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# PATHWAYS TO PROGRESS

## IMPROVING ACCESS TO FUTURE-FOCUSED WORK FOR WOMEN ON LOW INCOMES

# AUTHORS

Teodora Chis, Eliza Bacon, Sarah Holliday, Charlotte Macken and Olivier Usher

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# ACKNOWLEDGEMENTS

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# ABOUT CHALLENGE WORKS

Challenge Works designs and delivers open innovation competitions that uncover solutions to the world's biggest problems. Through these challenge competitions, governments, corporations and charities achieve their goals to increase social impact, improve outcomes for local and global communities and catalyse policy change. A social enterprise founded by innovation agency Nesta, we've distributed more than £100 million in seed funding to winning innovators in the last 10 years.

Our Challenge competitions champion open innovation. We reward the most promising solutions with seed funding and expert support, and the innovation that is the best or quickest to solve the problem wins the prize. This approach levels the playing field for innovators from any background or level of expertise, so the process itself inherently encourages diversity and a wider distribution of wealth.

We've delivered 86 challenges to date, ranging thematically from climate change to inequality, global health to technology frontiers. And we've empowered over 13,000 entrepreneurial teams to help us do so.

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# PATHWAYS TO PROGRESS
## IMPROVING ACCESS TO FUTURE-FOCUSED WORK FOR WOMEN ON LOW INCOMES

# EXECUTIVE SUMMARY

**Now is the moment to ensure that women on low incomes have equal access to opportunities in the changing job market**. The world of work is undergoing transformations in response to: the mission to reach net zero, the UK's investment in critical technologies, and the digital transition. These changes will impact the type and quality of job opportunities available in the future. Economic shifts of this nature tend to benefit those who can take advantage of the new opportunities, and disadvantage others. As it stands, women on low incomes are among those who are at risk of being disadvantaged.

**This research provides rich qualitative insights into key challenges that need to be tackled for women on low incomes to harness emerging opportunities in future-focused work**. Tackling these challenges will ensure the best chance of: women on low incomes not getting 'left behind' as the job market changes; the economy benefitting from an active workforce; and businesses finding the strongest talent. The research draws insights from in-depth interviews with training providers, career coaches, charity leaders, employers, and researchers working in this space; workshops that brought together professionals working in this field and women with lived experience of being on a low income; and a review of existing literature on the subject.

**Key findings include:**

- Future-focused industries and occupations are unfamiliar to women on low incomes, which means that **finding and transitioning into many future focused industries and occupations is perceived as higher risk**

We define future-focused work as work that is likely to grow in demand in the future, and which can be considered to be highly desirable for people, communities, and the planet.

- Women on low incomes are likely to face various immediate pressures and constraints that make it considerably **more difficult for them to take risks and make long term, strategic career decisions**

- In order to facilitate these low income women transitioning into future-focused careers, employers will need to: **adjust qualification requirements and job design to become more flexible, accommodate on-the-job learning, and tailor recruitment strategies to actively target a more diverse pool of applicants**

- However, **current commercial restraints, funding environments and attitudes** inhibit the abilities of employers and service providers to accommodate and incentivise participation

This research has generated a number of actionable recommendations for policy-makers, funders, service providers and employers, which are outlined at the end of this report, alongside a series of **concrete opportunities for action and recommendations for innovation programmes** (see Programme proposals box) stakeholders can pursue to shift the dial on several key areas:

- **Using human-centred design** to deliver interventions that are tailored to the needs of women on low incomes

- **Accounting for caring responsibilities** and the barriers that these responsibilities might pose to women on low incomes when designing programmes, services, and employment practices

- Creating a **data environment** that supports interventions across the ecosystem

- **Improving impact measurement approaches** to better account for the needs and circumstances of women on low incomes

- **Improving the funding ecosystem** by taking a more adaptive approach to funding decisions

- Enhancing, strengthening, and leveraging **local community infrastructure**

- **Improving ED&I strategies** (including employment practices and recruitment strategies) to make it possible for women on low incomes to access and progress within future-focused work

- Creating new tools, approaches and collaboration models that **facilitate learning and career coaching at scale**

## Programme proposals

Funders have an opportunity to incentivise a range of innovations that would support women toward future-focused work. To do so, they can deploy a range of methods including challenge-based funding models such as challenge prizes and challenge funds.

We have developed a series of high-level programme proposals to highlight how these funding approaches could be utilised to catalyse change and support innovation.

If you are interested in exploring any of these recommendations further please reach out to the Challenge Works team info@challengeworks.org

1. A multi-year, multi-million challenge fund bringing together a consortium of funders, employers, training providers, community-based organisations and local policymakers to **create collaborative models that support the full journeys of women on low incomes**

2. A challenge prize calling innovators to **create labour market information-enabled tools** that enable career advisors to provide higher quality support

3. A challenge prize programme to support the **creation of new technology-enabled tools and models to deliver training** in a more effective, affordable, and flexible manner

4. A seven figure challenge fund that enables innovators to prototype, trial, test, and commercialise a range of **solutions that provide women on low incomes with better quality, more affordable, and more readily accessible childcare support services**

More broadly, we must pay attention to ethos and approach. In transforming support for women on low incomes, we propose that the actions of all stakeholders are guided by the following principles:

- **Solutions must be co-created**: there is no one size fits all approach to job design nor training and employability programmes. Consultation, human-centred design and rigorous evaluation will ensure that solutions are tailored to those who use them

- **Support needs to be long term**: predictable funding and prolonged evaluation will give solutions the best chance to embed impact, affect systemic change and ensure that women receive the sustained support they require to achieve resilient progress

- **Partnerships are crucial** to optimise sharing of knowledge, data and good practices, align training programmes with employers, and strengthen recruitment networks

- **Investment in innovation** will enable continuous improvement of mentoring and training models, recruitment channels, childcare models and job design

# I. INTRODUCTION

## Background to the research

### The world of work is undergoing several transformations in response to the mission to reach net zero, the UK's investment in critical technologies and the digital transition

The **mission to reach net zero** emissions by 2050, paired with the emerging challenges of climate adaptation, require a wide range of interventions across business and society – from investing in technology and innovation, to transforming existing infrastructure and housing. The green transition is expected to create 440,000 jobs by 2030, (according to Government's Net Zero Strategy)[1] and transform many existing ones.[2]

The UK government's broader ambitions to strengthen its innovation ecosystem mean that increased attention and funding are being channelled into **critical technology families**, including artificial intelligence, engineering biology, future telecommunications, superconductors, and quantum technologies.[3]

Similarly, the **digital transition**, which has been underway for the past few decades, has set in motion a rapid shift in the types of skills required in the workplace.

### These changes are likely to impact the type and quality of job opportunities that are available in the future

Work-from-home directives during the Covid-19 pandemic made **hybrid and fully remote working arrangements** more mainstream, which has only accelerated the digital transition. Meanwhile, the so-called 'Great Resignation' (a contested phenomenon)[4] is thought to be the source of the sharp post-pandemic rise in UK **business start-up**,[5] as well as the increasing number of people engaged in **gig work**,[6] and **zero hours contracts.**[7]

Furthermore, the current pace of technological development means that, whilst some roles are at risk of being displaced by **automation technology**, entire new industries are being created – and there is little guarantee those doing "sunset jobs"[8] will benefit from emerging opportunities. **New technologies** such as generative AI create additional uncertainties because they challenge assumptions about which tasks are most at risk of automation (E.G. low-skilled, routine activities in elementary jobs)[9] and which are harder to replace (E.G. rules-based middle-skill jobs, creative skills, and high-skill tasks).

### As jobs transform we must ensure that future work is good work

These broader societal trends and aspirations for economic growth will require stakeholders to adapt to shifts in skills demand, including the creation of new occupations and forms of work, and the disappearance of others.

Equally important, we need to ensure that future work is **good work**. The importance of employee **wellbeing**

in workforce retention has gained more attention after the pandemic, and business leaders say they are increasingly concerned about workforce issues such as **diversity and inclusion.**[10] This is paired with growing frustrations about **pay**: as the UK has seen a rise in **industrial action** that lost the country a total of 843,000 hours in 2022.[11]

## Amidst the changing job market, women on low incomes are at risk of being left behind

As the world of work undergoes changes, there is a risk that women on low incomes are being left behind.

Women are currently underrepresented in STEM industries and overrepresented in low-paying sectors, such as cleaning, retail, hospitality, and care. The former sectors are likely to expand in the future, whereas the latter have been identified as being at risk of automation. A 2019 ONS analysis warns that 70.2% of the roles at risk of automation are currently done by women.[12]

When it comes to entrepreneurship, the picture is not much better. Overall, women are less likely than men to start businesses: only 1 in 3 entrepreneurs in the UK are women, and women-led businesses average at 44% the size of businesses led by men.[13]

Whilst we are seeing a shift in this space (the number of women start-up founders has grown In the past few years) there are concerns that a significant driver of this trend is the rise of "necessity entrepreneurs"[14,15] I.E. people who feel compelled to start their businesses because they have not been able to find employment that suits their circumstances. Such circumstances include a need for greater flexibility due to caring responsibilities and high cost of care support services – a situation in which women on low incomes are likely to find themselves. Emerging data suggests that' more than 4 in 10 women business owners pay themselves just £15,000 or less.[16]

## Now is the moment to ensure that women on low incomes are fully included in emerging opportunities for good work

Although there are identifiable risks associated with the changing world of work, there are also new opportunities. If women on low incomes are able to fully capitalise on these opportunities, the demographic will be better placed to secure high-

quality, future-proofed jobs. This would contribute to overall social mobility in the UK, and help break down patterns of occupational segregation that mean women are overrepresented in the most underpaid and undervalued industries.

# Research aims and questions

This research looks to understand the main barriers and opportunities for adult women on low incomes in the UK to access and capitalise on the economic opportunities of future-focused work.

The experiences of women on low incomes are at the centre of this research; their perspectives have been situated within the broader contexts of UK education, employment and innovation.

**In order to achieve this, the research delves into the following elements**:

- How do women on low incomes currently engage with economic opportunities such as employment and entrepreneurship, both within future focused work and other work. What differences are observed between the two?

- What are the main barriers and pain-points that women on low incomes face when engaging with opportunities in future-focused work?

- What opportunities, services, and support are currently available for women on low incomes, and how effective are these at the moment? What is the state of the art/ best practice when it comes to skills and employment interventions?

- What are the main gaps within the ecosystem, including service provision, policy, awareness, and other types of interventions?

# Definitions

## What is "future-focused work"?

> We define future-focused work as work that is likely to grow in demand in the future, and which can be considered to be highly desirable for people, communities, and the planet.

The world of work is changing at an increasingly rapid pace – the 2023 edition of the World Economic Forum Future of Jobs global survey found that employers anticipate wide-spread disruption, with a structural labour market churn of 23% of jobs in the next five years.[17]

In the next decade, we may see new occupations emerging or becoming increasingly important, such as:

- Emergent specialisms in the existing economy, such as e-health or new methods of construction

- Jobs in renewable energy, from specialised manual labour to research and development

- Jobs in impact-focused finance, including green finance

- New roles spanning sectors, such as machine learning engineers or DevOps engineers

In this context, actors who have the opportunity to shape the system – including employers, policymakers at national and local levels, and funders working in the skills and employment ecosystem – will need to rapidly adapt to these changes.

Our definition of future-focused work encompasses two central dimensions:

**Anticipating the future of work**: Using foresighting methods to monitor and adapt to trends in the labour market through predictive efforts. Others have previously done this through:

- Labour Market Information monitoring (see, for instance, the Unit for Future Skills work)[18]

- Monitoring macro-level trends through industry wise research and expert engagement (see, for instance, the World Economic Forum Future of Jobs survey)[19]

- Scenario-based approaches (E.G. see, for instance, RAND Europe and PwC analyses)[20,21]

**Shaping the future of work**: Subjectively ascertaining which professions, industries, and forms of work should be supported in order to benefit people, communities, and the planet.

- Policy work (see, for instance, the UK government's workforce related aspirations laid out in the Net Zero Strategy)[22]

- Co-design approaches (see, for instance, the RSA's work[23] on the topic of what good work ought to look like)

This can serve as a useful tool for relevant stakeholders to conceptualise and recognise which jobs, skills, professions, and industries are likely to grow in the future, as well as identifying which jobs, skills, professions and industries they think should grow in the future.

Defining future-focused work this way echoes the process by which we have come to define 'green jobs'. The term 'green jobs' was first used to anticipate and shape an evolving and amorphous category of work; as 'green jobs' have become a more established part of the economy, so too has the concept become more rigorously defined.

**Terminology and levels of analysis: why are we saying future-focused 'work' instead of 'industries' or 'jobs'?**

The skills and jobs policy space suffers from a lack of common terminology and data structure. This terminological challenge has real impacts on the UK's ability to predict skill and job demand, particularly when it comes to discussions about "green jobs", "green industries", or the "green sector".[24]

In response, ONS has been developing its definition of "green jobs",[25] which involves both agreeing upon the fundamental question of what makes a job or industry "green" (I.E. its carbon footprint versus whether it offers a sustainability-related service) and the level of granularity with which to apply these definitions (I.E. whether a job is green because it is in a green sector, or because it involves green tasks).[26]

At the moment of writing, the definition used by ONS is "Employment in an activity that contributes to protecting or restoring the environment, including those that mitigate or adapt to climate change."[27]

With this in mind, throughout this report, when discussing 'future-focused work' we might apply this definition with the following levels of granularity:

- Industries, or sub-industries
- Occupations
- Career pathways
- Forms of work
- Tasks

This allows us to accurately reflect the complexity of individuals' experiences in the workforce, which may involve navigating different occupations across the same sector (E.G. from client relations to data analysis within the information and communication sector) or fulfilling the same occupation in different sectors (E.G. from project manager in education to project manager in offshore wind energy). It will also allow us to take note of the 'future potential' of full career pathways (E.G. the retrofit coordinator pathway), as well as specific forms of work (E.G. self-employment).

In exploring these questions with a qualitative approach, our research has shed light on the experiences of women on low incomes despite a lack of terminological consistency or proper data.

Our broader views on the use of data structures are included in the Recommendations section.

## What is "good work"?

Job quality cannot be excluded from any discussion about the future of work.

Others have defined "good work" using a series of indicators such as job security, wellbeing, fair pay,

opportunities for growth and skill development, among others. Our research has been informed by these definitions, whose indicators are summarised in Annex III.

# Who are "women on low incomes"?

In the context of our research, we define women on low incomes as **people who identify as women, aged 24-64, with a self-reported annual household income of £19,800 or less**.

This approach is in line with the government definition of relative poverty as 60% of the median annual household income of the current year.[28]

However, measuring poverty is not straightforward. Poverty can be experienced in many different ways – from being unable to satisfy basic needs such as eating, keeping clean, or staying warm; to getting by day-to-day, but not being prepared to weather unexpected costs and events.[29] Measuring poverty at a household level also means we can't account for differences at household level, which can be relevant in situations where, for example, women lack control over their household's finances or are financially dependent.

This has had practical implications for our research: some of the women that responded to our call for participants were screened out because, although they reported a low-income, they had partners who brought the household income over the threshold.

Poverty in the UK is disproportionately experienced by certain demographic groups. This provides us with some hints about the characteristics of women on low incomes in the UK.

- **Ethnicity**: 13% of households where the head of the household is from a Black, African, Caribbean or Black British background are likely to experience persistent low income, with a rate growing to 18% for people from Asian and Asian British backgrounds, compared to 9% for white households[30]

- **Disability**: working age adults with a disability face a poverty rate of 35%, compared to the 18% rate of the general working age population[31]

- **Care**: 29% of carers are likely to live in poverty, compared to 20% amongst those without caring responsibilities[32]

- **Regional differences**: Scotland has a lower rate of poverty (18%) than England (22%), whilst the North East of England and London (mostly driven by high rents) have the highest poverty rates[33]

# Case selection approach

In order to explore the barriers that women on low incomes face in securing good future focused work, we selected four career pathway case studies according to a diverse case selection approach in which we aimed to achieve variation across several important dimensions, namely:[34]

- (Sub-)Industry
- Career stage at entry point
- Career path approach

**Table 1**

|  | Industry | Career stage (entry point) | Transition approach |
|---|---|---|---|
| **Becoming a health and safety professional in offshore wind** | Offshore wind energy | High level of experience in different field | Changing fields |
| **Becoming a solar panel electrician** | Domestic construction | Little experience | Apprenticeship |
| **Becoming a data analyst** | Cross-cutting, tech | Unemployed with some experience | In-work training |
| **Becoming a freelance web developer** | Cross-cutting, tech | Employed in part-time work | Freelance work |

Furthermore, we aimed for case study career pathways:

- In industries and occupations where women are underrepresented
- Where progression is achievable in medium-term (0-5 years) time horizons, according to feedback from employers in the field

Our list is not exhaustive nor does it indicate what career pathways are most suitable or impactful for improving the experiences of women on low incomes. Labour Market Intelligence (LMI) and skills foresighting efforts will likely play an important role in providing such insights in future research.

**Women on low incomes are overrepresented in several future-focused industries**

Given the context of this research, we decided to narrow our focus on industries and occupations where women are underrepresented.

Health and social care sectors do qualify as future-focused work – especially in the context of a growing and ageing population, which is expected to create 600,000 social care worker vacancies by 2030.[35] Unfortunately, these sectors are facing increasing staffing shortages, with vacant posts in adult social care having increased by 52% in the 2021/2022.[36] In short, the demand for care workers is only going to increase.

However, because women (including women on low incomes) are already overrepresented in these sectors (see Annex II), we have excluded them from our analysis.

Unfortunately, the fact that these sectors are underpaid and under-appreciated (with high negative impacts on society) only reinforces women's financial vulnerability.[37,38] This is an important question that merits its own research, and which has been addressed elsewhere.

# Case study snapshots

We situated our case studies in four future-focused industries or cross-cutting professions:

- **Offshore wind** – a renewable energy source of strategic importance to the UK, where we focus on the project management profession

- **Domestic solar energy** – another renewable energy sub-industry with many roles intersecting with construction

- **Data science and analytics** – a rapidly growing profession cutting across many other fields and industries

- **Web development** – a sizable profession within the tech industry

The section below provides contextual information on these four case studies, including growth expectations, examples of occupations and skills, gender distribution statistics, and insights pertaining to current barriers to entry, practices, and evolutions within these industries.

Throughout our case studies, we highlight a series of **hard barriers** to entry (such as specific qualification requirements), and **soft barriers** (such as confidence and social capital).

## Offshore wind

| | Transition approach |
|---|---|
| **Growth expectations** | The global energy crisis has caused a drive to improve energy independence, which in turn has accelerated the use of renewable energy, including offshore wind.<br><br>The UK is a world leader in terms of offshore wind energy and wind power is a key component of the government's renewable strategy.[39] With an installed capacity of more than 10 gigawatt, wind contributed 26.8% of the UK's electricity generation last year. There is an ambitious target of reaching 50 gigawatt capacity by 2030, by which point the industry is expected to employ 97,465 people through direct and indirect jobs (an increase of 16.1% compared to 2022 figures).[40,41,42] |
| **Occupation examples** | The offshore wind energy industry includes a wide range of specialised and generalist roles at different levels of qualification. Some examples include:[43,44]<br><br>**Specialist roles**[45]<br>- **Development and project management roles** related to design and surveys, stakeholder engagement, consent applications, procurement and project management, and commissioning<br>- **Specialist development roles** such as oceanographers, geophysicists, or marine ecologists who prepare geophysical and wildlife surveys<br>- **Construction and installation jobs**, from cable joiners to structural engineers<br>- **Wind farm operation and maintenance roles**, from blade repair technicians to statutory inspectors<br><br>**Generalist roles**<br>- **People development roles** such as trainers or teachers<br>- **Corporate finance roles** such as accountants or bookkeepers<br>- **Health and safety roles** such as HSE advisors or partners |
| | |

## Offshore wind (continued)

| | Transition approach |
|---|---|
| **Gender balance** | 2022 statistics from OWIC and PWC tell us that:<br><br>• In 2022, 32% of women employed in the UK offshore wind industry worked in technical / professional roles, 29% worked in corporate services, while only 2% worked in skilled manual occupations, and 8% in management<br>• 96.2% of women in the UK offshore wind industry were white[46]<br>• 79% of the UK's top energy companies had no women in executive board seats, while 38% had no women on their boards at all[47]<br><br>However, there is an industry-level drive to increase women's representation:<br><br>• The Offshore Wind Sector Deal includes a target to increase the representation of women in the offshore wind workforce to at least a third by 2030 – up from 16% in 2018,[48] and 18% in 2022[49] |
| **Skills and qualifications** | **Technical**<br><br>• Many development project management positions require a technical degree in environmental sciences, economics or engineering, or a level 4 HNC or level 5 HND in a related subject[50]<br>• Consenting skills (I.E. obtaining approvals for works in compliance with existing regulations) are important for professionals working in offshore wind farm development roles[51]<br>• Geophysical and wildlife survey roles currently require degree or master's level qualifications[52]<br>• Qualification requirements vary from role to role – for instance cable joiners may need vocational education in electrical engineering, or may enter the job at an apprentice level; whereas structural engineers will need a degree in structural or civil engineering[53]<br>• Many operation and maintenance roles require specific qualifications, such as Industrial Rope Access Trade Association (IRATA) Level 1 or 2 certifications for rope access and blade repair technicians<br>• To work offshore, individuals need survival training for working at sea, such as the Global Wind Organisation (GWO) Basic Safety Training (BST) certification[54]<br>• Operating, maintaining, and servicing wind farms require the ability to work with SCADA, a dedicated computer operating system, and usually require qualifications such as an HNC in computer systems or software engineering[55]<br>• Health and safety roles require certifications such as those provided by the National Examination Board in Occupational Safety and Health (NEBOSH)[56]<br><br>**Horizontal**<br><br>• For project management roles, the offshore wind industry often requires experience in managing large-scale projects and multiple contractors<br>• Digital literacy is needed across various job roles (e.g. engineers with data analytics skills) |
| **Insights from the industry** | • The recent government rules around applications for public contracts have changed the data that applicants need to submit. Organisations are now required to provide information about a project's impact on local skill demand, as well as stats relating to social mobility and disability[57]<br>• To address existing skill gaps, the industry has been delivering various dedicated projects, such as the RenewableUK Career Mapping Tool[58] or the energycareers2050.com platform[59]<br>• Our engagement with offshore wind industry experts suggested that the industry may be viewed as particularly unattractive to women who want to start families, as it requires travelling and working away from home for extended periods of time<br>• Because of existing skill gaps, the offshore wind industry is already looking to facilitate career transitions into the sector, for instance by recruiting ex-military staff into specific roles[60] |

## Solar photovoltaics (PV)

| | Transition approach |
|---|---|
| **Growth expectations** | Improving energy efficiency by installing solar PV panels is another important step to meet net zero goals in the UK. The growing use of electrical vehicles and heat pumps means that demand for electricity is also expected to rise,[61] adding to the demand for solar. <br><br> This renewable energy source is already seeing considerable growth in the UK. For instance, rooftop solar PV capacity grew by 36% in 2020 and the percentage of homes with solar PV grew by 71% in 2021 compared to the previous year.[62,63] <br><br> In 2022, solar power contributed to 4.4% of the UK's renewable energy mix, and there are ambitions to increase this. National Grid thinks that solar capacity could grow from its current 14 gigawatt to roughly 70 gigawatt by 2030. <br><br> At a local level, the Mayor of London aims to have 1.5 gigawatt solar capacity installed in London by 2030.[64] |
| **Occupation examples** | The solar PV industry features a wide range of roles across the value chain,[65] such as: <br><br> **Specialist roles** <br><br> • **Solar system design roles** focused on designing solar PV systems for large scale (e.g. solar power plants) and small scale (e.g. domestic rooftop retrofit) projects <br> • **Asset management roles**, which involve ensuring that solar power installations adhere to safety, quality, and environmental performance standards <br> • **Solar PV installer roles** focused on setting up and installing solar panels <br> • **Solar PV maintenance and cleaning roles** focused on the upkeep of solar panels, from cleaning panels to identifying and fixing any issues with a solar system's power output <br><br> **Generalist roles** <br><br> • **Project management roles** focused on managing the construction process <br> • **Sales roles** related to communicating with customers, presenting them options for installing solar PV systems, and advising them on next steps |
| **Gender balance** | Globally, women make up 40% of the full-time employees in solar energy. However, the majority work in administrative jobs and only 12% of solar installers are women.[66] <br><br> The gender-related patterns in the UK construction industry also provide a clue about the domestic solar PV sub-industry, given that a significant portion of manual roles are also part of the construction sector. <br><br> Women are highly under-represented in construction in the UK, making up just 15% of the workforce (see Annex II). This may be, at least in part, caused by industry norms and practices, including: isolation and a lack of role models, sexism and bullying, recruitment practices that favour word of mouth (and from which women may be excluded) and long working hours that are likely to affect carers.[67,68] |
| | |

## Solar photovoltaics (PV) (continued)

| | Transition approach |
|---|---|
| **Skills and qualifications** | **Specialist skills**<br><br>• Design engineering roles require a degree in an engineering discipline, such as civil, electrical, or mechanical engineering, an HNC or HND in a related field, or a level 6 or 7 apprenticeship to become an Engineering Technician, Incorporated Engineer, or Design Engineer[69]<br><br>• Asset management roles typically require technical qualifications in engineering or business-related fields (e.g. accounting), either through higher education degrees, an HNC or HND, or a relevant higher-level apprenticeship[70]<br><br>• Installation and maintenance roles require a Construction Skills Certification Scheme (CSCS) card, as well as the ability to work at height<br><br>• Project management roles sometimes require a specialism in construction management, or a different qualification in engineering or project management, either in the form of a higher education degree, an HNC or HND, or an apprenticeship. A Chartered Institute of Building accreditation in construction management is sometimes also desirable[71]<br><br>• The Microgeneration Certification Scheme (MCS) currently sets the standards for domestic PV installation (among other renewable sources) including necessary qualifications for installers – which currently involves a level 3 Electrical apprenticeship, followed by an additional solar PV-focused level 3 award[72]<br><br>**Generalist skills**<br><br>• Maths knowledge is required in a wide range of roles across the industry<br><br>• For client-facing roles, communication and customer service skills are essential |
| **Insights from the industry** | • At present, the available apprenticeship standards fail to account for the unique skill sets and knowledge that are necessary to succeed in emerging trades such as solar PV installation<br><br>• For instance, the training required to work in PV installation or maintenance currently involves completing a pre-requisite level 3 electrical apprenticeship, followed by expensive specialised training, often provided by employers<br><br>• Our engagement with employers in the field revealed, however, that renewable installation combines specialisms from a variety of areas – such as carpentry, electrical and insulation, with no apprenticeship standard combining these<br><br>• This has been a hard barrier to some employers' ability to hire: "There is a huge interest in roles. We get around ten calls per week from young people who are interested in apprenticeships. But there are no dedicated schemes for renewables" (Employer) |

## Data analytics

| | Transition approach |
|---|---|
| **Growth expectations** | According to LinkedIn's Jobs on the Rise research, data science managers, data engineers, and machine learning engineers were **amongst the roles with the highest growth in demand over 2022 in the UK**.[73]<br><br>The demand for data skills doesn't seem to be paired with supply. A 2021 study commissioned by DCMS found there is a significant data skills gap in the UK – **46%** of the businesses surveyed said they struggled to fill the roles which required hard data analytics skills, with an estimated **178,000 to 234,000 jobs** to be filled.[74] |
| **Occupation examples** | The data analyst profession includes a range of job titles across various levels of seniority and specialisms, including:<br><br>• **Data analyst roles**, typically working with structured data to address specific business problems<br><br>• **Data scientist roles**, which are similar to data analyst roles, but often require finding new ways to capture and analyse data<br><br>Other job roles within the data science profession include "machine learning engineer", "business analyst", "data engineer", and "database administrator", "statistician", or "data architect." However, specific roles and responsibilities sometimes vary from employer to employer.[75] |
| | |

## Data analytics (continued)

| | Transition approach |
|---|---|
| **Gender balance** | Only 22% of workers in data and AI roles in the UK are women, slightly below the global 26%.[76]<br><br>Women make up only 17% of participants in online data science platforms, such as Data Science Central, Kaggle, and OpenML, while on Stack Overflow, they make up only 8% of participants.[77]<br><br>Alan Turing Institute research suggests that, compared to men, women are more likely to occupy roles with lower pay and status, such as analytics, data preparation and exploration, as opposed to engineering and machine learning.[78] |
| **Skills and qualifications** | • A degree in computer science, mathematics, or another STEM topic is sometimes recommended as an entry point to the data science profession[79]<br>• However, apprenticeships (level 6),[80] bootcamps,[81] and training programmes[82] are available for individuals looking for alternative ways to enter the field<br>• Foundational mathematics knowledge is a necessary entry point to most data science profession career paths<br>• Knowledge of programming languages (such as SQL and Python) is required for all data science roles[83]<br>• Machine learning and big data are also in the top skills listed in data scientist and advanced analyst job adverts, according to research by The Royal Society[84] |
| **Insights from the industry** | • The data analytics profession suffers from a "maths-genius" myth, creating an incorrect impression that there are very high barriers to entry. In reality, with data analytics being an in demand skill, the UK needs to focus on improving foundational mathematics skills<br>• The large availability of open-source, online information makes it possible to self-teach data analytics. But, it also means that people need to develop independent learning skills in order to thrive in the field[85]<br>• Data analytics has important intersections with several green jobs as there is a growth in demand for skills such as analysing geospatial data[86] |

## Web development

| | Transition approach |
|---|---|
| **Growth expectations** | According to TechNation research, there were 2 million vacancies for tech roles between 2021-2022 – making tech the area with the highest growth in the UK labour market.[87]<br><br>44% of UK employees across all sectors believe that tech skills are essential to their job security.[88]<br><br>A 2023 study by AWS and Gallup showed that UK workers with advanced digital skills (which include software development) earn 30% more than those with no digital skills.[89] |
| **Occupation examples** | The web development profession includes three broad specialisms, namely:[90]<br>• **Back-end developers**, who focus on the server-side infrastructure of a website (such as its logic and databases)<br>• **Front-end developers**, who focus on the interface, navigation, and user-friendliness of a website<br>• **Full stack developers**, who combine the back- and front-end components of web development |
| **Gender balance** | While there is limited (granular) data available regarding women's involvement in technology professions in the UK, it is clear that women are significantly underrepresented in web development. For example, a survey of the StackOverflow user base conducted in 2022 showed that only 4.8% of active professional programmers on the platform were women. Women are, however, slightly better represented when it comes to users who are learning how to code, at a rate of 7.9%.[91] |

## Web development (continued)

| | Transition approach |
|---|---|
| **Skills and qualifications** | While a degree in computer science, informatics, software engineering, or web design is sometimes indicated as a preference for employers, there is no formal qualification required to work as a web developer.[92]<br><br>Some of the skills that are often cited for web developers include:[93]<br><br>• Problem solving and logical thinking<br>• Communication skills, team work, client management<br>• Programming languages (HTML, CSS, Java Script, Ruby, PHP)<br>• Testing and debugging processes<br>• Web server technologies, API integration, working with operating systems<br>• Web architecture |
| **Insights from the industry** | • Around 10.4% of UK-based Stack Overflow participants work as self-employed, freelancers, or contractors[94]<br>• Independent learning is a useful skill – with preferred resources ranging from technical documentation, blogs, and Stack Overflow, to how-to videos and online forums, among others[95]<br>• Non-tech roles have grown at a higher rate than independent contributor roles[96]<br>• The most cited impediments to learning for the AWS-Gallup participants were a lack of time (51%), financial resources (34%), and knowledge and skills (32%) needed to advance their careers[97] |

# II. RESEARCH FINDINGS

## Key findings

We conducted 19 in-depth interviews with women on low incomes, all of whom were searching for work. Our interviews revealed a range of factors that influenced individual experiences of finding, getting and keeping work. Similarly, our 39 interviews with training providers, career coaches, charity leaders, employers, and researchers helped us understand the range of services currently available to women on low incomes, as well as the challenges faced by stakeholders working in this space.

**The women we spoke to had a range of reasons for deciding to get back into work or transition to different careers.**

**One woman had to change jobs due to an injury**

*"I had an injury at work. I was ready for a change and I was looking for a change at that time – so I did part time work while struggling with mobility, and training to become an assessor."*

**A few women were looking for a new career due to an easing of care responsibilities**

*"I'm looking for work. I'm redoing my CV and my child is in nursery school in the mornings. I really miss working."*



**Other women were keen to find something that they were more passionate about**

*"I volunteer at a charity. Starting there made me think there's more to life than making people redundant. I had to do a childcare course and made the switch."*

**One woman explained that it felt important to have an identity independent of her role as a mother**

*"I think a lot of women standing in the schoolyard waiting for their kids are feeling undervalued....Yes, we're carers and fantastic mums and we love what we do... But we're more than that. You know, we are whole people, not just an extension of somebody else."*

**And some women described just feeling 'stuck'**

*"Life became groundhog day. My husband was working as a scrapman, and I stayed at home. It turned into a monotony of 'is this it?'. I loved being a mum but life became a hamster wheel. I was looking forward to mums and tots, that was the most exciting part of my week."*

**Overall, we came across various trigger points for deciding to look for a new job, including**:

- The end of an educational period (e.g. graduating from university)

- Breaking up with a significant other

- Moving somewhere else (e.g. a new town or country)

- An easing of care responsibilities after children become older

- Being made redundant

- Injury, disability, or illness

A 2020 Nesta study on career navigation provides three useful archetypes of people's approach to finding and moving through jobs, ranging from the **opportunistic** approach associated with early career stages, focused on gaining income on the short term, to the **strategic** approach often triggered by changes in life circumstances (such as the birth of a child, or a redundancy in the workplace), as well as being "stuck" in career navigation due to various barriers – such as economic hardships or health concerns.[98]

In our conversations with women on low incomes, we noticed a similar range of approaches to career navigation. For instance, several of the women we spoke to had their first job recommended by a family member, or had to take time off work because of physical and mental health conditions, while others were already on the journey of looking to gain qualifications that would enable them to get the roles they want.

## Many were motivated to find work they would find meaningful

*"I just want to be content. I want to be fulfilled in my job, not bored. I don't feel challenged enough in my current job."*

**Some had experiences of fulfilling work. For example, one woman was currently studying to be a teacher**

*"The excitement of passing on knowledge, impacting lives – that's what I love about teaching. I don't want to go to the grave with anything in my head, I want to leave it behind. I want to pour it all out."*

**And another had loved working in the care industry**

*"I started working with kids who had been excluded from mainstream schools and I loved it. I loved the fact that I could help people who everyone else had given up on."*

**Some women were interested in sustainability and wanted to make it a part of their career**

*"I'm looking for something in the green sector, working from home. Looking for something that is not related to finance (always gets messy!). I want to do something like being a project support officer or coordinator, I want to communicate with team members and support."*

## However, many felt they were underqualified for the jobs they would have liked to do

**Some felt that they didn't have the right experience, and didn't know how to get it**

*"You can do job searches online but you'll never really get far with those… they always want someone with some sort of experience."*

*"I'm just desperate to find a way even just to get work experience. I would be so happy just to do unpaid work to get some kind of something put on my CV because at the moment I just don't know what to put on it."*

**Some women felt certain jobs were reserved for people with degrees**

*"Maybe when I go to school I will have acquired enough skills to be competitive and apply online. I think I need a lot of academic qualifications and experience which matters in many jobs."*

*"I believe there aren't many other doorways into getting into work, other than studying, which obviously… takes four years. I don't know if there are any other kinds of courses or anything."*

**And some mentioned financial barriers to university and higher education**

*"When I was going through school and college, I was interested in science… I planned to study them at university but after college, I decided to get a job and earn some money. I was looking for apprenticeship programmes, work experience programmes – any other route. I couldn't afford to go to university and not work if I went. I applied for the degree apprenticeships in my area, but I didn't have lots of extra-curricular activities at college – because I worked. So I ended up going into the leisure sector."*

A CIPD study found that **30% of UK professionals who needed a higher-level degree to secure their jobs feel that lower qualifications are actually needed to perform their roles.**[99] This pattern is also found within high-demand, high-growth roles – for instance, the Institute of Physics flagged that 53% of physics-demanding jobs do not require a higher education degree.[100]

**And women described that they were exhausted by financial concerns and childcare, which prevented them from making the most of educational opportunities, qualifications or work experience**

*"The MBA I did would have been helpful if I had more trust in it, but I just couldn't concentrate. I was penniless. I had to pay my school fees and was allowed to work only 20 hours – that's all we could as students – and pay the rent... so I didn't really have time to concentrate and learn from it."*

*"Uni is corridored off. If I want to continue studying, I need to get a job. But if I get a job I will need childcare, and childcare is too expensive."*

Research has shown that the cognitive load and long-term trauma caused by financial vulnerability can have a strong impact on women's efforts to study, train, or look for employment.[101]

Many of these experiences have been deepened by the ongoing cost of living crisis, which some argue likely impacts women disproportionately due to women's increased financial vulnerability.[102,103] For instance, 2022 research by the Scottish Women's Budget Group and the Poverty Alliance discovered that, as a result of the cost of living crisis, some women experienced cold and hunger, risked accumulating more debt, and experienced negative impacts on their mental and physical health.[104]

**On top of that, some women felt they experienced additional barriers due to their migrant status, age, and disability**

*"I have a masters in psychology but they don't recognise it like they do in my country of origin. I have a very educated background, but it doesn't count here."*

*"In a previous interview, I felt like they were really interested, but once I came into an interview with a walking stick, they said that was a deal breaker because the position would have required visiting people. I had already guessed [they would turn me down] before they said that."*

*"For women my age, they just assume you're stupid, and that you should do care work or work in a shop. They overlook a lot of things and skills that you have."*
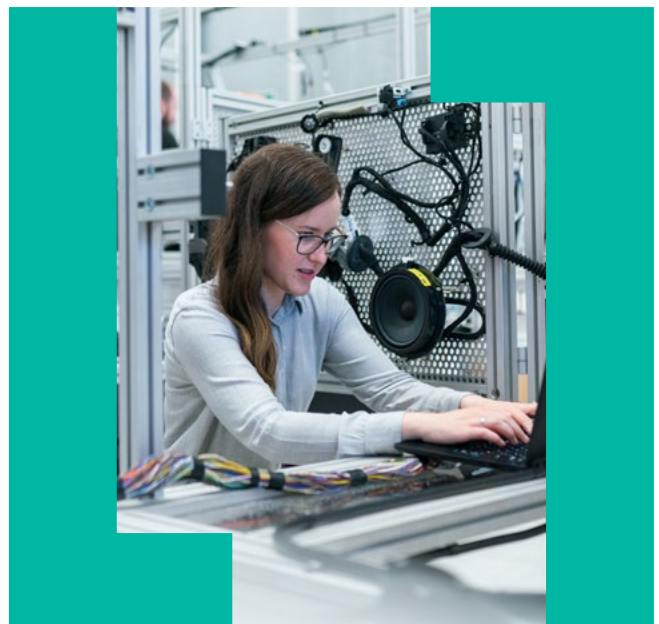
# Furthermore, personal circumstances such as caring responsibilities (including towards children and other family members) affected the sorts of jobs women felt they could do

**Many women reported that caring responsibilities were an important determinant of their decisions regarding what type of job they would like, including which sectors, contract types and hours**

*"My husband used to work in retail and knew everyone there, so it made sense to work in the same place. If I was working, he could look after my son and vice versa. You don't get that kind of working pattern in many jobs."*

**As a result, many women were looking for part time or flexible work**

*"I need to look after my family as well, but my job is not considerate of that. That's why I prefer part-time – I get more time to stay with my family."*

**Some women felt that it wasn't worth working because their prospective incomes would not enable them to afford the necessary childcare**

*"When I was looking for work, childcare was the greatest barrier. I was ready to take any job, but childcare made it impossible – it was so expensive that I wouldn't have anything left."*
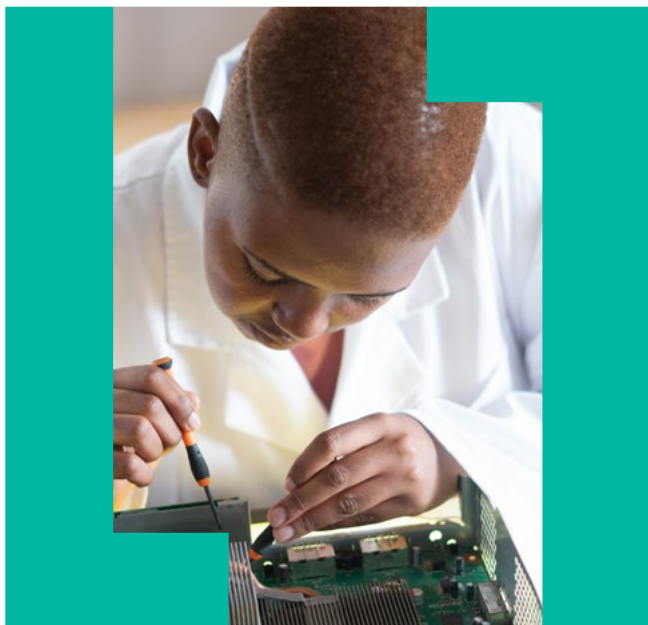
**As a result, many women on low incomes found it difficult to think long term about their career goals whilst juggling other responsibilities**

*"Finding a better job is also my dream. But at the moment my kid is still young. In two years I might think about a better job in order to save extra money [...]. Parenting is about providing for a child – but also about bringing up a child in the best way."*

It has been evidenced previously that the burden of caring responsibilities, both within households and society at large, falls disproportionately on women,[105] which has negative impacts on mental health and wellbeing.[106,107] In 2021, women spent 7.7 more hours a week than men on childcare responsibilities.[108]

Furthermore, previous research has found that the dearth of (affordable) childcare places in suitable locations and at suitable times, means that women on low incomes who cannot afford childcare often have to "patchwork funded part-time hours with informal arrangements".[109] This means that they often need to resort to working night shifts,[110] or working in multiple low-paid employment (MLPE).[111]

**Stakeholders also flagged that women often miss out on opportunities because of their caring responsibilities**

*"We need to acknowledge the existence of caring responsibilities – at a household level, someone will have to do that, and at the moment there are inequalities in how care is shared in couples. So you need to design jobs that take into account women's responsibilities."*
**Service provider**

**But warned that the role of employers is sometimes ignored**

*"There is a supply side and a demand side. Yes, we want to upskill women, but we also need to change the jobs [...] You have to take it as a given that people come to work with other commitments."*
**Service provider**

Training and employability programmes address only one side of the employability puzzle. The destination also matters – namely, the jobs available and their nature.

Job design can be both a barrier and enabler for women on low incomes. While job design is undoubtedly subject to external factors outside of employers' control (such as customer demand or labour supply), HR professionals and business leaders often take key decisions regarding:[112]

- **Workflows**: How are tasks sequenced and related?

- **Tasks**: What tasks are employees expected to perform?

- **Workloads**: How much are individuals expected to work?

- **Ergonomics**: How do jobs fit the physical capabilities of workers?

Many of these factors are going to have an impact on individuals' abilities to perform and thrive in certain roles. They can have important consequences for **flexibility** (e.g. certain workflows are going to be more suited to flexible work than others) as well as **health and safety** (women in the construction sectors have been reported to be more likely to develop musculo-skeletal disorders,[113] or have to deal with ill-fitting PPE).[114]

Similarly, other research has found that age,[115] race,[116] disability,[117] gender identity,[118] and migrant status create additional barriers for many women.[119]

## Other stakeholders also explained that place-based inequalities can be a barrier to opportunities in the workplace

**During our desk research, literature review and interviews with stakeholders, a recurring theme was place-based disparities**

> *"I worked in Edinburgh and travelled from just outside the centre. I was travelling three hours a day. But I knew a lady who drove all the way from the border because she couldn't find any jobs in her area."*

> *"In a rural area, to become skilled in construction you need a hefty placement. The majority of builders are one-man jobs who, if they take an apprentice, it would be a nephew or son. This is different from urban areas where they might have a whole HR department."*
> **Service provider**

The UK has a high level of inequality in economic performance between its regions: urban areas outperform rural areas significantly and London, South East England and the Midlands outperform South West England, Wales, and Northern Ireland.[120] This pattern of economic performance is largely replicated in R&D spending.[121] This has strong implications for the opportunities available for women on low incomes to participate in the industries of the future.

## Aside from traditional employment, some women were interested in entrepreneurship but encountered barriers

**Many women were interested in finding flexible work because they felt it would enable them to balance care responsibilities**

*"When you are employed by someone it is very limiting, especially if you have other people you are caring for, like older adults or children. If you are self-employed, you can spend your time in a more flexible manner. I have two children, and also care for an aunt who has recently been diagnosed with Alzheimer's disease. It was too hard to juggle taking care of them with employment."*

**While others were interested in becoming social entrepreneurs, after already being engaged as volunteers.**

*"For women who are on low incomes, it'd be great to have funding. There's women who do such amazing work but they never get recognised. I think of Covid and the effect it had on a lot of people – students, young mums, older people. There's always an amazing person bringing people together. [...] If there was funding to start a social enterprise, I would be interested in that."*

**But often they felt that they didn't have the means to get started**

*"I am on a low income and sometimes it is only enough to cater for my family needs. I don't have any savings so I don't have the capital, and I also don't have anyone in my family to support me to give me the capital to start a business."*

*"I'm trying to start a business selling beauty products online [...]. I don't have financial support, I am trying to find information about what customers want through the internet. It doesn't provide the financial stability I need right now – but if I am patient then maybe it will work."*

**A charity leader explained that they had spotted this trend amongst women who attended their programme**

*"A fair few that have come to our programmes have a real interest in setting up their own business. But that's always on the back burner, because they've got one hundred other things before it, like surviving financially or emotionally."*
**Charity leader**

Embarking on an entrepreneurial journey requires access to capital – which can stack the cards against women on low incomes, who tend to build up weaker security nets over their lives, in financial savings, housing equity or pensions, and they have fewer opportunities for secure, low-cost borrowing, either from financial organisations or informally from relatives and friends.[122]

**And stakeholders explained that it can be a risky path**

*"Women with children going into self-employment or entrepreneurship don't realise what rights they are losing by doing so, they may not have linked family planning with that. Either that, or they're going into it because they have a baby, and want flexibility. Not all self-employment is that flexible though. It can be just enough flexibility to kill yourself by working all night long – self-exploitation. But some say it's still better than going back to work."*
**Entrepreneurship researcher**

On the one hand, entrepreneurship or self-employment are often perceived as a way to achieve the flexibility that would allow balancing care responsibilities with work. However, our stakeholder engagement and literature review warned of a **lack of consideration afforded to childcare and welfare needs within entrepreneurship support space.**[123] As one of the entrepreneurship experts we interviewed advised, "childcare is quite invisible in business – it's perceived as a non-business issue."

## Some women had experience with training and employability programmes

**For some, these had been positive experiences**

*"Taking part in all the seminars and training was good. I was going through a tough time, looking for work, and I had a child... It was a good time to be part of the programme because I was at a low point in my life and it really helped me."*

**While for others, they were disappointing**

*"There was something suspicious about the training company – I had a bad feeling about it. Then, a lot of the qualifications [the provider offered] were revoked. I was a bit disillusioned for a while after that."*

## A range of design factors were mentioned that affected how people felt about these programmes

**Some women felt that in person courses/ training programmes were more difficult to attend for people with children**

*"A lot of women who want a career change may already have children. Many of these courses are at night, for example between 4pm – 8pm. So you need to arrange for childcare."*

*"After I graduated in accounting it was difficult to find any training opportunities. As a matter of fact, I didn't get any training in the field [...] I couldn't get any of these graduate finance programmes. They required you to be flexible with your timing and to work extra hours, but I had a child. It was really frustrating and exhausting. So I worked for a few companies on an agency basis, always short contracts."*

**Other women found online programmes lacked sociability and were difficult to commit to as a result**

*"With online learning, there isn't much openness or socialisation. If you're going in-person, you can talk to someone, they give you ideas, they give you advice. When you're face-to-face, you meet a community you can discuss with, and they can open a world you didn't know about."*

**One woman described that she found it difficult to motivate herself when attending remotely**

*"I really, really hoped I could do the course at home online. But it's not as easy when, you know, you have to commit to it yourself at home. It's probably easier to actually go to a class and learn. Like you haven't got a choice. I thought I could do it while my child was at nursery, I thought I would be able to study at night-time. But I was just so tired."*

**And some women found their programmes hard to juggle with their job search**

*"I have considered working in tech, in data analysis. I did the training. It was intensive, but I didn't feel like I was confident enough in it. I don't want to have that feeling in a new job. For every three-hour class, I would've needed at least four hours to practise everything, but I couldn't do that because I had just started a new job as well. So you're supposed to do a three month training – and then they ask you if you found a job yet! I couldn't juggle the two."*

## Some women were frustrated that their programmes didn't seem to take into account whether a job was good work

**Instead, they felt their career support programmes were just trying to get them into any work**

*"I was expecting they would signpost you to where the work is, what training is there, how to transition. All they do is monitor you – they just monitor if you're putting efforts to get a job."*

*"One of the issues I find is not knowing where to really go for advice on how to get started getting back into work. Some of these [services available out there] are not very helpful – they normally want people to do any course or work placement they can find, and probably not specific to the kinds of jobs we are discussing."*

The evidence suggests that prioritising finding 'any job' rather than providing the right conditions for women on low incomes to find well-paid, good work can cause a vicious circle, and further feed into the cycle of poverty. Instead, it is more effective to invest in developing individuals' skills so that they can secure the right job, rather than taking a "work first" approach followed by in-work benefits.[124] Conversely, matching people with work or training that doesn't suit their needs can be frustrating, time consuming, and might cause them to miss out on better long-term opportunities.

## And some women didn't feel that the programmes were created with them in mind

**One woman felt that most apprenticeships and programmes were intended for younger people**

*"Most apprenticeships rejected me because I'm 40+. It's hard to find apprenticeships for people of my age. I sent in several applications, but just did not have any luck."*

## Many women reported the benefits of wraparound support, though it wasn't necessarily integrated into their programmes

**One women explained that she found the support at her university very reassuring**

> "We have a wellbeing centre at uni. I told them I'm a carer [for a child with complex needs], so if I ever have to leave they will help me switch classes. Even if you don't use this type of service, just having it there reduces anxiety. It tells me that you're listening to me and recognising me."

**But some women had to find this sort of support outside of their programmes; either informally, or through community services that are not directly integrated into training programmes**

> "[Charity leader] is great. She helps me with the little ones when there's a course I can go to, or drives me there."

Findings from broader best practice and programme evaluation, suggest that, when delivering services to people who are vulnerable (such as women on low incomes) it is crucial to integrate services such as domestic violence support, mental health support, subsidised transportation, or financial assistance into programme design.[125,126]

## While other women benefited from, or relied on social connections

**Many women described how particular touchpoints with charities, social workers or teachers gave them confidence and helped them towards career choices**

> "It was actually my house visitor for the children who suggested that I come to [charity]. I was struggling with anxiety and just never got out. But being here has been a massive support, and helped me so much with my confidence."

> "[My child's teacher] asked if I would be interested in applying to college to become a teaching assistant. I said 'I can't, I'm just a mum'. She told me to come in to see if I liked it. I was feeling so guilty because I wouldn't be doing my housekeeping jobs if I went to work at the school."

## When it came to future-focused industries, some of the women we spoke to were particularly interested in sustainability and wanted to get a job in that area

> "I really like the green sector, it gives me good vibes. It is a fast growing sector so there is a lot I could do. I will look at climate change courses – I just want to be part of it. It makes me feel like I am doing something for the planet."

> "A lot of people these days know there's a crisis going on with the environment, but just don't have the education to know how to really help or make a difference."

## However, we heard these careers can come with unique additional challenges

**Some women reported that they hadn't been encouraged to consider STEM subjects or stereotypically male careers when they were young**

*"I went to a Catholic girls' school... you had things like physical education, child development, home economics – everything was quite female-oriented... But women do get more encouraged now. My niece had a science day, and I volunteered... She is more confident, more outgoing, and got a good career – now she has children and is finding work that she can organise around her childcare responsibilities."*

**And some women showed interest but felt that they weren't in a position to make a strategic decision about their careers**

*"I have heard about [green jobs] and thought about them, but currently I choose to stick to the kind of jobs I am doing. I have a lot of commitments and my kid is still young."*

These experiences align with research done by PwC, which found early education experiences are likely to influence women's choices: **only 3% of women say a career in technology is their first choice, and only 16% have had a career in technology suggested to them (compared to 33% of men).**[127]

Similarly, in higher education, women are more likely to study veterinary science, education, subjects allied to medicine, psychology, and languages, and less likely to study engineering and technology, computing, maths, architecture and planning, and business and management.[128]

Despite making important progress on closing the educational attainment gap, women are still at a disadvantage – being 9.5% less likely than men to be in paid work at all, working fewer hours, and being paid 19% less per hour on average.[129]

## We also heard from employers in future-focused industries who wanted to attract more women and people on low incomes into their roles

**Some found client expectations to be a good incentive**

*"We got a survey from a client who asked about the diversity of the group who will be working on the project – they typically ask for CVs. It would be great to see more of that!"*
**Employer**

*"We have fantastic opportunities to integrate people into the [employment] system, and we need a diverse workforce. It helps us win bids and retain our workforce."*
**Employer**

**Whereas others felt restrained by client expectations**

*"There is a bias from our clients. They love our connection with the university, but they need to recognise that a mix of people is a good thing to have."*
**Employer**

**For certain roles, a degree was felt to be necessary**

*"Having an academic background in earth science is particularly valuable – it will set people up for success because of the nature of our business model."*
**Employer**

**Whereas for others, employers wanted to see a general commitment to learning**

*"There's no formal training authentication requirement. If it's not a degree it will be some sort of course, or if someone is actively investing in themselves to get into the industry that's the perfect marker – for instance, an accountant or customer service professional who has invested their own time and money in Udemy courses. We want to see that they are dedicated to learning."*
**Employer**

## Recruitment strategies were felt to be crucial to attracting diverse talent

**Some employers were taking steps toward being more inclusive in recruitment**

*"We want to make a more concerted effort, so we just partnered with two job boards – one for women in tech, another one for BAME people in tech."*
**Employer**

**While others felt the channels they were using were not fit for purpose, leading to a lack of diversity**

*"Referral hiring does mean you've got very similar faces all around you."*
**Employer**

*"We do a lot of agency hiring, and they often bring us 100% male shortlists."*
**Employer**

**And many of the women we spoke to relied on informal networks to hear about jobs, such as social media, friends and family**

*"I find jobs on different sites – like WhatsApp or Facebook groups. Someone is posting that they want their house to be cleaned, they're looking for babysitters, taking care of a sick or elderly person – jobs like those. You are added to these groups by your friends, who were invited by their friends. Then people just post there. Also on Facebook, jobs sometimes appear when you're scrolling through or looking for something. Sometimes it's a coincidence."*

*"It's friends and family who tell me about jobs. Mostly the opportunity finds me, usually someone tells me that 'so and so is looking for someone to do this.'"*

## Finally, when speaking to stakeholders within the system, we heard there is a mismatch between skills supply and demand

**Although some employers wished to train people in the job, they often didn't have the resources to do so**

*"Quite often people will be working very long hours. Asking people to dedicate a couple of hours a week to help train someone or to help them develop is challenging."*
**Employer**

*"Sometimes we do an un-official type of apprenticeship where we employ someone for two days a week, and train for three days a week, which helps us with the cost. But it's very expensive if the person leaves afterwards."*
**Employer**

**Other employers felt they couldn't commission skills providers without having the certainty that their projects will be approved**

*"It takes too long to see a project approved, and until then we don't have the jobs. The supply chain can't invest in training these people until they know that there is a definite project at the end of it."*
**Employer**

*"For companies investing in training, it tends to be more stop-start. They know retrofit is coming, but can't invest in upskilling or hiring without clarity from the government. Previous initiatives like the Green Homes Grant were pulled, which makes companies feel like it's not worth it."*
**Training provider**

**Whereas training providers felt they were commissioned to train people for jobs that didn't yet exist**

*"Funders look at job creation as the output, but we can't always expect these jobs to just appear within a six-month timeframe. For instance, some people will train in construction, but then don't go into green jobs."*
**Training provider**

Previous research has highlighted that: on the one hand, training and education providers do not have the appropriate knowledge to tailor their programmes to employer demand; on the other hand, employers suffer skills shortages.[130] This is compounded by a lack of accessible and affordable labour market information, which makes it difficult for solvers to address this issue.[131]

# Our personas

We developed five user personas based on 19 in-depth interviews with women on low incomes. They serve to illustrate the range of backgrounds and experiences we came across during our interviews.

Typically used in the design space, user personas are fictional yet realistic descriptions of a typical or target user of a product or service.[132] They are used to foster empathy between designers and end users, ensuring that solutions are designed according to the needs and wants of the latter.

## Alexa, 33

"I dream of opening my own business one day, but I don't think that's going to happen anytime soon. I probably need a qualification, plus I just can't take the risk. I have a child to raise, and a family to support."

### Background

Grew up in Leeds, where she still lives with her husband and their two-year old son.

First job was as a waitress – her uncle used to own a restaurant, and she was hired there after finishing college.

Briefly considered university, but felt she couldn't afford to not work.

After that, she had several jobs in retail and hospitality, as well as some occasional cleaning.

At the moment, she works part-time as a store clerk and waitress, and occasionally walks her neighbour's dog.

### Career goals

Increase her income while keeping a flexible work schedule that allows her to care for her son and her parents as they age.

Wouldn't mind a job she can do remotely but would love to be a business owner – perhaps working in online communications, or opening her own restaurant.

### Strength, skills, and interests

Enjoys working with other people and the sense of camaraderie that comes from it. Prides herself on being resourceful and hard working.

Enjoyed maths in school, but never had a chance to work with it.

Likes to spend time online. YouTube in particular is a great place to find tutorials about doing different things around the house, and one of her favourite influencers talks about the benefits of being your own boss.

### Barriers and support needs

Likes that she can work part-time, which her husband also does – this allows them to alternate shifts and take care of their son. However, shifts sometimes change at the last minute, and they end up having to scramble to get someone to help. Paying for childcare is out of the picture – it's more expensive than what they would earn working.

Feels like she can't apply for better-paying roles or other industries because she doesn't have any qualifications. She is willing to train, but none of her previous employers seemed to care about giving her a chance to do so, so she doesn't know where to start.

# Brenda, 57

"I want to train and I want to work, but everyone assumes I can't because of my age and disability. Now I'm worried about what will happen when my savings run out."

## Background

Lives in York, where she recently moved to be closer to her daughter and help her raise her toddler.

Has a degree in education and has worked as an early years teacher for several years, as well as secretarial and administrative roles.

Had to stop working two years ago after being diagnosed with multiple sclerosis, and has been unemployed ever since.

## Career goals

Brenda wants to get back into employment and secure a desk-based, remote job that would fit her needs – being able to work from home most of the time, and being in an environment that understands she sometimes needs to take time off to manage her disability.

## Strength, skills, and interests

Having worked in care and administrative settings for over 40 years, Brenda is confident and organised.

Her experience means that she knows how to adapt to different work environments, and learn new skills.

In her free time, she enjoys reading and runs her own book club.

## Barriers and support needs

Despite having had several interviews, Brenda is afraid that her age and disability have put off employers, and limited the range of roles available to her.

Would like to train and earn another qualification that would help her get a job but it seems like all the programmes she comes across are targeted to young people.

Brenda has also been interacting with her local job centre, but she feels they constantly underestimate her. For example, last month, she had to attend her third resume-writing workshop.

Constantly applying for jobs and getting rejected has been really frustrating, plus her interactions with the job centre haven't been satisfactory, so Brenda feels that her confidence and motivation are decreasing.

# Zainab, 45

> "I was happy to get out of the corporate rat race and take better care of my mental health – but it feels like I took a massive step back in terms of pay."

## Background

Zainab grew up in London and has lived there ever since.

She has a bachelor's degree in business management, and has worked in various payroll jobs for 11 years.

Had to take a career break seven years ago due to burnout, and decided to explore other career options that would make her feel more fulfilled.

After volunteering for a local charity focused on poverty alleviation, she decided to qualify in health and social care whilst working, and now works in a residential care centre.

## Career goals

Zainab likes her current job and she feels like she can make an impact with it. However, she has been frustrated with the pay cut she received by switching away from her previous role.

She is now considering a role that would allow her to earn a higher salary and keep doing work that she finds meaningful, but doesn't feel very hopeful she can find that sweet spot.

## Strength, skills, and interests

Zainab loves volunteering and being an active member of her local community. She enjoys hearing other people's stories and helping solve their problems.

Zainab has strong interpersonal and communication skills from her work in care settings. She is confident, and has experience managing others – to the point that she often leads projects at the charity she volunteers for.

She can confidently use a computer, is organised, and has experience working in a corporate environment – although she doesn't particularly enjoy that type of environment.

## Barriers and support needs

Zainab is keen to learn, but feels like she doesn't have the time and headspace to do another full qualification with her current workload.

She is comfortable with online learning, but feels like it can sometimes be a bit impersonal, and misses the opportunity to collaborate with others.

While shopping around for job opportunities, she found that a lot of the better paying ones are in STEM fields, but she never excelled in nor enjoyed those subjects at school.

# Hannah, 28

"I love my children, but I feel like people sometimes see me as just a mother."

"Maybe I will do something about it one day, but getting into work with zero experience feels impossible."

## Background

Hannah grew up in a small town in the North East. She worked as a store attendant for a couple of years after graduating from college, but didn't return to work after having her first child.

She was married for four years and raised three children while her husband was working full-time.

She and her husband divorced one year ago, and she and her children are now living at her father's place.

## Career goals

Now that her two daughters are getting to school, Hannah feels like she has a bit more time on her hands.

One of the coordinators working at the mothers' group she attends offered to help her if she wanted to get into work, and suggested a few online classes.

Hannah would love to do something related to sustainability and the environment but the prospect of employment in that field seems miles away!

## Strength, skills, and interests

Hannah has been attending some of the mothers and toddlers activities run by her child's daycare. She enjoys seeing people there but sometimes finds the activities boring – it seems like the only things they discuss are related to children.

She enjoys learning about sustainability by reading online articles and watching videos, and has been implementing many of the things she learned in her own household, such as creating a compost heap or finding creative ways to upcycle items with her kids.

In her free time, Hannah loves going for walks and spending time in nature.

## Barriers and support needs

Hannah still needs to take care of her children, and doesn't have a driver's licence – so if she were to start work or training, it would have to be something in her local area, or something that is fully remote – but both seem unlikely from the brief research she's done online.

Hannah also feels like confidence is a major barrier, and sometimes feels discouraged when she thinks about not having had any past experience looking for work or writing cover letters, and wouldn't even know how to start a CV.

# Jade, 26

> "It's exhausting to work so much and earn so little. I have absolutely no energy left at the end of the day. I need to take a break but my daughter and aunt need me."

## Background

Grew up in South Africa and moved to Glasgow to live with her aunt and study when she was 21.

Has an undergraduate degree in psychology.

Is currently raising a four-year-old daughter, and the two of them still live with her aunt, who recently got diagnosed with Alzheimer's.

Has been working various low-paid jobs, including retail and food service, to make ends meet while raising her daughter on her own.

Currently working two days a week as a sales attendant for a large retail chain.

## Career goals

Get a better paid and more stable job that would allow her to increase her income and save some money.

Would like to go back to studying one day, even if it means doing so on a part-time basis or getting in-work training.

## Strength, skills, and interests

Strong analytical skills, and comfortable working with numbers.

Range of previous roles allowed her to develop excellent interpersonal and customer service skills.

Used to volunteer in mental health support for disadvantaged youth and really enjoyed it – unfortunately, she hasn't had much of a chance to do that since she started working!

## Barriers and support needs

Jade is struggling to make ends meet and provide for her daughter and aunt, which has been taking a toll on her mental and physical health.

The rules around which benefit she can claim or not in the context of her immigration status have been really confusing, and she doesn't know where to look for support.

Jade doesn't feel like she has much of a support network, and the amount of work she is putting in, plus the demand of childcare, mean that she doesn't really have the mindspace to socialise.

She is interested in taking online courses or attending workshops, but hesitant to invest in something that may not pay off in the short term.

# What are future-focused career pathways for women on low incomes at the moment?

## Current state journey mapping

To illustrate what potential future focused pathways for women on low incomes typically look like at the moment, we are using the journey map method: a visualisation of the process that a person goes through in order to accomplish a goal.[133]

Our two current state journey maps illustrate the experiences, barriers, and pain points that women on low incomes face given current constraints in the system.

# Current state journey map I

| | Key transition point | Reflecting and researching | Dip in motivation | Looking for something else | Stuck |
|---|---|---|---|---|---|

## Events
**What are the different steps along the way?**

**Key transition point:** Hannah's two daughters are now both in school, while her toddler is one year old – so she will soon have some extra time on her hands.

While chatting to Ellen, one of the coordinators at the parent and toddler group she attends, Hannah considers starting work.

Although Hannah is a bit ambivalent about the prospect, as she only has a small amount of experience, Ellen offers to help.

**Reflecting and researching:** Hannah googles "jobs in my area". The search only yields a few jobs, although many are too far away for her to reach with public transport.

Plus, all of them ask for some specific type of educational background, qualifications, or work experience, which Hannah doesn't have at the moment.

In the meantime, Hannah researches the implications of her looking for work for her UC allowance.

**Dip in motivation:** Hannah shares her concerns with Ellen. It seems like everything out there is geared to someone else!

They decide to have a look together at some further opportunities.

Apprenticeships seem to be an alternative, but they face the same problem as the jobs – there are not many in the area that Hannah can reach and none mention flexibility in any way (Hannah still needs to take care of her children and father).

**Looking for something else:** Ultimately, Hannah feels like she needs to invest some time in getting a qualification, or some sort of work experience.

Although the options she researched so far don't fit her caring responsibilities, Ellen suggests a few other options – such as volunteering for one of the environmental charities that organises monthly activities in her area, or exploring some free online courses.

**Stuck:** Hannah found a course on sustainability and the circular economy that she is taking on Udemy, which is really interesting.

She's not sure what kind of jobs she could get in this field – from a quick Google search, it looks like all circularity experts have a higher educational degree. But, for now, she just enjoys learning.

Hannah knows that, as her toddler grows older, she will soon have to start attending the local job centre, which will probably take a lot of extra time and – if previous experience is anything to go by – will likely not get her a job she is genuinely interested in.

## Touchpoints
**What people/services do they interact with?**

- Parent and Toddler Group
- Google
- Citizens Advice website
- National Careers Service website
- Local charity
- Udemy
- Future Learn

## Emotions
**How do they feel at each point?**

"It's nice to have someone to talk to about this, and Ellen has been really kind and encouraging."

"There's barely anything here that I would actually like to do, and I probably wouldn't qualify for it anyway."

"An apprenticeship sounds like a good idea – it would be great to work and learn at the same time!"

"It's going to take me forever to get any qualifications."

"These courses look interesting, and maybe I can do something low-commitment"

"I will soon have to start going to the job centre – I hope I can get some experience in something I'm interested in before that happens!"

## Pain points
**What are the key challenges?**

**Key transition point:**
**Confidence:** Hannah doesn't have a lot of experience applying for jobs.
**Lack of support:** Hannah feels like she's not getting any genuine support to help care for her children and father, which makes the prospect of getting a job more stressful.

**Reflecting and researching:**
**Transportation:** the local network doesn't allow Hannah to look for jobs in a wide enough radius.
**Qualification requirements:** Hannah doesn't have any qualifications or experience, and the few jobs that she would like to do require those.

**Dip in motivation:**
**Access to information:** Ellen is very happy to help Hannah and to suggest ways forward based on her own knowledge and experience, but she is herself not really aware of job opportunities in the area.

**Looking for something else:**
**Uncertainty:** Hannah is not sure about the whole range of courses she has available to her, and how much time commitment they would each involve.
**Motivation:** Hannah feels increasingly confused and alone looking at different options, and constantly feeling like none fit her situation.

**Stuck:**
**Motivation:** Hannah feels increasingly confused and alone looking at different options, and constantly feels like none fit her situation.

# Current state journey map II

## Events
**What are the different steps along the way?**

### Key transition point

After being diagnosed with MS, Brenda had to stop working and take some time to get to used to managing her condition – but now she finally feels like she could go back into work, and is determined to find a job that would offer her the right pay and flexibility. She speaks about this with her daughter, who is enthusiastic to help!

### Applying for jobs

Brenda asks her daughter for some advice on applying for jobs, who directs her toward two job ad platforms, Indeed and Reed.

Brenda starts spending some time every day looking for jobs and sending in her CV, in particular for administrative positions, where she has previous experience and transferable skills.

To her disappointment, despite sending in multiple applications, Brenda doesn't hear back from any – in fact, she does not even receive feedback for why her applications has not been considered.

### Looking for support

Brenda decides to contact her local job centre, and ask for the support of a career coach. She manages to schedule in an appointment to talk to her situation – but, unfortunately, is disappointed by the experience, with none of the jobs suggested to her really fitting her needs.

Brenda also starts looking for training programmes, including apprenticeships, bootcamps, and short courses online. There is a limited amount of courses she can do for free, unfortunately – and most of the options that excite her are reserved to people ages 18-25.

### False lead

Brenda decides to give it another go and attends a career fair, where local employers are advertising various roles. She has conversations with a few of the employers there, and gets offered a job customer service operator job on the spot – and it seems she might be able to do so from home, in a flexible manner.

Unfortunately, Brenda soon realises the job is not as flexible as it had been advertised, with almost no option to manage her own schedule.

This is also taking a toll on Brenda's health, so she decides to quit after a couple of months.

### Stuck

After a frustrating experience looking for work and training opportunities and finding none, Brenda feels like she is back where she started, and decides to put a pause on her job seeking.

## Touchpoints
**What people/services do they interact with?**

Family

Job ad platforms | Family

Google | Job Centre

Employer

## Emotions
**How do they feel at each point?**

+

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"Employers don't even bother sending me a rejection email with some feedback! I wonder if it's my age, or the gap in my CV."

"It might take some time, but I think if I'm persistent enough I can find some work."

"It feels like there's nothing I can do with my current skills, but also no place I could train in."

"It's exciting to get a job!"

"I'm not sure where to go from here – I'm worried I will run out of savings, and my daughter will end up having to support me."

## Pain points
**What are the key challenges?**

**Not knowing where to start**: Brenda hasn't been in work for a while, so she's not sure what is the full range of options available to her.

**Social capital**: Brenda doesn't have a network she can ask for advice or introductions to potential employers.

**Skills awareness**: Brenda is not aware of all of the transferable skills she has, which limits the range of jobs she applies to.

**Motivation**: Never hearing back from employers is really discouraging for Brenda's morale, especially because she doesn't receive any feedback, leaving her to wonder whether it's her age that dissuades employers.

**Limited career support**: Although Brenda reached out to a support service, they weren't able to point her to any useful resources or opportunities.

**Information**: Brenda's local job centre is under-resourced, and lacks access to information about broader job and training opportunities.

**Programme eligibility criteria**: Brenda finds several exciting training options in her search, but she never seems to be eligible to take part due to her age.

**Nominal flexibility**: although the job was advertised as flexible, in reality it doesn't really really offer Brenda any options to manage her schedule.

**Confidence**: after a series of negative experiences looking for training and jobs, Brenda feels like her confidence and optimism have both diminished.
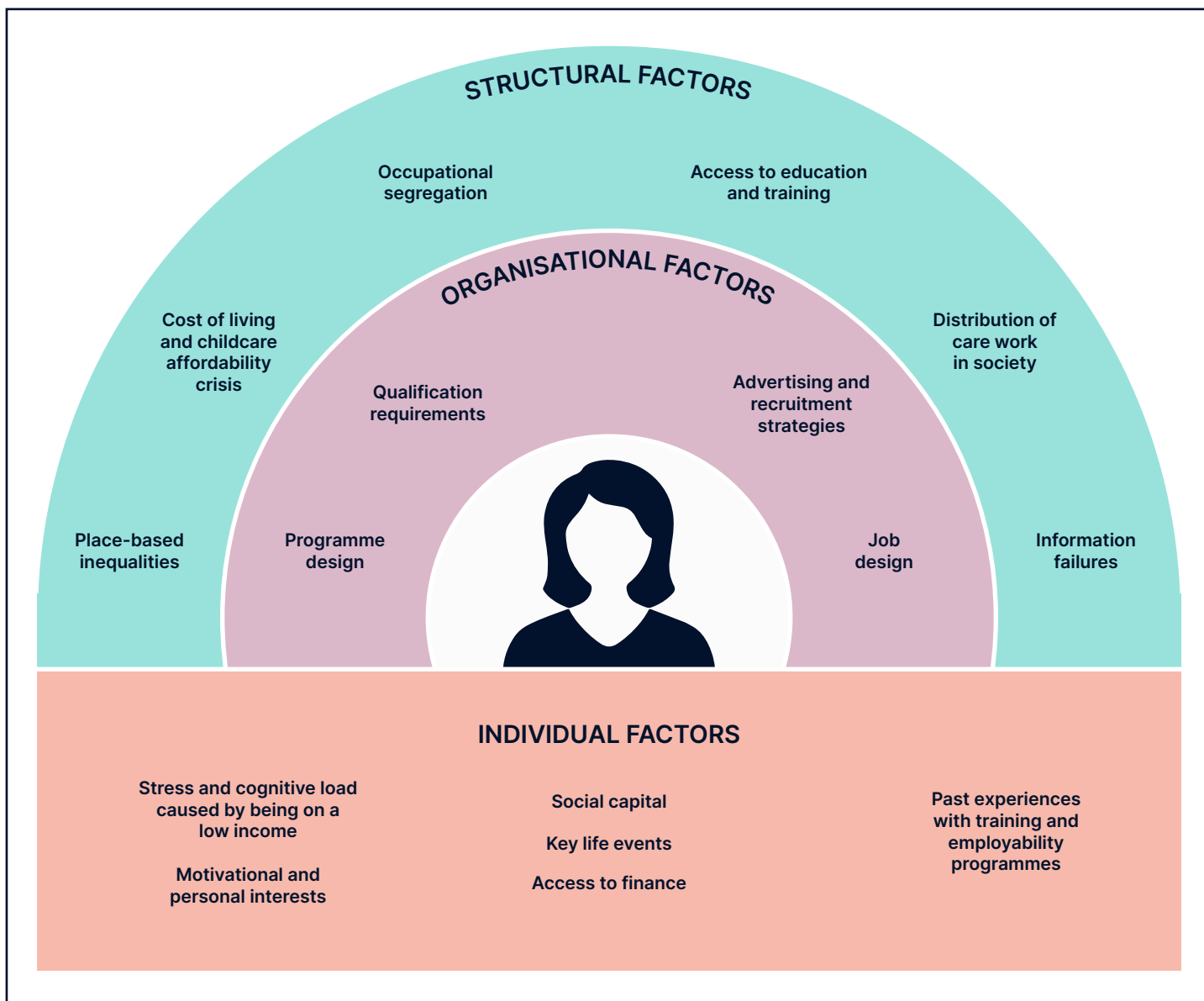
# Analysis

Throughout our research, we have come across a wide range of factors that influence the journeys of women on low incomes toward future-focused industries. As is the case with most wicked problems, the barriers facing women on low incomes are the product of a complex system of factors – which we summarise below using a multi-level approach.

**STRUCTURAL FACTORS**

Occupational segregation

Access to education and training

**ORGANISATIONAL FACTORS**

Cost of living and childcare affordability crisis

Distribution of care work in society

Qualification requirements

Advertising and recruitment strategies

Place-based inequalities

Programme design

Job design

Information failures

**INDIVIDUAL FACTORS**

Stress and cognitive load caused by being on a low income

Social capital

Key life events

Access to finance

Past experiences with training and employability programmes

Motivational and personal interests

## STRUCTURAL FACTORS

There are various macro-level phenomena that are likely to influence the ability of women on low incomes to enter future-focused work.

- **Occupational segregation:** Cultural expectations around the sort of work that suits men and women can discourage women from pursuing STEM subjects and professions

- **Access to education and training:** The financial and time-cost of training and education inhibits women on low incomes from accessing these opportunities

- **Distribution of care work in society:** Women disproportionately bear the brunt of care responsibilities, meaning they are likely to spend more time caring for children and family members; they are also more likely to work in care roles

- **Cost of living and childcare affordability crisis:** The recent cost of living increases, paired with the dearth of affordable childcare, amplify the challenges already faced by women on low incomes, placing them further into poverty

- **Place-based inequalities:** Stark differences in economic productivity between regions, exacerbated by unequal patterns of R&D funding, mean that women living on low incomes in certain areas are less likely to benefit from the new opportunities created by future-focused industries

- **Information failures:** The demand for skills and jobs is not matched with the supply of training and employability programmes

## ORGANISATIONAL FACTORS

The decisions taken by employers and training providers influence the journey of women on low incomes toward future-focused work.

- **Programme design:** Design choices such as programme duration, timing, intensity, delivery model, autonomy, flexibility, and cohort structure will involve trade-offs for different participants, depending on individual circumstances, learning styles, and personal preferences

- **Advertising and recruitment strategies:** The channels and strategies that employers and service providers use to recruit can exclude or include women on low incomes

- **Qualification requirements:** The qualifications, skills, and experiences that individuals are expected to have to secure certain roles can be a barrier for women on low incomes, especially those who cannot afford, or do not have the time to undertake training and education

- **Job design:** Job features that are inclusive to women on low incomes (such as flexibility and the opportunity to learn on the job) are a product of active choices that business leaders and HR managers take, including the design of workflows, shift patterns, or workloads

## INDIVIDUAL FACTORS

**Individual contexts and characteristics shape how women on low incomes experience their journeys toward employment in future-focused work.**

- **Motivation and personal interest**: Women on low incomes have a variety of interests regarding the industries they would like to work in, the types of jobs they would like to do, and whether they prefer to be full-time employees, work on a self-employed basis, or start their own businesses

- **Stress and cognitive load caused by being on a low income**: The experience of being on a low income, and the mental and physical health consequences that often come with it, can have a significant impact on women's approach to learning and work

- **Access to finance**: Lacking access to capital to start their business, or to act as a safety net for certain career choices, will influence the range of choices available to women on low incomes (such as taking the risk to take a pay-cut, or to work on a self-employed basis)

- **Social capital**: The social capital of women who are on a low-income (whether in the form of friends, families, informal networks, contact with third sector organisations, or others) can have an impact on their ability to access information, get advice, find support, and hear about opportunities for training and work

- **Past experiences with training and employability programmes**: Previous experiences with support programmes can have an influence on how women on low incomes engage with further service provision

- **Key life events**: Women who are on low incomes start or stop their journeys toward work at different points, with certain life events (such as the birth of a child or an easing of caring responsibilities, a breakup, or being made redundant from a job) acting as key transition points for many

# What could future-focused career pathways for women on low incomes be in the future?

## Future state career journey mapping

These **future state journey maps** illustrate a hypothetical future scenario where improved services and employment opportunities have been implemented.

# Future state career journey map 1:
# Becoming a Health and Safety Professional in offshore wind

- What if volunteering was explicitly connected with employability opportunities?
- What if, when possible, employers focused on demonstrated skills and transferable work experience, rather than specific educational backgrounds?

## Plan B's in case of dropping out from journey map

**1**    **2**    **3**    **4**    **5**

**1** **Repeated engagement**: The organisations that Zainab has interacted with so far keep track of potential beneficiaries' dips in engagement, and send targeted reminders and nudges when that happens.

**3** **Recognition of modular learning and volunteering**: Zainab receives appropriate certification for the smaller training modules she completed, as well as for her volunteering work, so even if she decides to take a break from her journey at this point, the effort will not have been lost.

| | **Key transition point** | **Exploration** | **Up-skilling and networking** | **Training and jobseeking** | **Progressing in the industry** |
|---|---|---|---|---|---|
| **Events**<br><br>**What are the different steps along the way?** | The **charity that Zainab volunteers for** has just been awarded a grant as part of a consortium working on fuel poverty. Thanks to that, its volunteers will have the opportunity to take a **one-day course to understand fuel poverty** and its potential solutions – including renewable community energy.<br><br>Zainab decides to take the course, and she really enjoys it. The course organisers were very considerate and made sure to provide **public transport tickets to the event, meals, and to even have a dedicated playground** in case anyone wanted to bring their kids.<br><br>Moreover, at the end of the course, besides the usual certificate of participation, Zainab also got a **flyer highlighting various jobs where she could use the skills she just gained**, as well as other skills she could gain as a follow-on.<br><br>Zainab is **intrigued by the list of roles that were included in that flyer** – such as "renewable energy project manager", "retrofit advisor", or "heat pump installer." | Zainab decides to go on the website indicated on the flyer she received at the end of the training, and finds an **interactive career exploration platform**. The platform asks her to input some of her skills, experience, and personal preferences in it, and yields a set of potential career pathways she could pursue, as well as training routes to up-skill herself.<br><br>After engaging with the platform, Zainab learns that she has important **project management experience** she could build on and apply in a number of areas (such as domestic retrofit and renewable energy). The platform also indicates there's a sizeable number of jobs emerging in the field of offshore wind in her area, which are going to demand project management skills! | After engaging with the online platform, Zainab identifies a series of **key modular courses** she can take to build an understanding of and expertise in the offshore wind value chain and lifecycle.<br><br>She also makes a list of potential employers in her area, and starts applying for jobs. Where there aren't any vacancies, she **asks if she can have informational interviews** to learn about the skills, qualifications, and experiences that employers typically expect.<br><br>By doing so, one of the offshore wind companies she spoke to tells her there's a grant she can apply for to get a **health and safety certificate** from the **National Examination Board in Occupational Safety and Health (NEBOSH)**, which would be a good complement to her project management experience, and open many doors in the construction and energy industries. They also suggest taking an ISO 9001 auditor course. | Zainab applies for and secures the grant for the health and safety certificate training, which takes her **one month to complete on a part-time basis, followed by another month to complete her final project**.<br><br>With her new certificate, she starts reaching back out to the employers she spoke to, and keeps an eye on specialised websites for any openings.<br><br>Luckily enough, the company that initially suggested she take the NEBOSH training is **looking for a new account manager to help the health and safety team manage their various equipment contractors**.<br><br>They invite Zainab for an interview and, although the process is quite competitive, they are impressed by her newly acquired knowledge, as well as her rich experience in managing teams and stakeholders. | Zainab is on the path to be **promoted to a project manager role**, with a clear roadmap for specific skills and experiences she will need to accrue – including getting her offshore ready training!<br><br>In parallel with her job, Zainab still volunteers at her charity, continuing to make an impact on her community and environment. |
| **Drop-out points**<br><br>**At what points could the journey stop or change?** | **1** Despite finding it interesting, doesn't continue with it | **2** Doesn't follow-up | **3** Gives up on job-seeking | **4** Doesn't complete the course   **5** Gives up on job-seeking | |
| **Risks**<br><br>**What are the potential failure points?** | **Funding**: The course ends up being a one-off because the grant doesn't fully cover the cost the charity incurs to run the course (including staff time and bureaucracy, reporting requirements). | **Scepticism**: Although the career exploration platform yields some useful options, Zainab is sceptical about how realistic they are.<br><br>**Feeling discouraged**: Zainab feels that the route from up-skilling to being employable in the field would be long, expensive, and arduous, and decides she can't afford to start that journey.<br><br>**Concerns around career progression**: Whilst working in the renewable energy industry sounds like an exciting prospect, Zainab is not sure if she would be able to pull off a third career change.<br><br>**Work-life balance**: Zainab likes that she can spend her free time in a meaningful way and volunteer, and she is concerned that going into a full career-change would be very demanding of her time. | **Lack of (relevant) experience**: Zainab has never worked in construction, and doesn't have a degree in a STEM field, which seems to be a requirement in a lot of job ads.<br><br>**Fatigue**: Applying for new jobs while learning and also keeping up with her current job demands is tiring and time consuming, so Zainab ends up de-prioritising her new employment journey.<br><br>**Cost of training**: Some of the training programmes available out there are expensive, with individual certificates costing thousands of pounds. | **Lack of (relevant) experience**: Zainab never worked in construction, and doesn't have a degree in a STEM field, which seems to be a requirement in a lot of job ads.<br><br>**Rejection**: It's discouraging to put in so much effort into job applications and get rejected, which prompts Zainab to give up. | |
| **Enablers**<br><br>**What helps alleviate the pain points?** | **Funding programme design**: The funders supporting Zainab's charity to deliver the course have carefully designed grant programme with the organisations' current capacity and needs in mind. | **Skills mapping**: Zainab has access to a digital tool that allows her to explore skill similarities between her previous experiences, and the requirements of the offshore wind project management profession. The website she is looking through even has a handy chatbot function that allows her to brainstorm ways in which her past experience in payroll and social services will be helpful in project management – she already has solid skills in admin and finance, as well as client and stakeholder management, and experience dealing with compliance issues that are going to be key in any project management role. | **Access to funding**: Given the high demand for workers in key roles such as health and safety, the industry and government have put together mechanisms to support people who are on low-incomes access the training they need. | **Access to training**: If Zainab's current experiences and qualifications do not allow her to secure jobs in the field, she still has access to further affordable training opportunities that she can take. | |

# Future state career journey map 2: Becoming a Solar Panel Electrician

- What if there were intergenerational learning opportunities that allowed people to develop their skills at the same time as taking care of their families and communities?
- What if community spaces allowed people to develop technical skills, while also benefiting from other types of support (such as childcare)?

## Plan B's in case of dropping out from journey map

**1** **2** **3** **4**

**1 Awareness of alternatives**: The makerspace Hannah attends has an intentional employability offering, at least when it comes to raising its members' awareness of learning and work opportunities.

**3 Exit interviews and signposting**: If Hannah doesn't manage to finish her apprenticeship, or is not hired afterward, she still gets to have a conversation with her employer and learning provider, who point her toward broader employability support opportunities, and give her useful and constructive feedback.

| | Key transition point 1 | Learning new skills | Key transition point 2 | Apprenticeship | Hired as a solar panel electrician |
|---|---|---|---|---|---|
| **Events**<br><br>What are the different steps along the way? | Hannah comes across a poster advertising a series of creative workshops for parents and children at a **local makerspace**.<br><br>They are free of charge and easy to reach by public transport, and it advertises the **opportunity to do activities together as a family** – so Hannah decides to attend them together with her kids.<br><br>The first workshop turns out to be quite fun – there's a wholesome sense of community, and she gets to learn some new crafts.<br><br>Hannah asks about any follow-up activities, and finds that there are opportunities for her to sign up as a **volunteer at the makerspace** – which will allow her to use the place whenever she needs – as well as bring her children in – and access the various classes they organise. | Hannah starts **going to the makerspace on a regular basis** – around 2-3 days a week.<br><br>Although the place tends to get more busy after working hours and weekends, the space is quite lively at the times Hannah goes there – especially because other stay-at-home parents tend to join, as well as people who are in retirement.<br><br>Because of this, there's always someone around to show her how to use any machine or tool. And as a bonus, whenever she brings the kids around, they get to learn a few skills too.<br><br>Over the course of a few months, Hannah has **learned a few useful manual skills** by doing some beginner woodwork and electronics projects. | Hannah comes across a new poster at the makerspace – a **local company offering domestic energy services is looking for apprentices** who would like to work in solar panel installation and servicing.<br><br>This **advanced level 3 apprenticeship** would allow Hannah to combine learning with work. She could also further develop a skill she already enjoys quite a lot, and work on something that is important to her personally-sustainability.<br><br>Hannah considers whether this would be a feasible option for her, and decides to take it. | After putting together a solid application and passing the interview, Hannah starts by doing her **Level 1 Health and Safety training** over a few days, followed by a quick course and exam to get her **Construction Skills Certification Scheme (CSCS) card**, which allows her to work on any construction site.<br><br>After that, she is ready to go and start working on site. | After finishing her apprenticeship and **completing her end point assessment**, Hannah is **hired to work as a solar panel maintenance technician** at the same company.<br><br>While the job involves a bit of travel, she now has solid support to deal with her caring responsibilities, as well as the understanding and confidence of her employer. |
| **Drop-out points**<br><br>At what points could the journey stop or change? | | | **1** Decides against applying for the apprenticeship    **2** Doesn't pass the interview | **3** Drops out of the apprenticeship programme    **4** Doesn't get hired after the apprenticeship | |
| **Risks**<br><br>What are the potential failure points? | **Makerspace oversubscribed**: The makerspace is at capacity, and not taking any additional members. | **Unwelcoming environment**: Although Hannah enjoys going to the makerspace, she sometimes feels the environment isn't very welcoming to people like her.<br><br>**Cost of participating**: Participating in the makerspace is costly for Hannah, including various barriers such as a monthly membership, or price for using materials and equipment. | **Lack of (relevant) experience**: Because she has been out of work for a while, Hannah is not sure what to put on her CV.<br><br>**Confidence**: Being out of work has had an impact on Hannah's confidence, and she is a bit apprehensive about going back to the workplace, where she is afraid she might not fit in or perform well enough. | **Childcare responsibilities**: Hannah is concerned that she won't be able to go through a full-time, two-year apprenticeship programme while still being able to care for her children.<br><br>**Confidence**: Hannah is now in a situation where she has to rapidly learn new skills, while also working for the first time in several years.<br><br>**Transportation**: There aren't any convenient public transportation option for Hannah, so it becomes increasingly difficult for her to move around. | |
| **Enablers**<br><br>What helps alleviate the pain points? | **Flexible membership**: The makerspace has a range of membership types, meaning that Hannah can still attend some activities even if there is not enough current availability for her to become a full member. | **Dedicated funding**: The local authority where Hannah leaves is funding the makerspace, or subsidising the participation of individuals from specific groups (such as women on low incomes). | **Recognition of informal learning**: Although Hannah didn't take part in any formal courses so far, the activities she does at the makerspace are recognised, and she is able to put them on her CV to demonstrate her interest and ability.<br><br>**Specialised career coaching**: Thanks to a construction industry scheme aimed at supporting more women into the industry, Hannah has access to an online career coach who provides free-of-charge support to women who are currently out of work, and helps her understand how to better frame her motivation and experience, including her work at the makerspace. | **Childcare support service**: Hannah has access to an affordable after-school programme for her children. | |

# Future state career journey map 3: Becoming a Data Analyst

- What if employers actively supported horizontal career moves between fields?
- What if long-term career coaching was available, and supported by interventions that enable low-income women to take the time to think strategically about their careers?

## Plan B's in case of dropping out from journey map

••••••••••  (1)  •••••••••  (2)  •••••••••  (3)  •••••••••  (4)  •••••••  (5)  •••••••

**Exit interviews and signposting:** Jade's employer and programme team offer a one-to-one session with one of their coaches to anyone who drops out of the programme or isn't selected to go further. They use this to provide feedback, plan next steps, and signpost programme attendees toward other resources and programmes they can use. This helps ensure the experience of taking part in the programme is not viewed as negative or as a one-off opportunity.

| | **Key transition point** | **Exploration** | **Training** | **Job shadowing** | **Horizontal career movement** |
|---|---|---|---|---|---|
| **Events** — What are the different steps along the way? | Jade's employer launches a new **programme aimed at supporting workers whose jobs might be automated in the future to re-skill and move toward future-proof jobs within the same company**.<br><br>The programme will involve taking part in a series of workshops and getting access to learning opportunities, followed by training into a new area on a part-time basis, and shadowing colleagues in the relevant departments.<br><br>Jade hears about the new re-skilling programme and, although she is a bit hesitant at first, she **decides to give it a shot**.<br><br>The application process is quite straightforward and doesn't take much – plus, Jade is told she can easily reach out to the **programme liaison** in case she needs any advice with her application. | Jade hears that she has been selected to take part in the programme – this means she will be spending a few hours every week for a month attending one-to-one sessions with a **career coach** her employer brought on board. She will also get to learn about the other departments from her company, as well as attend more general employability workshops.<br><br>During her first coaching session, Jade gets an opportunity to **explore some of her strengths** with her coach – including client relations and communication, which she had a chance to develop in her various roles in the past. She also discovers that she has a flair for being analytical, and working with numbers.<br><br>At the end of the exploratory phase of the programme, Jade applies, with her coach's support and endorsement, to take part in the second stage, and undertake the **data analyst career track**. | After filling in her application and taking some tests to assess her basic analytical thinking and numeracy, Jade starts a **part-time, training programme in data analysis**, while continuing her part-time work.<br><br>The programme includes several **face-to-face workshops**, as well as access to a **modular, online, self-paced learning resource** that Jade can use to study and practice around her schedule.<br><br>Along the way, she learns how to **use Python and SQL for data visualisation, data wrangling, and database management**. She also becomes familiar with using Git and GitHub.<br><br>Jade is also **able to get in touch with the trainers running the course**, who are happy to help her whenever she's stuck on a practice exercise or project. They also point her to online resources, such as tutorials or open-source code. | After gaining some confidence in her data analytics and programming skills, Jade and her career coach arrange another meeting to plan for next steps. They decide she's ready to apply for the third stage of the programme, and she **interviews with the data analytics team**.<br><br>Thanks to the experience gained during the course, as well as the broader career coaching she received, she is able to demonstrate she would be a great addition to the team, and changes her employment contract to work full-time – with **half of her time in her old job, and the other in the data analytics team**.<br><br>While doing so, Jade has the opportunity to **shadow her colleagues**, work directly on a project, and start applying her skills by helping out with various tasks.<br><br>Her **experience working in a client-facing role** also proves to be a very valuable asset to the project, and she soon starts to take an active role in client calls. | After a few months, **Jade is offered a full-time role as a junior data analyst in the data analytics team** – with a better salary, and a reasonable amount of flexibility that allows her to take care of her daughter and aunt. |
| **Drop-out points** — At what points could the journey stop or change? | ••••• (1) •••••<br>Decides against applying for the first phase of the programme, or is not selected. | Decides against applying for the second phase of the programme, or is not selected.<br>••••• (2) ••••• | ••••• (3) •••••<br>Doesn't complete the training | Doesn't pass the interview<br>••••• (4) ••••• | ••••• (5) •••••<br>Doesn't get a full-time data analyst job |
| **Risks** — What are the potential failure points? | **Uncertainty:** While intrigued by the idea, Jade is slightly reluctant because she is already quite overwhelmed by her work and her caring responsibilities, has had previous negative experiences with training programmes, and lacks confidence that she would succeed in the programme.<br><br>**Lack of time:** Jade doesn't have enough the time or mind-space to submit her application.<br><br>**Faulty selection process:** There is a risk that Jade will not be selected to take part in the programme because of bias in the selection process (for instance, not being referred by her line manager if their relationship is not positive).<br><br>**Competitive programme:** The programme registers a lot of interest, and Jade isn't selected. | **Uncertainty:** Jade isn't sure what would be the best career track to take, and is apprehensive about investing a lot of time toward something that will not pay off. | **Balancing learning, work, and care:** It's sometimes difficult to fit her training schedule around her work hours and her caring responsibilities.<br><br>**Motivation:** Because a significant part of the training programme is self-paced, Jade loses some of her motivation and starts de-prioritising learning.<br><br>**Underemployment and unexpected costs:** Even if it allows her to better balance learning, work, and care, being employed on a part-time basis means that Jade doesn't earn much every week, so she might find herself in the situation to trade the programme off for full-time work.<br><br>**Dropping out:** Jade can't keep up with the programme pace, or finds that data analytics doesn't suit her after all, and drops off the course. | **Balancing full-time work and caring responsibilities:** Even if she is paid better, Jade still finds herself needing some support with her caring responsibilities.<br><br>**Motivation:** Because a significant part of the training programme is self-paced, Jade loses some of her motivation and starts de-prioritising learning.<br><br>**Doesn't get the job:** Jade doesn't pass the interview to be part of the data analytics team. | |
| **Enablers** — What helps alleviate the pain points? | **Intentional selection process design:** Jade's company partners with a specialist organisation who helps design a selection process that:<br>- poses a relatively low-barrier to entry for the first stage of the programme so as not to take too much time to apply to, and<br>- that intentionally mitigates against bias using behavioural insights | **Strengths-based coaching:** The coaching programme is tailored to help Jade identify what she is good at, and become more confident in it.<br><br>**Specialised career guidance:** After discovering her interest in data analytics, the programme puts Jade in touch with a member of the company's data analytics team, so she can ask any questions and take an informed decision. | **Self-paced programme:** The training allows Jade to take a bit longer to finish the self-paced component of the programme, or specific modules, if needed (especially as she keeps working).<br><br>**Accountability:** Jade keeps in touch with her career coach and the programme team, who check in with her if she is finding it difficult to keep up with the training.<br><br>**Mediation:** The programme team brings Jade's line manager on board, and they work together to set a schedule that can allow Jade to take part in the programme in a way that fits well with her regular working hours.<br><br>**Access to crisis support services:** The programme signposts Jade toward easily-accessible support services in case she runs out of money, or encounters any other barrier to learning. | **Flexibility:** Jade is empowered to negotiate some flexibility in her schedule, which allows her to work from home and be able to decide when to work on certain tasks, so she can be present for her daughter and aunt when needed. | |

# Future state career journey map 4: Becoming a Freelance Web Developer

- What if employers provided up-skilling opportunities to all of their staff, not just those working in technical roles?
- What if learning and development was an active part of job design?
- What if self-employed people received the appropriate support that would allow them to avoid burnout and financial vulnerability?

## Plan B's in case of dropping out from journey map

**1** **General awareness**: Although Alexa doesn't take up any of the courses offered by the co-working space because she lacks time, she still has some exposure of career development topics (e.g. through discussions with her colleagues, or visual campaigns taking place in the building), which might help her in the future.

**2** **Alternative learning strategies**: The platforms Alexa has been using to learn signpost Alexa toward other ways of learning, so she has access to information about more engaged options, such as subsidised bootcamps.

**Pivoting**: If Alexa decides web development isn't what she was hoping it to be, she has access to online or in-person advice about other areas she could easily pivot to with what she has learned so far.

**3** **Alternative career pathways**: Although she can't find a full-time job or clients, Alexa has access to information and guidance on other ways she could get into a web development role, especially with her new-found skills – for instance, by getting hired in a more junior role in a tech team, or applying for an apprenticeship.

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## Events
**What are the different steps along the way?**

### Key transition point

Alexa recently got a **new job in catering** at the cafeteria of a co-working space. While interviewing there, her new employers were very impressed by her drive, and felt like she was a great fit for the organisation.

Alexa is offered the job, and her new employers let her know that the co-working space, together with the various organisations renting out the offices, have put together a **scheme that provides learning opportunities for all employees**.

If she were to start working there, Alexa would get **access to a series of classes, a learning budget, as well as a place in the hot-desk area** to use whenever she needs to study.

Alexa accepts the job, and is thrilled to start!

### Learning how to learn

While starting her job at the co-working space cafeteria and getting used to the environment, Alexa is offered a **menu of short courses she can attend after working hours**, at the same location.

Alexa chooses to take part in several workshops ranging from practical tips for CV building and taking part in interviews, to trends in the labour market, design thinking, and learning strategies and techniques to develop skills independently.

Equipped with this new knowledge, Alexa starts thinking that her **aspiration to start her own business may actually come true if she worked in the tech space**.

Amongst the various options she came across, **web development** seemed the most appealing – it seems like it would offer enough flexibility, plus Alexa enjoys technology.

### Independent learning

Alexa starts by browsing various resources on the internet, including YouTube videos about learning web development from scratch without a degree (which is quite encouraging!) and looking for tutorials on websites such as SkillShare.

Alexa **creates a learning roadmap for herself**.

Over the course of the next year, she learns the basics of **data structures and algorithms**. She also starts by learning Java as her **first programming language**.

Soon enough Alexa is active and asking questions on Stack Overflow, and trying out different projects and individual challenges to **put her skills into practice**.

Alexa is also aware of the importance of **creating a portfolio to demonstrate her skills**, so she pairs up with a co-working space colleague, who is learning front-end development, and they create their first website.

### Setting out as a freelancer

After having built a solid portfolio, Alexa starts **advertising her availability for employed or freelance work** on LinkedIn and Twitter – she is conscious she will first need to get some experience, so she's open to either possibilities.

In parallel, she signs up for a **membership organisation for those working on a self-employed basis**, which offers discounted one-year memberships to people who are on a low-income, and provides different forms of support – including work and health insurance, and up-to-date information and advice on pensions, taxes, accounting, invoicing and more.

One of her co-working space colleagues, who has previously supported Alexa in her learning journey, refers her to a professional contact who is looking to hire a **freelance backend developer for a short project**.

### First contracts

Equipped with solid knowledge and practical experience, Alexa is ready to start working on her first project, and **build her client base** until she can switch to becoming a full time backend developer.

Moreover, with her access to a network of support and dedicated advice, she **can work as a freelancer without compromising her personal and financial wellbeing**.

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## Drop-out points
**At what points could the journey stop or change?**

**Doesn't take up the course offering** **1**

**Doesn't complete her learning plan** **2**

**Discouraged she can't find clients, gives up** **4**

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## Risks
**What are the potential failure points?**

**Doesn't feel like it's for her**: Alexa doesn't feel that the learning budget is geared towards her and therefore does not feel motivated to explore it.

**Lack of time**: Alexa doesn't take up the learning budget because she thinks she will lack the time to appropriately engage with it.

**Lack of clarity about the opportunity**: The learning platform is not designed in a way that is easy to navigate and/or the course offering is not presented in a clear way.

**Lack of time and scheduling conflicts**: Because Alexa has other commitments – such as taking care of her daughter, and helping out her husband when needed, she can't attend all of the courses and workshops she would like to.

**Independent learning**: Although learning everything at her pace and online offers flexibility, Alexa finds it a bit isolating, and she sometimes wishes she had an instructor to ask for help with.

**Accountability**: It's difficult to follow through with the learning journey every day, especially because Alexa has competing priorities (such as childcare, and her current job).

**Rejection**: Alexa finds it difficult to find clients or to get interviews to be employed, because the field is quite competitive and some employers or prospective clients are looking for someone with more experience or skills.

**Burnout**: Working full time, taking care of her daughter, continuing her learning journey, as well as applying for jobs and trying to find clients leads Alexa toward burnout.

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## Enablers
**What helps alleviate the pain points?**

**Targeted communication**: Alexa is actively encouraged by her line manager to take up the learning budget, and is given several opportunities to ask questions about the courses available, what sort of time commitment they would involve, and what they could help with.

**Intentional programme design**: The course programme is designed in a way that fits Alexa's regular job responsibilities (e.g. by being arranged during her shifts rather than at school pick-up time) and keeps her motivated to participate (for instance, through gamification techniques, or using behavioural insights). The courses and workshops are also recorded and available offline, so that Alexa can choose to take them asynchronously when needed.

**Online collaboration**: Alexa has access to the shared co-working space Slack forum (which has a dedicated channel for learning), and asks if there are any backend developers using the space who might be happy to provide her with some advice. Soon enough, Alexa manages to arrange a couple of meetings – and in the process, inspires other colleagues to do so.

**Accountability support**: Alexa becomes an accountability buddy with another co-working space member who is interested in learning web design.

**Entrepreneurship support**: Thanks to a government scheme, entrepreneurs and sole traders from low-income backgrounds have access to learning and support that helps them cope with the stresses of working for themselves.

**Wellbeing support**: Alexa becomes part of the entrepreneur wellbeing group organised by the co-working space – which tackles subjects such as burnout, work life balance, and dealing with stress and anxiety.

**Planning**: Besides gaining the skills that enable her to work as a web developer, Alexa has had access to workshops that help her manage her time effectively. Therefore, although actively applying for jobs and networking can be tiring and stressful, she has set a dedicated timeframe to do so during the day.

# The role of innovation

## Areas of innovation that can be drawn on

Despite the challenges that service providers face, we uncovered a series of promising innovations. This section presents potential areas for innovation alongside current examples to provide inspiration and outline opportunities for further work. We have included several examples of evidenced solutions alongside earlier stage services that are currently being implemented and tested. Where publicly available, we have provided examples of impact data, as well as highlighting opportunities to further build on these areas of innovation – from testing and gathering evidence for early-stage solutions, to scaling and adapting best practices to further suit the needs of women on low incomes.

| Area of innovation | Examples | Opportunities |
|---|---|---|
| **Holistic models**: tailor-made, impactful adult learning and career support programmes that take into account employer demands and learner needs. | **Generation** is a global organisation that offers adult employability programmes using its 7-step methodology, which involves deep employer engagement and holistic support.[134] Generation's model has resulted in **90% of programme graduates being retained in their new job after one year, and 2 out of 3 alumni** have been promoted over 2022.[135]<br><br>The new **Horizons Programme** run by UK charity Catch-22 helps individuals overcome barriers to work, such as homelessness, mental health, or poor education, by providing a blended model of career coaching, pre-employability support, technical training, and in-work support. This programme is in its early stages of delivery, which means that there is no publicly available impact data, but it is a promising example of an holistic programme model.[136]<br><br>**Women's Enterprise Scotland** provides gender-aware business support to women entrepreneurs in Scotland, including specialised training, mentorship, and networking opportunities.[137] | **Replicating and adapting** holistic models at a local level in order to address the specific needs of women on low incomes supported by **dedicated funding** from funders including employers.<br><br>**Tailoring holistic models to neglected user groups**, such as women in specific age brackets, migrants, women lacking access to transport etc.<br><br>Building evidence bases by embedding **impact assessment** into programmes. |
| **Tech-enabled learning**: using technology to support and enable new forms of learning (such as distance learning, asynchronous teaching, bite-sized information, immersive learning etc.). | **Immersive learning** utilises virtual and augmented reality, which enables learners to practise tasks independently, or simulate different situations, minimising the risk and cost associated with in-field learning. For example: **Bodyswaps** is a digital soft skills training platform that allows learners to practise workplace communication – the organisation reports that after a single session **75% users identified ways to improve their skills, 76% felt more confident to apply those skills and 86% would recommend the experience to peers. zSpace** provides workforce training through interactive AR experiences for specialised hardware – research has suggested that this is a promising approach for **improving academic performance, closing the opportunity gap and nurturing STEM interests in young women.**[138]<br><br>**Digital Personalised Learning** is a teaching approach that uses technologies to create personalised learning paths for students, in order to better account for individual needs, preferences, and cultural contexts. The approach has been found to **improve remote learning outcomes, close educational attainment gaps and have a positive impact on student motivation.**[139] For example, **Game Academy** is a new tech venture using video games to improve workforce skills, including with an embedded diagnostic assessment of each learner's motivation and core skills, **which learners found useful in understanding their skills and value for the labour market.**[140] | **Trialling tech enabled learning and measuring impact in future-focused work.** For example, employers and service providers could use immersive learning to teach skills for working with specialised hardware at scale in a range of locations. Service providers could use digital personalised learning to embed flexible principles and tailor their services to the diverse circumstances of women on low incomes. |

| Area of innovation | Examples | Opportunities |
|---|---|---|
| **Labour Market Information:** interventions aimed at supporting better access to, and use of labour market information to support individual careers. | Challenge Works' **CareerTech Challenge** was a challenge prize that sought digital solutions which improved career information, advice and guidance, by **combining innovative uses and sources of labour market information to make high-quality, localised advice and guidance more accessible**. This led to the creation of solutions such as the automated job coach **Bob**, or the **Would You Rather Be** app, aimed at supporting personal decisions about careers.[141] Today, **1 in 2 users report that Bob's coaching was a key factor in their job recovery;**[142] **Would You Rather Be** sold their platform to the **Learning Curve Group**, where **its careers advice and support is now available to 200,000 learners each year.**[143] Nesta's **Mapping Career Causeways** project used machine learning to capture similarities between jobs based on activities and skills, in order to recommend potential transitions for individuals whose jobs are at risk of automation.[144] The algorithm is currently being turned into a user-facing tool which will show users what occupations are similar to their own, and highlight skills that differ. | **Replicating and adapting labour market information platforms**, particularly ensuring their accessibility and reach to women on low incomes. **Increasing usage** of these platforms, in particular by specific user groups such as **career coaches or women on low incomes**. **Funding innovation** to improve data on skills supply and demand in order to help match career changers to appropriate learning pathways. |
| **Work practices and job design:** transforming workplace cultures, practices, and jobs so they are better suited to the needs of targeted groups. | Social enterprise **Timewise** has worked with several employers and industry bodies to develop and trial new flexible working practices, including the **Constructions Pioneers Pilot programme**, which implemented new practices in the construction sector and led to increased satisfaction from employees. **All the pioneer employers reported that the pilot had no negative impact on budgets or timeframes**; for some there was **emerging data suggesting that the adjustments reduced labour costs** due to increased productivity and **employees reported improved well being and job satisfaction.**[145] The UK **four-day week pilot**, which included a period of training, coaching, and peer support, and involved implementing a series of four-day week models (from Friday off to staggered days) led to positive results in **employees ability to combine paid work with care (60%), increased retention (57% less than before the trial) and revenue (up 35% in comparison to the same period the year before).**[146] | **Funding further research and pilots** to assess impact of flexible working practices across future-focused work. By contributing to a stronger evidence base these efforts will help de-risk change for businesses and incentivise action by highlighting cultural and commercial benefits. **Replicating sector-wide actions on flexible working**, including disseminating best practice protocols and building bodies of evidence regarding impact on productivity, wellbeing and diversity. |
| **Multi-stakeholder partnerships:** stakeholders such as employers, training providers and community-based organisations partnering up to coordinate and deliver blended solutions. | The High Value Manufacturing Catapult (HVMC) implemented a **Skills Value Chain method** to foresight demand for future skills: from monitoring future workforce requirements by identifying competencies needed for emerging technology capabilities through discussions, workshops, analysis and evaluation; to developing curricula and scaling up delivery through partnerships. This worked by ensuring the availability of appropriate training that will give potential employees the skills necessary to secure good work. The project demonstrated that the foresight process is a **viable approach that can be used to identify the upskilling required to prepare the workforce for the future, offering benefits and value to participants and stakeholders**. Further improvements to the foresight process were recommended, as well as further work with other sectors and groups on industrial digitisation workforce requirements.[147] Nesta's **FutureFit** programme created partnerships between training providers, trade unions and confederations, employers, and researchers and experts to develop and test innovative training and re-skilling interventions. Of **over 1,000 learners who completed training, 89% gained better digital skills.**[148] | **Engaging multi-sector partners** that can strategically aggregate resources and competencies in order to design training that is directly linked to labour market needs and reach under-represented groups. This includes making LMI available to learning providers, governments, career coaches and innovators so that they can design appropriate training courses. It is also an opportunity to partner with grassroots community organisations. **Further development of the Skills Value Chain method** with application to future-focused work, including building the approach's evaluation and evidence base. |

| Area of innovation | Examples | Opportunities |
|---|---|---|
| **Evolving recruitment practices**: capitalising on existing insights and emerging evidence to develop new tools and practices to improve recruitment to better target more diverse groups. | **Applied** makes use of behavioural insights to support task-based candidate selection and blind recruitment, in order to help employers overcome implicit and explicit biases. **Applied** has found that employers who use the platform report an **increase in ethnic diversity, reduction in time spent hiring, and positive candidate experience.**[149]<br><br>**Greenworkx** is a platform that helps individuals identify green jobs that may fit them, and provides micro-learning opportunities to gain knowledge of these topics. It is in its early stages, with funding from Innovate UK, so has no publicly available impact data.[150] | **Adapting core principles of skills-based recruitment** to future-focused sectors and roles, with specific skills and diversity targets in mind.<br><br>**Partnerships** across industries to commit to improved recruitment practices.<br><br>**Further research** into the impact of different recruitment practices on attracting women on low incomes.<br><br>**Monitoring and adapting** platforms to address the specific needs of women on low incomes, supported by **dedicated funding** from local authorities and employers. |

# III. CONCLUSIONS AND RECOMMENDATIONS

**Our research explored the experiences of women on low incomes, their experiences in the labour market, and the opportunities and challenges of the future economy.**

## We found

Changes in the labour market are an opportunity for women on low incomes. New professions are arising, existing ones are evolving and new sectors are emerging. Many of these will create good jobs, which could be an engine for economic empowerment for this demographic.

However, the opportunity will only be realised if key challenges are met. Government, employers and service providers all have a role to play. Some of these challenges are hard – wicked problems that don't have obvious solutions, and issues that need sustained and substantial public funding, not just a quick fix.

Solutions to these challenges can't be imposed, they need to be co-created. Not all help is truly helpful: how these solutions are created and delivered matters as much as what they are. Experience of career support is inconsistent and sometimes poor. Some of that is down to lack of resources or capacity – but some is also because solutions treat their users as passive recipients of help, rather than rounded human beings with varied needs and desires. Consultation, human-centred design and proper evaluation can counter this. And support needs to be for the long term, with predictable funding, rather than the stop-start of small grants and short-term support that makes systemic change harder to achieve.

## Recommendations

We have centred the voices of women with lived experience and highlighted their experiences and views. This approach has generated a range of insights and findings as set out in this report. For research to have impact it must provide stakeholders with actionable recommendations to address barriers and support change.

We have mapped our recommendations against key issues, outlining the impact that could be achieved if these issues are addressed and actions that could be

taken by different stakeholders. While we have aimed to provide practical and actionable recommendations we also acknowledge that there are structural factors (such as welfare provision, child care policy and inherent friction in the jobs market) that impact the experiences of women on low incomes and shape their circumstances. These issues need to be addressed and have been explored, at length, by other organisations. Our research, with its focus on women's lived experience and its resulting recommendations, should be viewed alongside these bodies of work.

| Recommendation | Anticipated impact | Opportunities for action |
|---|---|---|
| **Use human-centred design** to deliver interventions that are tailored to the needs of women on low incomes. | There is no one-size-fits-all approach to delivering training, employability, and in-work support interventions for women on low incomes. Our research has shown that interventions that are tailored to the needs of a specific user group are often most impactful.<br><br>**Service providers** can fine-tune the support they offer to the complex needs of women on low incomes, by engaging end-users, employing human-centred design methods and continuously evaluating, testing and iterating programme designs.[151]<br><br>• For **funders**, a human-centred design approach will help to strengthen programmes, and ensure resources are used effectively<br><br>• Similarly, such approaches can help **employers** achieve better ED&I outcomes<br><br>• This approach can ensure that **women on low incomes** have access to a more diverse and suitable range of programmes, which account for their specific individual needs | **Service providers** should engage and involve end-users and target communities in developing their programmes, ensuring that programme design is informed by the views of women representative of the intended user group. In particular:<br><br>• Take into account the need for wraparound support (sometimes also called integrated case management)<br><br>• Treat caring responsibilities as a key design and delivery consideration<br><br>**Service providers** should consider key design choices to ensure that their services are accessible and suitable for the women they targeting:<br><br>• **Duration**: How long is the programme?<br><br>• **Timing**: When does it take place?<br><br>• **Intensity**: Is this programme full-time or part-time? Does it offer full classes, or bite-sized information?<br><br>• **Delivery model**: Is the programme delivered online or offline? Is it synchronous or asynchronous?<br><br>• **Autonomy**: Do course participants manage their own learning, or are they supported and coordinated by an instructor?<br><br>• **Flexibility**: How much control do course participants have over the pace, and when they study?<br><br>• **Cohort structure**: Is the programme something that individuals take separately, or will they be part of a group or community of learners?<br><br>Funders can help to ensure their grantees and service providers incorporate human-centred design into their work and to do it well by providing the organisations they support with tools and training. |
| **Account for caring responsibilities** and the barriers that these responsibilities might pose to women on low incomes when designing programmes, services, and employment practices. | While not a universal experience, our research has shown that caring responsibilities (including, but not limited to childcare responsibilities) have a significant impact on the ability of many women on low incomes to engage with support programmes and training and advance within their careers.<br><br>Taking into account that caring responsibilities will be a key factor affecting many women on low incomes when designing programmes, communicating roles, or setting up workplace practices can benefit many groups, making services and opportunities more accessible to a wider cohort.<br><br>• For **service providers**, this could help ensure that women on low incomes that have caring responsibilities are able to participate in programmes<br><br>• Taking caring responsibilities as a given in programme design can also create the conditions for **women on low incomes** to make the most out of training and other support programmes (E.G. through the provision of wraparound support that allows women on low incomes to access childcare support while participating in programmes, or having flexibilities in their schedules to account for unexpected events) | **Funders, policymakers, employers, and relevant service providers** should design and generate experimental evidence for behavioural interventions and incentives aimed at levelling out the burden of childcare responsibilities within families. For instance, these trials could explore the impact of communication interventions on uptake of parental leave by fathers.<br><br>**Employers** should experiment with, and evidence the impact of, new practices, such as (depending on their business model and operational constraints) flexible working, the four-day work week,[152] job sharing and other approaches to understand benefits in employee retention and productivity.<br><br>**Funders** should build meaningful and proportionate checks into their review processes to ensure that caring responsibilities are treated as a key design and delivery consideration for the programmes they fund. Where possible, they should provide appropriate guidance (taking the form of webinars, toolkits, best practice examples etc.) to enable their grantees to integrate these considerations into their programmes. |

| Recommendation | Anticipated impact | Opportunities for action |
|---|---|---|
| Create a **data environment** that supports the interventions across the ecosystem. | Our research has shown that the UK skills system is siloed, and that information failures lead to a mismatch between skills supply and demand. This makes it more challenging for all the actors in the system to meaningfully improve the provision of needed training and support.<br><br>An interoperable data environment – where policymakers, employers, service providers, and funders use common standards, including levels of analysis and definitions; and have access to up-to-date data on skills supply and demand – could help overcome this.<br><br>• This would provide crucial information for **service providers** to tailor their course offering to match employer demand; it would enable funders to better target investment into emerging skill gaps; and it would allow employers to better communicate their workforce needs<br><br>• Ultimately, a connected, interoperable data environment could help **women on low-incomes** access training and support that is more relevant to skills demand, and is therefore more likely to result in jobs and career progression | **Policymakers** should adopt the ONS' definition of 'green jobs' and the ONS' green jobs framework across government policy areas once it is available.[153]<br><br>**Policymakers** should conduct quantitative research to fill knowledge gaps about growth trends for specific skills, jobs, professions, and industries, including at a local level. They should make these insights, alongside other data regularly captured at different levels (such as DWP data) easily accessible to employers, service providers and policymakers across government through approaches such as the Skills Value Chain framework (see 'Areas of innovation' section)[154] or through joining up datasets.<br><br>**Funders and policymakers** should support and adopt innovative approaches such as the Open Jobs Observatory (see 'Areas of innovation' section) in order to generate additional sources of up-to-date data about job and skills demand.[155]<br><br>**Policymakers** should change the government's approach to data collection and analysis to generate granular, gender-disaggregated data sets relating to employment in key industries, participation in training programmes, and access to entrepreneurial funding. |
| **Improve impact measurement approaches** to better account for the needs and circumstances of women on low incomes. | We learned that many funders assess impact based on the number of people in jobs after a given time period. This metric alone does not account for the complexity of the journeys that women take in order to train for, secure, maintain, and progress within better paid, future-focused work.<br><br>An impact assessment approach that accounts for whole career pathways, as well as potential failure points (as illustrated in our 'Future state career journey maps' section) would allow **funders** to support more resilient journeys.<br><br>• As a result, service providers would be better equipped to account for the full impact of their work, appropriately assess their impact through comparison with similar interventions, and provide better support to women on low incomes | **Funders** should develop, pilot, and roll out a broader range of metrics, so as to more comprehensively measure the range of impacts that services aim to have. This could mean exploring:<br><br>• Metrics for progress across longer time horizons (E.G. retention, career progression)<br><br>• Metrics that account for intermediate steps toward employment (E.G. skills development indicators, educational outcomes)<br><br>• Metrics that account for 'soft outcomes' (E.G. non-cognitive, socio-emotional skills such as self-efficacy, agency, or resilience)[156]<br><br>**Policymakers** should support service providers to gather evidence on the effectiveness of their programmes, and facilitate comparability across interventions (E.G. by disseminating and supporting the adoption of services such as the Employment Data Lab).[157]<br><br>Similarly, **funders** should establish a community of practice with other funders working in this space to support the dissemination of common standards for impact measurements across the ecosystem. |

| Recommendation | Anticipated impact | Opportunities for action |
|---|---|---|
| **Improve the funding ecosystem** by taking a more adaptive approach to funding decisions. | We learned that service providers offering key support to women on low incomes often need to rely on precarious, unpredictable, short-term funding.<br><br>This can result in service providers shifting between programmes before they reach their full impact, or even cause key services to be discontinued – leaving women on low incomes without crucial support (which, in turn, means they may 'drop off' their journeys toward future-focused work).<br><br>We also learned that less-established service providers and innovators (such as community-based organisations) often struggle to find any funding at all.<br><br>Funders have the opportunity to better support the skills and employment ecosystem, by creating funding portfolios that account for the diverse needs of service providers within the ecosystem – from testing and evidencing early-stage interventions, to scaling and achieving financial sustainability.<br><br>• By doing so, **funders** can ensure that they maximise the impact of their investment, addressing gaps when needed and avoiding duplication<br><br>• Furthermore, **service providers** can benefit from better funding that leads them towards long-term sustainability – and therefore enables them to more reliably provide crucial support to women on low incomes | Where appropriate, **funders** should shift to longer-term funding settlements (E.G. 2+ years) in order to account for the time horizons that are usually required for women on low incomes to embark on resilient career pathways.<br><br>**Funders** should consider using a portion of their budgets to support early stage innovations in the training and employability space, by employing appropriate mechanisms (including flexible grants with low entry barriers, as well as outcomes-based approaches such as challenge prizes – see **Programme Proposals box** below), to enable and encourage service providers to prototype, test, and iterate their solutions.<br><br>**Funders** should establish a community of practice with other funders working in this space to:<br><br>• Facilitate collaboration (including co-funding programmes, knowledge sharing, problem solving and coordinating programmes of work)<br><br>• Establish complementary funding practices that address gaps in funding provision (such as funding to test early stage innovations, or scaling capital)<br><br>• Share learnings and good practice and, where appropriate, support the replication of successful programme models |
| Enhance, strengthen, and leverage **local community infrastructure**. | Our research has shown that community organisations and community spaces can play a particularly impactful role in supporting women on low incomes toward learning and work – by facilitating social connections and increasing their social capital, ensuring they have access to information, providing additional support (such as informal childcare support), contributing to their subjective well being, and inspiring them to pursue careers in future-focused work.<br><br>While these opportunities are extremely important, they are often scarce (such as in areas lacking reliable public transportation); or not fully leveraged by actors within the skills and employment space.<br><br>• Strengthening community infrastructure can provide increased opportunities for **women on low incomes** to network, gather information, and learn new skills<br><br>• It can also provide additional, much-needed resources to **service providers** (such as channels to advertise their programmes or spaces to run activities) | **Employers and service providers in the training and employability space** should leverage community infrastructure and networks in order to disseminate their opportunities to women on low incomes. This could mean:<br><br>• Partnering with community-based organisations to directly reach out to user groups<br><br>• Integrating community-based activities such as providing mentorship, career advice, and training to women on low incomes<br><br>• Organising networking events and talks in community spaces (such as community centres, food banks, libraries, schools)<br><br>**Policymakers** should involve **employers** and **service providers** in social prescribing initiatives, for instance by using interactions with social workers to signpost employment opportunities to women on low incomes. |

| Recommendation | Anticipated impact | Opportunities for action |
|---|---|---|
| **Improve ED&I strategies** (including employment practices and recruitment strategies) to make it possible for women on low incomes to access and progress within future-focused work. | We learned that future-focused work is sometimes inaccessible to women on low incomes because they feature high barriers to entry (that exclude individuals without higher education degrees, for instance), or use recruitment practices that are less likely to reach them.<br><br>Our research highlights that women on low incomes may also face specific barriers when it comes to progressing within their careers (E.G. caring responsibilities and financial vulnerability preventing them from undertaking additional responsibilities or training opportunities).<br><br>To address this, employers and recruiters have the opportunity to take concrete action and improve their recruitment practices and internal processes so that they address the barriers facing women on low incomes.<br><br>• By doing so, **employers** can work toward achieving ED&I goals<br>• For **women on low incomes**, an intentional ED&I approach would increase the range of employment and progression opportunities available to them | **Employers** should adopt more accessible practice in regards to job adverts and adjusting educational requirements to take into account alternative learning pathways. Testing different approaches such as language usage, adoption of skills taxonomies that improve accessibility and engagement for women who are on low incomes, or advertising in-job benefits such as flexible working.[158]<br><br>**Employers** should leverage informal networks as part of their recruitment efforts – from targeted social media advertising, to engaging with influencers and champions who are already part of these networks or connecting with local stakeholders with access to the community.<br><br>**Employers** should collaborate with relevant **service providers** to deliver returner programmes for women who have been out of the workforce and are looking to get back into work.[159]<br><br>**Employers** should build partnerships with local service providers to co-deliver training programmes that address skill shortages, and support participants toward job opportunities.<br><br>**Employers** should engage in, or initiate, industry-wide efforts to develop and implement apprenticeship standards for a wider variety of roles, including non-technical roles. |
| Create new tools, approaches, and collaboration models that **facilitate learning and career coaching at scale**. | We learned that having a diversity of approaches in training and career coaching is important for women on low incomes, as there is no one-size-fits-all solution.<br><br>While crucial, the tailored, holistic, often one-to-one support that can best support women on low incomes is often expensive and time-intensive, and can leave frontline workers (such as career advisors and trainers) overwhelmed, especially in resource constrained contexts.<br><br>To help alleviate this, innovative solutions that facilitate training and career coaching, and enable the work of frontline workers could be developed and adopted.<br><br>• If done right (I.E. solutions are designed with their end-users in mind, including women on low incomes and frontline workers), this would allow **service providers** to more effectively deliver their services, and to serve more people<br>• This could also improve the experiences of **women on low incomes**, by making training and career coaching more affordable and widely available<br>• **Employers** would also benefit from such solutions, especially in areas where they are facing skills shortages, by allowing them to train people in a more rapid and cost-effective way | **Funders** should support a challenge prize to create LMI-enabled tools that enable providers of careers advice (E.G. careers services, Jobcentre Plus, charities) to provide higher quality support (see Programme proposals box below).<br><br>**Funders** should support a challenge prize to create solutions that leverage new technologies (E.G. AR/VR to learn how to assess home retrofit opportunities) to enhance existing training programmes (see **Programme proposals** box below). |

# Programme proposals to support women on low incomes toward future-focused work

Funders have an opportunity to incentivise a range of innovations that would support women toward future-focused work. Amongst the available methods, challenge-based funding models such as challenge prizes and challenge funds can be deployed strategically to incentivise innovators to work toward a specific goal:

- **Challenge prizes** offer a reward to whoever can first or most effectively solve a problem. They are a tried and tested method of attracting new innovators to change the status quo. At the same time, they also challenge incumbents to redirect their efforts or think about a problem in a new way. This leads to breakthrough solutions, the creation of new cohorts of innovators, and can result in systemic change[160]

- **Challenge funds** are overarching, strategic funds focused on fostering innovation around a specific mission, theme or policy priority. This approach enables funders to create portfolios of strategic investments that can be deployed in a flexible yet targeted manner, while drawing on a mix of funding models (such as grants, challenge prizes, or impact investing)[161]

To highlight how these funding approaches could be utilised to catalyse change and support innovation that will support women on low incomes towards future-focused work, we have developed a series of high level programme proposals. These proposals draw on insights from the research as well as our extensive expertise in challenge prize and fund design and execution. However, they are not final. If taken forward, they would require investment in a design process (using a prototype process drawing on wide stakeholder engagement) to determine their optimal framing and structure.

# 1. Challenge fund: systems approach

**Problem statement**: The journeys that women on low-incomes need to take toward better work are complex and ripe with challenges. Once an individual has embarked on a training and employment journey, there are various factors that make it likely for them to 'drop off' further down the line. In light of this, the current ecosystem of support suffers from being too disjointed, without enough 'big picture thinking'.

**The opportunity**: Our future state career journey maps illustrate how different actors can work together to support women on low incomes at different points across their journey, by addressing a full range of needs, acknowledging that their journeys will not be linear, and intervening at key drop-off points where there is a risk that women may interrupt their journeys. There is an opportunity to strategically leverage partnerships and collaborations through a challenge fund approach, to enable stakeholders to take a system-level approach, and ensure that women on low incomes are able to thrive. By focusing stakeholders around an overarching goal and then collaborating to define a small handful of complementary contributory goals, a challenge fund enables us to tackle system wide issues while addressing silos and stakeholder disconnects.

**Programme proposal**: A multi-year, multi-million challenge fund bringing together a consortium of funders, employers, training providers, community-based organisations and local policymakers to **create collaborative models that support the full journeys of women on low incomes**. The challenge fund could take a two-stage approach, with an initial call for groups of problem owners (E.G. local authorities, training providers, community-based organisations) to propose a series of challenge topics related to specific issues. The selected problem owners would then be supported to run a series of tailored activities to invite and support innovators to address these challenges,[162] such as

capacity-building, implementation grants, evidence gathering, networking and user testing (focused on key end user groups such as women on low incomes and frontline workers). The different streams of work could run in parallel or be staggered E.G. with research and evidence generation running alongside and learning being shared across the different streams. Key success factors for the programme would include:

- Resourcing commensurate with the level of ambition

- Engagement of key stakeholders across the system

- Intelligent application of different funding mechanisms (such as grants, investments, prizes) to best address selected challenge topics

- The meaningful and sustained engagement of women with lived experience as well as front line workers at every level of the fund

## 2. Challenge prize: tools for better career advice

**Problem statement:** In order to access future-focused work, women on low incomes need career advice that is timely, tailored, and that reflects job and skills demand at a local level. However, providers of careers advice (E.G. careers services, Jobcentre Plus, charities) often struggle with a siloed skills landscape, a lack of certainty about which skills are going to be in demand and resource constraints that prevent them from providing the best advice they could.

**The opportunity:** There is an opportunity to leverage data analytics and Labour Market Information (LMI) to generate actionable, timely, and dynamic information about skills and job demand and supply, alongside tailored tools for career advisors to use in their day-to-day work. This would enable career advisors to focus on providing meaningful support and career coaching, leveraging what humans are best at – soft skills and personalised support. LMI information could be utilised alongside AI products such as ChatGPT and Microsoft's Copilot to free up advisors time while enabling them to provide high quality and relevant advice.

**Programme proposal:** A two-year, £3-5 million challenge prize to create LMI-enabled tools that enable career advisors to provide higher quality support. The prize would take a two-gated approach, inviting a range of innovators (such as data analysts, researchers, product designers etc.) to propose early-stage tool ideas, and supporting selected semi-finalists to create and test prototypes (by connecting them with relevant end-users). The strongest participants would be selected as finalists and supported to create minimum viable products and start commercialising them. Depending on the level of ambition and commitment, a further stage could be added to this challenge to scale these solutions by helping them integrate with other services – such as community-based, housing, or employability



programmes. If feasible, the latter stages of the prize could incorporate procurement opportunities or advanced market commitments as part of the financial incentives and awards for the innovators. Key success factors for the programme would include:

- Resourcing commensurate with the level of ambition

- Framing the challenge to attract early stage ideas that could be relevant to a wide range of service providers

- Timeframes at each stage that give innovators enough time to execute necessary activities, and

- Involvement of key customers and users at every stage of the prize, from design to the final judging panels

# 3. Challenge prize: tech-enabled training

**Problem statement:** Getting people the training they need to access and thrive in future-focused work is a key challenge. Whether it is developing vertical (technical, specialist) skills or horizontal (soft, transferable) skills, people need training that is high quality and accessible. While there is significant investment in training – or EdTech – this investment is geared towards customers who have the resources to pay and does not typically take into account the needs and barriers faced by women on low incomes. For women on low incomes to access opportunities in future-focused industries, we need to see the development of training solutions that meet their needs while supporting them to develop highly desirable skills.

**The opportunity:** New technologies (E.G. AR/VR to learn how to assess home retrofit opportunities) could be leveraged to enhance existing training programmes (E.G. by simulating real-job situations), reduce cost of delivery (E.G. by decreasing the number of required on-site training activities), reduce time requirements, create opportunities for flexible, independent learning, and improve impact for learners. Drawing on the example of Challenge Works' Global Surgical Training Challenge,[163] a challenge prize could be used to focus innovation on creating novel training solutions that make learning valuable skills more accessible to people who are underserved by current approaches.

**Programme proposal:** A £3-5 million, three-year challenge prize programme to support **creation of new technology-enabled tools and models to deliver training in a more effective, affordable, and flexible manner**. The prize would be open to a broad range of innovators, and would encourage collaboration between learning and skills development experts and tech innovators. The challenge prize could feature two streams: one aimed at creating solutions for the development of technical skills (such as electronics, software development, construction) and the second focused on horizontal skills (such as communication, leadership, or entrepreneurship). Cross-stream learning and network building would be actively facilitated. Key success factors for the programme would include:

- Resourcing commensurate with the level of ambition

- To progress through the prize teams would have to demonstrate that their solutions supports users to develop skills that establish a visible pathway to future-focused work (key to maintaining learner engagement and motivation)

- Criteria would encourage solutions to be responsive to the learners, adapting to their progress and recognising where more support is needed

- The prize would engage and involve key stakeholders (such as employers in relevant industries and potential customers) to ensure that the products' developments reflect market requirements

# 4. Challenge fund: transforming childcare

**Problem statement**: The UK is facing a childcare affordability and accessibility crisis, which disproportionately impacts women on low incomes, and prevents them from making the most out of opportunities to train, access jobs, and progress in their careers. Childcare providers lack the capacity to meet childcare demand in a sustainable, high quality way. Solving the problem requires an holistic, whole system approach.

**The opportunity**: There is an urgent need to create and test new solutions and approaches that can address affordability and accessibility in order to provide crucial childcare support for women on low incomes. A challenge fund would bring together stakeholders from across the system to solve problems. Through the fund, different models and approaches can be highlighted and tested helping to ensure that as the policy landscape evolves, solutions are ready to deliver.

**Programme proposal**: A seven figure challenge fund that enables innovators to **prototype, trial, test, and commercialise a range of solutions that provide women on low incomes with better quality, more affordable, and more readily accessible childcare support services**. The challenge fund would take the form of a funding portfolio consisting of several funding calls that can employ various funding mechanisms (such as exploratory grants, challenge prizes, and accelerator services), in order to support innovations at different stages of development. Each funding call would be centred around a specific goal, such as:

- Developing tailored services for childcare providers to save time and improve financial sustainability (E.G. handling payments, reports, taxes, legal, insurance, meals, training and certification)

- Exploring technological solutions to better match supply and demand of both formal and informal childcare services



- Developing collaborations between childcare providers, educators and innovators to rethink business models by bringing appropriately trained parents into formal childcare settings

The funding calls could be run in parallel in order to facilitate learning and collaboration between innovators. Key success factors for the programme would include:

- Resourcing commensurate with the level of ambition

- Engaging key stakeholders including service providers, women on low incomes and advocacy groups who can provide systems level and policy insights

- Alongside the funding activities, foresight and visioning work to help ensure that solutions explore what could be, rather than defaulting to what is

- Criteria that encouraged solutions to be developed for different contexts and communities

# APPENDICES

## Annex I: Methodology

This qualitative research aims to contribute to the training and employability support space by bringing the lived experiences of women on low incomes to the centre of the debate about the future of work, as well as highlighting the various challenges and opportunities facing the wide range of stakeholders working in this space.

### Research participant recruitment

#### Lived experience participants

As part of our primary research, we engaged 19 women with lived experience of being on a low income.

We used two channels to recruit our lived-experience participants:

- Online recruitment through relevant forums dedicated to discussions about personal finances and women's issues

- Recruitment through service provider organisations, via newsletter and direct in-person engagement

Lived-experience participants were invited to register their interest to take part in our research, by self-identifying as part of our target group, I.E. women (including trans women) ages 24-64, living in England or Scotland with an annual household income of £19,800 or less. Research participants were offered a £50 shopping voucher for each interaction (E.G. participation in an interview or workshop).

As qualitative research, the objective was to gain a rich and nuanced understanding of the lived experiences of women on low incomes. Given the size of our sample and the diversity of lived experiences, it would be neither possible nor desirable to create a group that was perfectly representative of all the dimensions of diversity among women on low incomes in England and Scotland. Instead we aimed for our sample to

collectively capture key perspectives (such as age, geography, ethnic background, disability) to ensure a wide variety of lived experience would inform our analysis. In practice, this meant that, after speaking to research participants who self-selected via online channels and newsletters, we actively engaged in additional outreach activities targeting specific groups that we noticed were omitted or under-represented in our sample with the help of charities working with those groups.

Overall, our sample included the following socio-demographic characteristics:

- 6 of our participants were located in Scotland, and 13 were located in England

- 6 of our participants were aged 25-34, 8 were 35-44, 4 were 45-54, and 1 was 55-64

- 9 of our participants identified as white British, 4 identified as Asian (including Pakistani and Malaysian), and 6 identified as Black/African

- 17 of our participants had caring responsibilities for children and/or adults

- 9 of our participants indicated they experienced barriers or limitations in their day-to-day activities due to a disability, health condition (physical health or mental health) or impairment

**Participant location**



**Participant age**



45-54
21.1%

55-64
5.3%

35-44
42.1%

25-34
31.6%
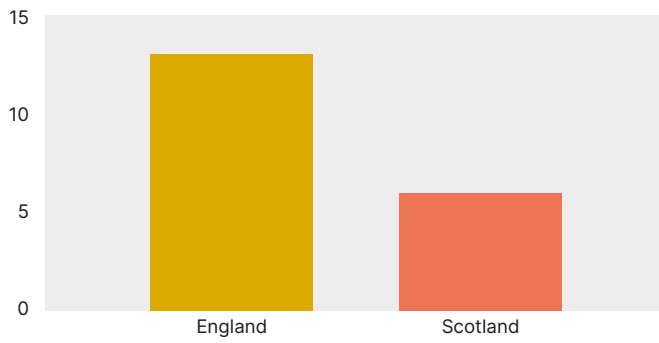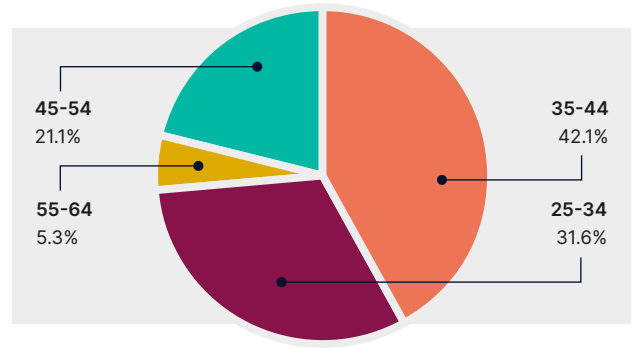
**Caring responsibilities (for children and/or adults)?**
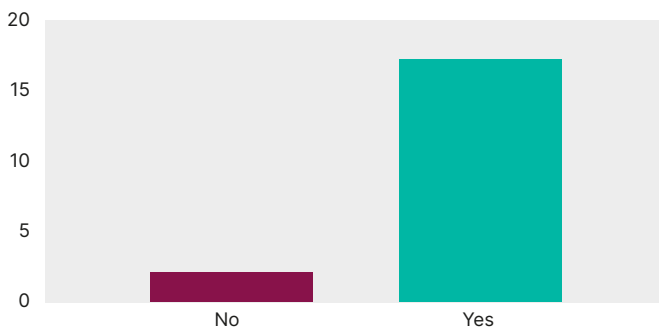


**Caring responsibilities (for children and/or adults)?**
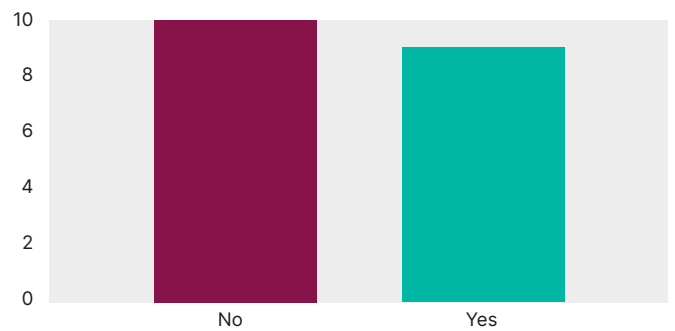


## Professional interviewees

We also spoke to 39 professionals working within the problem space, spanning the following stakeholder groups:

- Employers
- Community-based organisations and charities
- Training providers (including further education colleges and charity providers)
- Other service providers (such as specialised job platforms and housing associations)
- Local authorities

- Think-tanks
- Research institutions

Our expert recruitment involved a mix of:

- Convenience sampling, which was undertaken by tapping into Challenge Works and JPMorgan Chase networks
- Snowball sampling (I.E. asking interviewees to refer us to further potential interviewees)
- Direct outreach via phone, email, and LinkedIn

# Interviews and workshops

As our primary data collection method, we conducted one-to-one, in-depth semi-structured interviews with women on low incomes and stakeholders (as detailed above). The interviews were carried out over telephone, Zoom, or in person, and lasted 50 to 60 minutes each.

Our topic guide covered a range of themes, including:

**For lived experience interviewees**

- Personal background and early school education experiences

- Education and employment history

- Experiences seeking and applying for work

- Experiences with formal and informal support

- Future professional goals and strategies to achieve them (including interest in specific industries or occupations)

- Barriers and enablers experienced so far

- Perception of future-focused work

**For professional interviewees**

- Perceived role within the training and employability ecosystem

- Current objectives and strategies to achieve them

- Challenges and barriers

- Enablers

- Best practices (E.G. in terms of service provision, or employee recruitment)

- Perception of future-focused work

We also held two online workshops to encourage sharing between participants and gather collective feedback around the research findings. Both workshops included a range of stakeholders to gain complementary perspectives, and aimed to achieve the following goals:

- **Workshop 1** – Identifying the pain points for women and service providers in accessing future-facing jobs)

- **Workshop 2** – Gaining feedback on the areas of opportunity for innovation and ideating potential solutions and recommendations

Due to the sensitive nature of the subject matter of this research, we opted against recording the majority of our interviews, with the exception of instances where a second interview operator was unavailable. Instead, we captured detailed notes of our interviews, and anonymised all records by removing all identifying data at the end of the interaction.

Lived experience research participants were also asked to anonymously complete an online demographic and feedback form at the end of the interview, the results of which were recorded separately from the interview data.

## Analysis

The data collected throughout this research (through both primary research and desk research) was analysed using a mix of approaches:

- **Thematic analysis** of research data by codifying findings, generating and reviewing key themes

- **Journey mapping** to identify the key pain points along the journey of a woman on a low income seeking work in future-focused industries

- **Systems mapping** to identify and analyse the key factors contributing to the problems around access to future-focused jobs for adult women on low incomes

- **Validation of findings** with interview and workshop participants to gain feedback from key stakeholders on whether our interpretation and analysis of findings resonates with their lived or professional experience

- **Identifying leverage points and innovation interventions** to address the service provision gaps identified as part of the research

# Annex II: Proportion of females in industries in 2022

| Industry | Female percentage |
|---|---|
| Construction | 15% |
| Mining and quarrying | 18% |
| Transportation and storage | 25% |
| Manufacturing | 26% |
| Water supply; sewerage, waste management and remediation activities | 26% |
| Electricity, gas, steam and air conditioning supply | 28% |
| Agriculture, forestry and fishing | 29% |
| Information and communication | 35% |
| Administrative and support service activities | 45% |
| Financial and insurance activities | 47% |
| Wholesale and retail trade; repair of motor vehicles and motorcycles | 47% |
| Professional, scientific and technical activities | 48% |
| Arts, entertainment and recreation | 50% |
| Real estate activities | 51% |
| Public administration and defence; compulsory social security | 52% |
| Accommodation and food service activities | 54% |
| Other service activities | 60% |
| Activities of households as employers; undifferentiated goods-and services-producing activities of households for own use | 67% |
| Education | 70% |
| Human health and social work activities | 77% |
| **Total** | **48%** |

**Source: ONS 2022**[164]

# Annex III: Approaches to conceptualising good work

| QuInnE model of job quality | CIPD Good Work Index | RSA | JRF |
|---|---|---|---|
| High-level indicators of quality | High-level indicators of quality | "Moral foundations" for good work | Set of good work principles co-created with experts by lived experience |
| Wages<br><br>Employment quality<br><br>Education and training<br><br>Working conditions<br><br>Work life balance<br><br>Consultative participation and collective representation[165] | Pay and benefits<br><br>Employment contracts<br><br>Work life balance<br><br>Job design and the nature of work<br><br>Relationships at work<br><br>Employee voice<br><br>Health and wellbeing[166] | Security – all should enjoy work that provides enough economic security to participate equally in society<br><br>Wellbeing – all should enjoy work that grows and develops their capabilities<br><br>Growth – all should enjoy work that grows and develops their capabilities<br><br>Freedom – all should enjoy work that provides freedom to pursue a larger life<br><br>Subjective nurture – all should enjoy work that nurtures their subjective working identity[167] | Treatment at work – treating every worker with dignity and respect<br><br>Fair pay – aiming for higher pay, bringing benefits for households and businesses<br><br>Sufficient working hours – unlocking the hours people need to make ends meet<br><br>Training and progression – providing accessible training and progression routes<br><br>Flexibility – ensuring people with caring responsibilities or health needs can work<br><br>Security – enabling people to plan their lives and finances[168] |

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# CHALLENGE WORKS

## a nesta enterprise

58 Victoria Embankment
London EC4Y 0DS

+44 (0)20 7438 2500
info@challengeworks.org
@Challenge_Works
facebook.com/ChallengeWorksUK
linkedin.com/company/challenge-works
challengeworks.org