



National Foundation for  
Educational Research



# The Skills Imperative 2035: Essential Skills for Tomorrow's Workforce

# The Skills Imperative 2035 - An Overview

NFER is leading a five-year research programme, The Skills Imperative 2035.

The project is funded by the Nuffield Foundation and is designed to identify what the labour market will look like by 2035, what 'Essential Employment Skills' (EES) will be most needed to do these jobs and who is most and least likely to have those skills. It also highlights what needs to happen to help people develop these skills so that they can successfully enter or remain in the labour market.

## Job changes

This programme looks at how the labour market is changing and which sectors and jobs will grow and decline.

Sector growth will primarily be in areas such as non-marketed services (including health and education), while trade, accommodation, transport and manufacturing are projected to decline.

More than a million jobs in lower-skilled occupations could disappear. This poses a threat to low-skilled workers and low-skilled young people looking to enter the labour market.

Most new jobs will be in professional occupational groups (e.g. science, engineering, legal, medical occupations), while administrative and secretarial, elementary and skilled trades (e.g. electrical, printing, agricultural trades) will see the largest declines.

## Essential Employment Skills for the future labour market

Based on our labour market projections, we identified the six Essential Employment Skills (skills that complement technical skills) which will be the ones **most needed** in 2035.

These are:

1. Collaboration
2. Communication
3. Creative thinking
4. Information literacy
5. Organising, planning and prioritising
6. Problem solving and decision making

These skills are already very important today but will be even more vital across the labour market in 2035. This is because they will be utilised more heavily, and because new jobs will mainly be created in professional occupations that make greatest use of these skills.

## Skills deficiencies and skills under-utilisation

As part of the research programme, we conducted a survey of adults and young people to estimate both the EES that people possess and the skills required for their jobs. We estimated current skills gaps and explored how these might change between 2023 and 2035.

We found that many people already have significant EES deficiencies (i.e. they don't have enough of these skills to meet the requirements of their jobs). Putting numbers on this, 13 per cent of workers now, rising to 22 per cent by 2035, will have substantial EES deficiencies, and many of these deficiencies are in jobs that will grow by 2035. This means around seven million workers won't have the EES they need to do their jobs effectively in 2035.

We also found that workers, particularly those in the some of the occupations likely to decline the most by 2035, have reported a high level of under-utilised EES. This means they are reporting they have these skills, but are not using them in their current roles – in other words, they are ‘latent’ skills. Putting such skills to use could be beneficial to employers as they could help fill skills gaps, as well as helping workers to transition to other jobs and sectors.

### Opportunities, threats and barriers

Changes in the labour market – both in terms of the jobs that will exist and the skills needed to do them - pose opportunities and threats for those already in the labour market, and those about to enter it.

These changes offer opportunities to improve living standards by moving capital and labour into more productive occupations, which typically offer workers better wages.

However, they also carry threats, particularly for workers in occupations that are projected to decline, and who lack the skills and qualifications to move into growing, higher-skilled occupations.

Young people who possess the higher skills levels (particularly Essential Employment Skills) and qualifications needed to enter growing occupations will have more opportunities to enter relatively well-paid, professional jobs.

Young people without the skills (particularly Essential Employment Skills) and qualifications to enter growing professional jobs, will have fewer opportunities to enter the labour market via low-skilled occupations, given few of these are projected to grow. This makes it harder to absorb these young people into the labour market, and so increases their risk of being outside of education, employment and training (NEET).

Mitigating the effects of change on these groups should be as much of a priority for government, employers and the wider sector as seizing the benefits of growth in the number of professional jobs.

This could be achieved in two ways:

- First, by supporting more workers displaced from declining occupations to move into growing occupations, either before they fall out of work or in the immediate aftermath of being made unemployed.
- Second, by ensuring more young people have the skills (particularly EES) and qualifications needed to enter growing occupations when they enter the labour market, and reducing skills inequalities.



## Recommendations

In October 2024, two weeks before the Autumn Budget, we convened a roundtable of experts - representing education providers, employers, government, and civil society - to consider the main barriers to workers in 'high-risk', declining occupations making successful transitions into growing occupations, and how these barriers could be overcome.

Roundtable attendees identified seven main barriers to successful transitions:

- Workers' time and money
- Government and employer investment
- Information and awareness
- Psychological barriers to reskilling and changing careers
- Geography (including transport and housing)
- Limited strategic workforce planning
- Management capability and training

These barriers can be overcome, but doing so will require a collective and sustained effort from government, employers, education providers, unions and wider civil society.

Roundtable attendees acknowledged many existing government initiatives and policies have the potential to reduce the barriers listed above, including, for example, the Lifelong Learning Entitlement (LLE), the Growth and Skills Levy and Local Growth Plans. However, they also identified opportunities to raise awareness of existing entitlements and build on existing policy commitments.

Their suggested solutions fell into ten areas:

- Employer investment in adults skills
- Government investment in adult skills
- Individuals investment in adult skills
- Tailored careers advice and support
- Connecting homes and work (transport and housing)
- Strategic skills-based workforce planning and recruitment
- Management training and development
- Trust, collaboration and multiagency working
- Investment in the further education (FE) workforce
- Training courses and qualifications for working adults.

Statutory local growth plans are key to bringing together these stakeholders. Supporting workers in high-risk occupations to reskill and successfully transition into growing areas of the economy should be a key objective in these plans. When aggregated at the national level, these plans also need to connect to the government's national industrial strategy and post-16 skills strategy.

The programme's next phase will see NFER examine factors associated with young people's skill development throughout childhood.



# The Skills Imperative 2035 - Working Papers and Reports

## **Working Paper 1: Essential Employment Skills (EES), Published March 2022**

*This literature review suggested what the world of work will look like in 2035 and which EES will be in demand.*

## **Working Paper 2: Occupational Outlook, Published October 2022**

*This report provided detailed estimates of the shape and composition of the future of the labour market.*

## **Working Paper 3: 2035 Skills Projections, Published May 2023**

*This report identified the skills that will be most needed in the future labour market.*

## **Working Paper 4: Rethinking Skills Gaps and Solutions, Published June 2024**

*This report measured the skills gaps that exist between the EES people possess and the skills requirements of their jobs.*

## **Working Paper 5: High-Risk Occupations, Published September 2024**

*This report examined the impact of anticipated changes in employment and skill requirements on workers in the labour market.*

## **Recommendations Report: Supporting Workers in High-Risk Occupations, Published December 2024**

*Recommendations from a private roundtable event hosted by NFER.*

## **Working Paper 6: Estimated Publication Early 2025**

*This report will investigate skill development during childhood.*

## **Working Paper 7: Estimated Publication Early 2025**

*This report will identify the factors driving skill development in high-performing education systems.*

## **Working Paper 8: Estimated Publication Spring 2025**

*This report will examine the relationship between people's EES in adulthood and their educational pathways earlier in life.*

## **Final Report: Estimated Publication Autumn 2025**

*This report will set out how to develop a comprehensive skills strategy to meet skills needs in 2035.*

# Working Paper 1: What does the literature tell us about essential skills most needed for work?

*Published March 2022*

## Overview

Exploring the wide-ranging and growing evidence base, this paper set the scene for our wider research study by bringing together what the literature suggests about:

- What the world of work will look like in 2035
- Which employment skills will be in demand and how we should prepare.

## Key Findings

1. Workers with low levels of education or in low-skills/routine tasks continue to be at risk from automation, particularly in areas such as production, manufacturing and administration. However, artificial intelligence (AI) will also impact higher skilled jobs.
2. Human reasoning and interaction will be important in expected growth areas (such as health, social care and education) as well as in areas more typically associated with the future, such as digital, technology and green industries.
3. Urgent action is needed to ensure future skills supply and worker employability, given that around 1.5% of the manufacturing workforce in the EU has already been displaced by technology and 22% of current workforce activities across the EU could be automated by 2030.
4. The pandemic has accelerated the pace of digitisation, automation and AI and exacerbated labour market inequalities, again underlining the need for action.

## Supporting young people in education and training

There are a number of strategies (in the UK and overseas) which aim to increase essential employment skills among school and further education students and can be built on. These include:

- **Frameworks** – such as *Skills Builder* (UK) – support development and assessment of eight essential skills through a series of steps. Similarly, a framework developed by the Centre for Curriculum Redesign (USA) matches skills to academic school subjects.
- **Curriculum, pedagogic and assessment approaches** – the OECD's Learning Compass and Fostering Students' Creativity and Critical Thinking both support schools to develop curriculum, pedagogic and assessment approaches.
- **Real-world learning and experience approaches** – such as the Edge Foundation's *Future Learning* (UK) – provide opportunities for skills development through project work, volunteering, internships, work-based learning/work-experience, and careers education.

# Working Paper 2: Occupational Outlook - Long-run employment prospects for the UK

*Published October 2022*

## Overview

Using the Working Futures methodology, this second set of reports provided detailed estimates of the shape and composition of the future labour market.

## Key Findings

1. There are projected to be 2.6 million new jobs in between 2020 and 2035, the majority of which will be taken by women, reflecting the increasing participation of women in the labour market. The projections also show that jobs most vulnerable to automation are currently mainly held by men.
2. The adoption of new technologies in the labour market are projected to lead to millions of jobs being displaced. However, there will be plenty of new opportunities too, which will offset these losses, in particular in higher skilled jobs and healthcare roles.
3. Employment in the health sector is expected to increase the fastest, with around 369,000 new jobs by 2035.
4. Most of the new jobs created by 2035 will be in professional occupations.

## Recommendations

1. A cross-cutting body should be established, which reports directly to the Cabinet Office. This body would be responsible for working effectively across Government departments, with employers and others, in order to ensure that appropriate strategies are developed to (i) understand the implications of these changes in more detail and (ii) set out how the Government, employers, training providers and the education system should respond, drawing on views and expertise from across and outside Government.
2. Industry leaders and representative bodies, working with regional and local partners including Mayoral Combined Authorities and local authorities, should assess what these projections mean for employment and output growth in their regions/sectors/industries. They should also assess the implications for the business-critical occupations they will need in future and start planning what actions they need to take.

# Working Paper 3: An analysis of the demand for skills in the labour market in 2035

*Published May 2023*

## Overview

There are currently over a million job vacancies in this country but there are projected to be 2.2 million new jobs in England between 2020 and 2035. This paper looked at the future demand for skills and identified a set of six 'Essential Employment Skills' (EES), which will be the most heavily utilised skills across the labour market in 2035.

The Essential Employment skills are:

1. Collaboration
2. Communication
3. Creative thinking
4. Information literacy
5. Organising, planning and prioritising
6. Problem solving and decision making

## Key Findings

1. Anticipated changes to the labour market threaten to exacerbate existing skills shortages, which are already a major issue. Transferable 'essential employment skills' – for example communication, collaboration and problem-solving - will be in greatest demand across the labour market in 2035.
2. Job growth in managerial, professional and associate professional occupations, who utilise these skills more intensively than other workers, accounts for over 90 per cent of the net growth in jobs between 2020 and 2035
3. Changes in the composition of the labour market will also drive increases in the demand for certain specialist skills.
4. Six essential employment skills emerge, which are projected to be in greatest demand in the labour market of 2035: collaboration; communication; creative thinking; information literacy; organising, planning & prioritising; problem solving & decision making.

## Recommendations

1. The availability of these skills across the workforce will need to be increased to help and support more workers to acquire the skills to 'move up' the occupational hierarchy, and ensure young people have higher average levels of these skills than previous generations when they first enter the workforce.
2. It is imperative that a better understanding of the availability of Essential Employment Skills in the labour market is built. Further knowledge should be gained on how these skills develop, and the role that the education and training systems play in developing them.

# Working Paper 4: Rethinking skills gaps and solutions

*Published June 2024*

## Overview

This paper quantified the current availability of EES amongst the population. It measured the skills gaps that exist between the EES people possess and the skills requirements of their jobs, and explored how these skills gaps might change between now and 2035.

## Key Findings

1. Thirteen per cent of workers in 2023 have 'substantial' EES skills deficiencies – meaning the skills requirements of their current jobs surpass the skills they possess - which may be jeopardising their ability to fulfil their job requirements effectively.
2. Nearly one in five workers in managerial jobs (e.g. HR managers and directors), professional jobs (e.g. accountants) and associate professional occupations (e.g. engineering technicians) have substantial EES skills deficiencies.
3. The number of workers in England with 'substantial' EES deficiencies may grow from 3.7 million workers in 2023 up to seven million workers in 2035.
4. Self-report data indicates that 14% of workers have substantial EES under-utilisation – that is, the skills they possess are higher than those required to do their jobs. Our analysis shows that skills under-utilisation is more widespread among jobs such as skilled trades, sales, customer services and administration. Tapping into these latent skills will become increasingly important for employers in the future.

## Recommendations

1. Employers grappling with skills gaps should consider what more they can do to align expectations and skills assessments between managers and workers across their workforce.
2. Employers should consider what more they can do to support their line managers to identify and utilise the 'latent' EES of their workers, particularly the under-utilised skills of workers in mid and low skill level occupations.
3. Government should further incentivise employer investment in the development of their workforce's EES.
4. Government and institutional funders should fund more research to i) understand the causes, scope and consequences of perception differences between employers and employees, ii) identify the determinants of EES, and iii) identify the most effective strategies for educators and employers to assess and develop EES.
5. The Department for Education (DfE) should consider what more it can do to support education and training providers to adopt the best strategies for assessing and developing people's EES.

# Working Paper 5: Anticipating changes in the future labour market and supporting the workers at greatest risk

*Published September 2024*

## Overview

Having previously evaluated existing skills gaps and highlighted solutions, this paper examined the impact of anticipated changes in employment and skills requirements on workers in the labour market. We identified the workers in occupations most at risk of being displaced by technology and considered how they can make transitions into growing occupations, either from an existing job or after becoming unemployed.

## Key Findings

1. Around 12 million people in England work in occupations that are projected to decline between now and 2035. More than a million jobs in these occupations could disappear in the coming decade, including secretarial, administrative, sales, and various elementary occupations.
2. Workers in these jobs possess the lowest levels of Essential Employment Skills (EES) on average, suggesting their levels of these skills may pose a significant barrier to successful transitions. However, some workers report not currently utilising all the EES they possess.
3. Over the past decade, workers in these jobs have been significantly more likely to transition either into unemployment or economic inactivity than other workers.
4. When changing jobs, around three quarters of workers in high-risk occupations have moved into other jobs in high-risk occupations over the past decade. However, the number of jobs in these occupations will decrease, limiting opportunities for displaced workers.

## Recommendations

1. Government and employers should develop plans to support more workers displaced from declining occupations to move into growing occupations, either before they fall out of work or in the immediate aftermath of being made unemployed.

# Recommendations Report: Supporting workers in high-risk roles

**Published December 2024**

## Overview

We convened a roundtable of experts representing education providers, employers, government, and civil society. The discussion focussed on barriers and solutions for workers to successfully transition from high-risk roles into growing professions. The discussion led to the following recommendations to support effective transition.

## Barriers

1. Workers' time and money are significant barriers to reskilling or upskilling in order to transition into new professions.
2. Over the past decade, there have been substantial reductions in public and private sector employer investment in adult skills, which have left workers with the choice of covering the cost themselves, or not developing skills.
3. Some workers in high-risk occupations may not be aware that their jobs are set to decline, or know which occupations are set to grow.
4. Poor transport connections can sometimes pose significant restrictions to some workers.

5. Some workers may struggle with envisioning a change of career, identifying alternative occupations compatible with their values and skills.
6. Some employers may not fully consider how their skills requirements are likely to change in the future, which can mean headcount decisions are made without the time to help workers in declining areas move into higher-demand areas.
7. Some management lack the capacity to utilise their employees skills to help the evolving needs of the workforce.

## Recommendations

### *Government should:*

1. Prioritise the reinvigoration of adult education and skills, including by increasing real-terms public investment close to the levels of the early 2010s.
2. Explicitly encourage employers to invest more in adult skills and recognise organisations that are already investing heavily in this area.
3. Strengthen the Right to Request Time Off so people can remain employed while retraining in unpaid career breaks.

4. Ensure housing and transport policy reflect current and future local skills needs and gaps and support workers to take up jobs in growth occupations
5. Simplify and raise awareness of the existing financial support available to workers to retrain and change careers
6. Increase access to adult-orientated careers and training guidance and advice.
7. Provide additional funding to the FE sector to increase FE teacher pay, in order to attract and retain a high-quality FE teaching workforce by reducing pay disparities with industry and schools.

### *Employers should:*

8. Where possible, invest more in developing the skills of their own workforces, particularly the skills of workers in declining occupations.
9. Where possible, invest more in management training and continue to strengthen their strategic workforce planning capabilities.

### *Education providers should:*

10. Create training courses and qualifications that are tailored to meet the needs of working adults and enable them, where necessary, to learn whilst working.



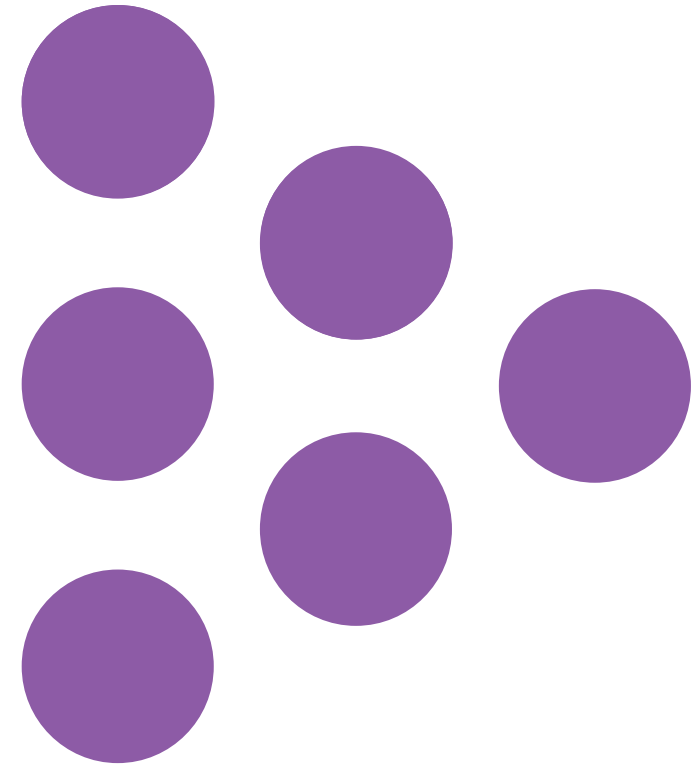
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## Principle Investigator:

- Jude Hillary, NFER

## Co-investigators:

- Shyamoli Patel, Cambridge Econometrics
- Professor Rob Wilson, University of Warwick
- Professor Andrew Dickerson, University of Sheffield
- Professor Bryony Hoskins, University of Roehampton
- Richard Brind, Kantar Public
- Professor Steven McIntosh, University of Sheffield
- Sam Avanzo-Windett, Learning and Work Institute



## Learn more about NFER

If you would like to know more about our, our resources, and our services, or about partnering with us in our work, please get in touch:

NFER Head Office

T: +44 (0)1753 574123  
enquiries@nfer.ac.uk

In a world of unprecedented disruption and change, caused by a global pandemic, social upheaval, technological innovation and the climate crisis, it is more important than ever that education policy and practice is informed by high-quality evidence.

NFER exists to create this evidence and get it into the hands of those who can use it to make a difference.

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