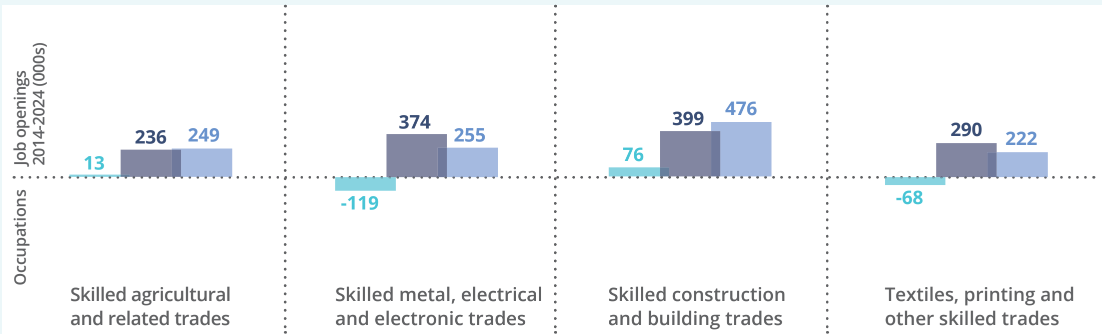
Administrative & Secretarial Occupations

- **1.1 million job openings 2014-2024**
- 1.5 million from replacement demand
- -400,000 from expansion demand



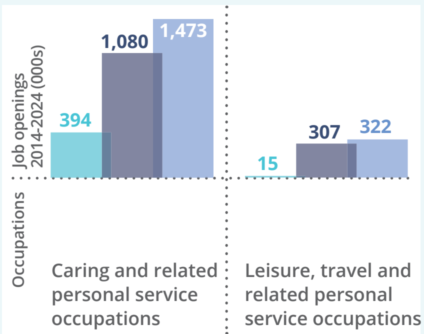
Skilled Trades

- **1.2 million job openings 2014-2024**
- 1.3 million from replacement demand
- -100,000 from expansion demand



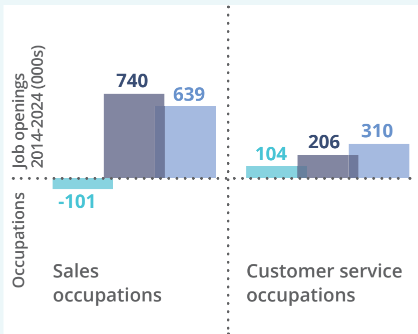
Caring, Leisure & Other Service Occupations

- **1.8 million job openings 2014-2024**
- 1.4 million from replacement demand
- 400,000 from expansion demand



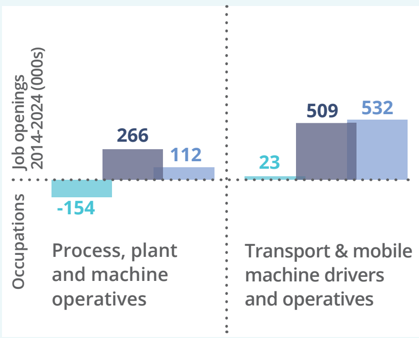
Sales % Customer Service Occupations

- **950,000 job openings 2014-2024**
- 950,000 from replacement demand
- 3,000 from expansion demand



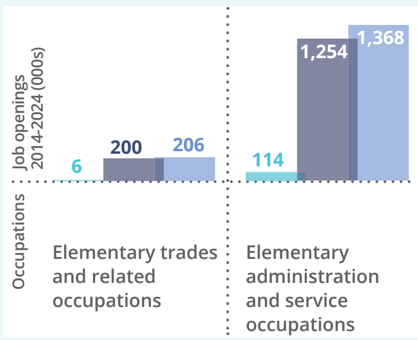
Process, Plant and Machine Operatives

- **650,000 job openings 2014-2024**
- 800,000 from replacement demand
- -150,000 from expansion demand



Elementary Occupations

- **1.6 million job openings 2014-2024**
- 1.5 million from replacement demand
- 100,000 from expansion demand



Qualifications

Along with occupation, formal qualifications are an important means of defining and measuring skills in the labour market.

The latest Working Futures projections indicate that, based on recent trends, the qualification profile of employment will continue to see a shift towards more people holding more high level qualifications.

By 2024, around 54 per cent of people in employment are expected to be qualified at level 4[2] and above, whilst the proportion of people with no formal qualifications is expected to fall to two per cent.

The changing qualification profile reflects both supply and demand factors, although since they interact it is difficult to separate out the individual influences of each.

The supply of skills in the labour market is set to continue to grow, as educational participation levels remain strong and more people (especially young people) acquire higher level qualifications. At the same time, older people, who are less well-qualified on average, will retire from the labour force.

Growing demand for formal qualifications is most clearly reflected in the marked shift in occupational employment structure in favour of the three highest skilled occupational major groups, which tend to employ higher qualified people (see above).

Looking at the qualification profiles within occupations (the shares of employment qualified at different levels) in almost all cases these have changed in favour of higher level qualifications (RQF4+), combined with sharp reductions in the employment shares of those less well qualified (RQF1 and below). How much this is due to increasing skill requirements within jobs, as opposed to "qualifications inflation" (as supply has risen) remains a bone of contention.

2014-2024 % change	-41%	-7%	-6%	42%	30%
2014 2024 level Selected examples of qualifications	**No qualification and Level 1** GCSE (grades D-G) BTEC award, certificate and diploma level 1 **2014** 6,293,000 **2024** 3,688,000	**Level 2** GCSE (grades A*-C) NVQ level 2 **2014** 6,607,000 **2024** 6,134,000	**Level 3** AS and A level BTEC National **2014** 6,633,000 **2024** 6,243,000	**Levels 4-6** Certificate of higher education (L4) Foundation degree (L5) Bachelor's degree (L6) **2014** 10,527,000 **2024** 14,897,000	**Levels 7-8** Master's degree (L7) Doctorate (L8) **2014** 3,107,000 **2024** 4,030,000
2024 % share	**No qualifications and Level 1** 11%	**Level 2** 18%	**Level 3** 18%	**Levels 4-6** 43%	**Levels 7-8** 12%

[2] The Regulated Qualifications Framework categorises qualifications by size and difficulty ranging from entry level to level 8 (Ofqual, 2015). The Scottish Credit and Qualifications Framework applies to Scotland.

Occupational profiles

The following profiles provide illustrative examples of three occupational groups and demonstrate how the changes in the labour market projected by Working Futures are likely to influence them.

Occupational Profile
Caring personal service occupations

A key feature of the UK labour market is the rapid growth in demand for workers who provide caring services to a variety of client groups.

UK employment in caring personal service occupations is 2,464,000. Workers in this occupational group provide personal care services to customers, including care of the sick and elderly and supervision and care of children.

Examples of specific roles in this group include care workers, health care assistants, childminders and teaching assistants.

There are often no formal academic entry requirements for these occupations but specific vocational qualifications are typically mandatory, alongside registration with professional or statutory bodies.

People employed in this occupational group are likely to be female (87 per cent of total jobs), and 52 per cent of jobs are part-time.

Median weekly pay for this occupation is £250, around 59 per cent of the average for all jobs (Office for National Statistics, 2015). Although pay tends to be relatively low, jobs in this group are often felt to be personally rewarding.

Employment in this occupation is heavily concentrated in health and social work and residential care, accounting for 62 per cent of current jobs. A key challenge facing this sector is the UK's aging population. By 2037 it is expected that more than 1 in 10 (13 per cent) of people in the UK will be aged over 75. This is increasing the demand for caring and personal service workers, particularly since the tasks they undertake are more difficult to automate than for some occupations.

Employment in this occupation is expected to grow quickly between 2014 and 2024; at a rate of 16 per cent compared with an average for all occupations of 6 per cent.

Replacement needs are also significant with over 1 million job openings projected for this occupation arising from the need to replace workers who leave the labour force.

As well as seeing significant growth in demand this occupational group is expected to see changes in task and skill requirements, resulting from technological innovation and new business and delivery models.

It is anticipated that this occupation will be impacted by increased demand for home care and tele-care services, particularly for the elderly, as the high costs of nursing and residential care stimulates more home-based provision of services. It seems likely that that social care workers will increasingly be required to handle advanced care technology, for example care robots[ii].

Occupational Profile
Science, research, engineering and technology professionals

A shift to more sophisticated products and services is driving demand for higher skilled workers in scientific and technical disciplines.

Current employment among science, research, engineering and technology professionals stands at 1,712,000.

Workers in this occupational group apply extensive, high-level scientific and technical knowledge in a practical setting. The group includes scientists, engineering professionals, information technology professionals and R&D managers.

Examples of specific occupations include:

- Chemical scientists
- Civil engineers
- Mechanical engineers
- Programmers and software developers
- Web designers and developers.

The majority of the workforce is male (82 per cent) and only 7 per cent of current roles are part time. However, part-time employment in this occupation is projected to grow rapidly in the period to 2024 (by 13 per cent compared with 6 per cent for all jobs), with male part-time employment in particular expected to see a percentage change of 28 per cent.

In line with their professional status these jobs are highly paid. Median weekly pay for the occupational group stands at £732 compared with a figure for all jobs of £418[iii, iv]. Employers face persistent skill shortages (vacancies that are hard-to-fill because of a shortage of skilled applicants) in this occupational area, particularly for engineering and IT professionals[v].

The highly skilled technical jobs that fall within this occupational group are now widely distributed across industry sectors. 14 per cent of employment in the occupation falls within manufacturing but business and other services account for over half of employment. The main driver of jobs growth in these occupations is the way work is being re-organised, with a shift to more sophisticated products and services driving an increased requirement for higher skilled workers in technical disciplines.

As with other professional groups, employment in this occupation is expected to grow strongly between 2014 and 2024 at a rate of 13 per, more than twice the average for all occupations of 6 per cent. This equates to net growth for the period of more than 200,000 jobs.

In addition, more than 500,000 further job openings are projected to arise from replacement demands.

The jobs in this occupation are undergoing significant change. The UK Commission's Future of Work study, found that high level STEM skill requirements are being transformed by fundamental global trends relating to business, technology, society and the environment. The boundaries between disciplines are becoming increasingly blurred. For example, the inter-disciplinary scientific field of bio-informatics seeks to develop methods and software to understand biological data using techniques and concepts drawn from informatics, statistics, mathematics, chemistry, biochemistry, physics, and linguistics. in the field of information and communications technology, high demand is expected for data management, analysis and visualisation skills as the amount of data transferred, collected, and stored increases exponentially[vi].

Occupational Profile
Construction and building trades

Prospects for employment growth in skilled construction trades are closely tied to future investment in housebuilding and infrastructure and the performance of the wider economy.

UK employment in the construction and building trades occupational group is currently 1,176,000.

Jobs within skilled construction and building trades include:

- Steel erectors
- Bricklayers and masons
- Roofers, roof tilers and slaters
- Plumbers and heating and ventilating engineers
- Carpenters and joiners
- Glaziers, window fabricators and fitters.

A common feature of these jobs is that they involve complex physical duties that normally require a degree of initiative, manual dexterity and other practical skills. Entrants to this occupational group generally undertake a substantial period of training, typically provided by means of a work-based training programme, such as an apprenticeship.

Nearly all jobs (98 per cent) in this occupational group are held by men and over half (57 per cent) of the workforce are self-employed.

Median weekly pay is £482, around 15 per cent higher than the average for all jobs (£418). This relatively high rate of pay reflects the requirement to develop skills through an extensive period of work-based training and the fact that many of the jobs are physically demanding.

The vast majority (72 per cent) of employment in the occupational group is concentrated in the construction sector. The relatively positive prospects for this sector over the next decade, arising primarily out of infrastructure investment and housebuilding (see construction sector profile for further details) is expected to drive job growth in construction trades.

Employment performance in this occupational group is sensitive to the overall level of growth in the economy.

Employment in construction and building trades has been less vulnerable to the negative impact of factors like automation and offshoring of production, which have weighed heavily on employment in some other skilled trades occupations, notably those associated with the manufacturing sector.

Employment in this occupation is expected to grow at a rate of 6 per cent between 2014 and 2024, similar to the average for all occupations. A further 400,000 job openings are projected to arise from replacement demands.

As well as seeing significant growth in demand this occupational group is expected in future to see changes in task and skill requirements, resulting from technological innovation and new business and delivery models. For example, a shift towards off-site construction methods is likely to influence the demand for and skills required from a range of jobs, including bricklayers, plasterers and painters and decorators. Employment related to new-build activities is likely to be affected more significantly than repair and maintenance activity[vii, vii].

Conclusions

This report contains a number of important messages concerning the future shape of the UK labour market. The headline messages are drawn together below.

With regard to expected sectoral trends:

- Private services are forecast to be the main engine of employment growth, contributing more than 90 per cent of net additional jobs between 2014 and 2024. Business and other services activities such as professional services and Information technology are expected to see the strongest rates of job growth.
- Manufacturing is expected to see a continued decline in jobs although this will be coupled with output and productivity growth, implying that jobs in the sector will become more skilled.
- The construction sector is forecast to rebound to become the strongest performing of the six broad sectors in terms of both output and employment.
- With regard to public sector activities, health and social care is expected to generate a large number of additional jobs but growth prospects for education and public administration are expected to be muted, particularly in the first half of the forecast period.

With regard to occupational trends:

- We expect to see continuing polarisation of employment but with a strong bias towards higher skilled occupations.
- Net combined growth of close to 2m jobs is projected for managers, professionals and associate professionals over the course of the decade.
- The other main source of growth is expected to be Caring, leisure and other service roles, with more than 400,000 additional jobs.
- The largest source of net decline over the course of the decade is projected to be administrative and secretarial occupations, with 390,000 fewer jobs. Process, plant and machine operatives (-130,000) and skilled trades occupations (-100,000) are also projected to see job losses.
- Although some occupations will be “winners” and others “losers” in terms of net change in levels of employment, it is crucial to recognise that replacement demands will mean continued job openings (and career opportunities) across all broad occupational areas, including those projected to see net decline.

With regard to qualifications:

- The projections indicate that we will continue to see a shift towards more people holding more high level qualifications. By 2024, it is expected that 54 per cent of jobs will be held by people qualified at level 4 and above.
- The average qualification level held is expected to rise within all occupations. How much this is due to increasing skill requirements within jobs, as opposed to “qualifications inflation” (as supply has risen) is a matter of debate.

Other outputs available from Working Futures:

- Working Futures 2014-2024 full length evidence and technical reports.
- Annexes containing: Comparisons with previous projections. Trends in employment and output by nation of the UK and regions of England. Methodological details relating to the spatial analysis.
- Excel workbooks containing analysis for the UK, nations and English regions.

For further details and to access the previous Working Futures reports and data visit:
www.gov.uk/government/collections/the-future-of-jobs-and-skills

Endnotes

[i] UK Commission for Employment and Skills (2015) Sector insights: skills and performance challenges in the advanced manufacturing sector. UK Commission for Employment and Skills, Wath upon Dearne.

[ii] UK Commission for Employment and Skills (2014) The Future of Work. Jobs and Skills in 2030. UK Commission for Employment and Skills, Wath upon Dearne.

[iii] Weekly, gross, median pay for all employees in UK 2014.

[iv] Office for National Statistics (2015) Annual Survey of Hours and Earnings, 2014 Provisional Results.

[v] UK Commission for Employment and Skills (2015) High level STEM skills requirements in the UK labour market UK Commission for Employment and Skills, Wath upon Dearne.

[vi] UK Commission for Employment and Skills (2014) The Future of Work. Jobs and Skills in 2030. UK Commission for Employment and Skills, Wath upon Dearne.

[vii] Construction Skills (2008) 2020 vision- the future of UK construction. Accessed 08/03/16 from: **https://www.citb.co.uk/documents/research/csn%20outputs/2020-vision-future-uk-construction-executive-summary.pdf**

[viii] UK Commission for Employment and Skills (2015) Evaluation of UK Futures Programme. Final Report on productivity challenge 1: Offsite Construction. UK Commission for Employment and Skills, Wath upon Dearne.

Working Futures 2014-2024 is produced by Warwick Institute for Employment Research and Cambridge Econometrics on behalf of the UK Commission for Employment and Skills.

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