

Understanding current and future skills needs

Policy Report

Skills and Productivity Board

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Executive Summary

This report provides an overview of the Skills and Productivity Board's work to document the skills needs of the economy now and in future, with a view to identifying skills mismatches and growing areas of skills needs, both across the economy as a whole and in a small number of priority areas (Health, Science and Technology, Managers, and Skilled Trades).

The analysis identifies a set of 'core transferable skills' that are currently in high demand across many occupations, including in the priority areas, and are likely to continue being in high demand in the future. These include **communication skills, digital and data skills, application of knowledge skills, people skills, and mental processes**.

Because these skills are valuable across a wide range of jobs, firms have weaker incentives to invest in them than in firm-specific skills. Investing in the development of these core transferable skills is therefore likely to be worthwhile for government, as they equip people with skills that are important in many occupations, are transferable across occupations, and are at risk of under-investment from employers.

Skills that are expected to increase in importance, especially those that are in shortage now, are likely to be another worthwhile investment, as they are at risk of shortage in future. Skills that are growing in importance and used across many occupations in the economy include **people skills, mental processes and application of knowledge skills, and skills associated with being able to teach others and be a good learner**. Skills that are growing in importance, even though they are used in relatively fewer occupations, include STEM knowledge (particularly relevant for Health and Science and Technology occupations, and already likely to be in shortage now), care skills, important for Health occupations, and a range of management skills.

To understand whether the skills identified as being in high and/or growing demand are also in shortage, we need to be able to compare the demand for these skills with the supply of these skills. However, we are limited by the available data, especially on the supply side. This makes it difficult to assess whether there is a genuine undersupply of these skills, or whether there is a more general issue with the labour market which is preventing efficient matching between people that possess these skills and the jobs that require these skills. Better data is needed to understand the underlying drivers of any perceived skills shortage and develop the appropriate policy response. Without this information, we risk investing heavily in certain skills, perhaps unnecessarily, while seeing shortages remain.

To the extent that increasing the supply of these skills is identified as being the appropriate policy response, we need better evidence on the best ways to develop these skills. Robust evaluation is required to identify or design education or training programmes that effectively produce these skills alone or in combination, with particular consideration given to how these skills can be developed amongst current as well as

future members of the labour force.

But although there is evidence that these skills are rewarded in the labour market – and more general evidence of a link between skills (human capital) and productivity – there are limits to the potential benefits of reducing or eliminating identified skills mismatches. Without complementary investments in the other types of capital outlined in the Levelling Up White Paper – physical, intangible, financial, social, and institutional – the need for which will vary from place to place, there is a risk that the benefits of individual, firm, or government investments in skills will not be fully realised.

We hope that the new Unit for Future Skills (UFS) will take forward the research findings and insights offered by the Board to further enhance the evidence base on skills and skills mismatches. The UFS will also need to work closely with colleagues across government to ensure that skills interventions and investments are not considered in isolation, so that the full benefits of skills interventions for productivity can be realised.

1 Introduction

When it was first established in December 2020 by the then Secretary of State for Education, Gavin Williamson, the Skills and Productivity Board (SPB) was set three questions:

- Q1: Which areas of the economy face the most significant skills mismatches or present growing areas of skills need?
- Q2: Can the SPB identify the changing skills needs of several priority areas within the economy over the next 5-10 years?
- Q3: What is the role of skills and the skills system in promoting productivity growth in areas of the country that are poorer performing economically?

This report summarises the work the Board undertook in response to the **first two questions**. It provides an overview of the Board's findings and outlines some implications of these results.

This report sits alongside:

- A more detailed technical report providing a comprehensive account of the analysis and methodology¹;
- A report from Frontier Economics, who the Board commissioned to review existing skill taxonomies²;
- A report from RAND, who the Board commissioned to undertake qualitative analysis to help address some aspects of Q2 (described further below)³;
- A report presented to the current Secretary of State, Nadhim Zahawi, in January 2022 to provide insight into the opportunities and challenges for the new Unit for Future Skills (UFS).⁴

This work has been conducted in parallel with a wide range of other research considering the implications for skills needs of both short-term shocks and longer-term structural changes that are likely to affect the future world of work. It does not attempt to provide an

¹ Skills and Productivity Board. (2022) Understanding current and future skills needs – Technical Report, London: Skills and Productivity Board.

² Frontier Economics. (2022) Review of skills taxonomies, London: Frontier Economics

³ This report will be published on the SPB web page in June 2022.

⁴ Skills and Productivity Board. (2022) Opportunities and challenges for improving labour market information on skills, London: Skills and Productivity Board.

overview of the extensive existing and ongoing research in this space, but rather to provide a complementary perspective.

2 Overview of Approach

In responding to Q1 and Q2, the Board has tackled the following more specific questions:

1. **Which skills are currently in high demand?**
2. **Which skills are most likely to be in shortage in the economy today?**
3. **How do skills needs in priority areas differ from those in the economy as a whole?** (We define below what we mean by ‘priority areas’ and how we chose these.)
4. **Which skills are likely to be in high demand in the future?**
5. **Which skills are of increasing importance overall across the economy, and in each priority area?** (And hence may represent growing areas of skills needs.)

Current demand for skills

We can think of the **demand for skills** as the skills and capabilities required by employers to fulfil particular tasks or job requirements. It can be measured *directly*, via information on skills needs obtained from employers (e.g. by asking them about their skills needs in surveys, or by extracting which skills they include in job adverts or job descriptions); or *indirectly*, by considering the occupations (or jobs) in the economy and using information about the skills needed in those jobs.

Data to measure the demand for skills directly is limited. For example, surveys of skills needs (such as the Employer Skills Survey⁵) typically do not contain very detailed measures of skill and are undertaken relatively infrequently; and the use of web-scraping to collect information from online job adverts is in its infancy, with limited understanding of the representativeness of the occupations covered or the completeness of the skills information included in the adverts.

We have therefore focused on inferring the demand for skills **indirectly** via data on occupations. We combine indicators of the ‘demand’ for labour across occupations (defined further below) and a mapping between occupations and skills based on the US Occupational Information Network (O*NET)⁶ taxonomy mapped to the UK Standard Occupation Classification (SOC). In total, this method yields information on 130 different skills for each of the 365 4-digit occupations of the UK SOC.

⁵ <https://www.gov.uk/government/collections/employer-skills-survey-2019>

⁶ <https://www.onetonline.org/>

To identify skills that are **currently in high demand**, we use information on how important different skills are in each occupation, combined with information on the number of people currently working in each occupation in England to create an ‘aggregate importance score’.⁷ Skills are defined as being in high demand if they are in the top quartile – roughly the top 30 skills – based on this aggregate importance score.

This approach lends itself to identifying skills that are important in lots of jobs. In recognition of the fact that some skills will be very important in just a few occupations, we also define a set of **specialist skills** that are extremely important in a small number of jobs but largely unimportant or irrelevant in the vast majority of jobs in the economy.

To identify skills that are **potentially in shortage**, we first create a ranking of occupations based on the extent to which each occupation demonstrates signs of labour shortage. To do this we combine a variety of indicators, following an approach similar to the one the Migration Advisory Committee (MAC) uses to identify ‘shortage occupations’.⁸ For example, sustained or growing job vacancies, or wages and/or hours showing faster than usual increases, are signals that labour to work in these occupations is in high demand (and may be in shortage). We combine these shortage occupation rankings with the aggregate importance scores described above and define skills as more likely to be in shortage if they are statistically significantly more likely to be included in the top quartile of skills than in the bottom quartile of skills on the basis of this shortage-weighted aggregate importance score: in other words, if they are relatively more important in occupations showing relatively greater indications of labour shortage.⁹

Priority areas

To identify **priority areas**, the Board focused on groups of related occupations meeting the following criteria:

- Their employment share increased between 2015 and 2020, and is predicted to be relatively large in 2027, or they appeared to be facing significant skills shortages in 2020.

⁷ We use information on employment from the Annual Population Survey Financial Year 2018-19 as the most recent employment data not affected by the Covid-19 pandemic: (<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/annualpopulationsurveyapsqmi>)

⁸ <https://www.gov.uk/government/publications/review-of-the-shortage-occupation-list-2020> (see Appendix B for ‘Skilled and Shortage indicator definitions’).

⁹ The skills identified using this approach are robust to the specific number and combination of indicators used to create the shortage occupation ranking. (The accompanying technical report provides more information.)

- They provide employment across England, particularly outside London and the Southeast.
- Their skill requirements include a broad range of skill types also common in other occupations or sectors, or are identified as facing particular shortages.

The Board chose to focus on four priority areas meeting these criteria, namely Health, Science and Technology, Managers, and Skilled Trades. Collectively, these account for 29% of current employment.¹⁰ These overlap with the areas identified as priorities by other government departments, including the Department for Work and Pensions and the Department for Business, Energy and Industrial Strategy.¹¹

We compare the skills identified as being in high demand across the economy with those identified as being in high demand in each of these priority areas.

Future demand for skills

Skills that are **likely to be in high demand in the future** are identified in the same way as skills currently in high demand, except that we combine the information on how important different skills are in each occupation with information on the number of people projected to work in each occupation in approximately five years' time (from Working Futures, 2017-2027¹²).

Finally, we consider which skills are **increasing in importance across the economy, and in each priority area**. We do this by identifying skills that are growing in importance because more people are likely to work in occupations which rate these as important in future as compared to now. Given the data to which we have access, we are unable to account for any changes in the importance of different skills *within occupations* that may occur over the next five years. (This is considered separately via interviews with experts for a subset of occupations in the report by RAND cited in the introduction.) Note that the skills increasing in importance are not necessarily the same as those skills likely to be most important overall in future, which are identified separately above.

¹⁰ Annual Population Survey Financial Year 2018/2019 employment for England at SOC 4-digit level [Annual Population Survey - Nomis - Official Labour Market Statistics \(nomisweb.co.uk\)](https://www.nomisweb.co.uk/)

¹¹ We did not explicitly consider 'green jobs' because future skills needs in these areas have been considered elsewhere, e.g. by the Green Jobs Taskforce (<https://www.gov.uk/government/groups/green-jobs-taskforce>).

¹² <https://warwick.ac.uk/fac/soc/ier/research/wf/>.

Supply of skills

Thus far we have focused on estimating the current and future demand for skills. But identifying **skills mismatches** (as highlighted in Q1) requires us to assess whether there is a difference between the **demand for skills** and the **supply of skills** – the skills that workers possess that could be deployed to meet the corresponding demand.

We can think of the supply of skills as coming from two sources: education and training, and work experience (including any on-the-job training). *Direct* measures of the supply of skills typically rely on asking individuals about the skills they use in their jobs (such as via the Skills and Employment Survey¹³, or, more recently, via web-scraping of job sites such as LinkedIn), both of which rely on the accuracy of self-reported information. Existing survey measures are also limited by their focus on skills currently used and may miss skills that individuals possess but are not currently using.

Some skills – particularly different types of knowledge – can be captured *indirectly*, such as via the qualifications that individuals possess. But there is no consistent way of identifying the skills – and, in particular, the *additional* skills – that individuals obtain from undertaking different qualifications. Qualifications also only partially capture the skills that individuals possess, because new skills develop, and others are enhanced through experience and learning undertaken while in work.

The accompanying technical report discusses some of the challenges (some of which are highlighted below) associated with trying to identify skills mismatches, by outlining a test case comparing the demand for knowledge (a subset of largely subject-specific skills) with the supply of knowledge (based on the subjects in which people undertake qualifications).

¹³ <https://www.cardiff.ac.uk/research/explore/find-a-project/view/626669-skills-and-employment-survey-2017>

3 Findings

Skills that are important in a large number of jobs (in high demand) can be thought of as **core transferable skills**. The skills identified by this part of the Board's analysis can be categorised into five broad skill groups:

- **Communication skills:** in particular verbal and written communication in professional settings.
- **Digital and data skills:** including interacting with computers, getting, processing, and analysing information, and making decisions and problem solving.
- **Application of knowledge skills:** including critical thinking, inductive and deductive reasoning, and information ordering.
- **People skills:** specifically in relationship management, including establishing relationships, and training others.
- **Mental processes:** in particular thinking creatively, problem sensitivity, and self-reflection.

Figure 1 (below) highlights that these are the five broad skill groups with the highest proportions of skills deemed to be in high demand across all occupations (left-hand column).

Which skills are most likely to be in shortage in the economy today?

There is a very strong overlap between the set of skills that are important in jobs across the economy as a whole and those that are important in occupations more likely to be experiencing labour shortages today (identified using the indicators of shortage outlined above). The set of core transferable skills outlined above are therefore also in high demand in 'shortage occupations'.

If shortages of core transferable skills were the primary reason for shortages of appropriately skilled labour, then we would expect to see similar evidence of labour shortages across all occupations in which these skills are important. This is not what we see: some occupations in which core transferable skills are important are in the upper quartile of our ranking of occupations showing signs of labour shortage (e.g. midwives), while others, in which these skills are equally important (e.g. shopkeepers and proprietors) are in the lower quartile of shortage occupations.

This suggests that it may be other skills that are causing labour shortages in some occupations but not others. Therefore we focus on comparing the skills that are *relatively* more important in occupations most likely to be experiencing labour shortage (those in

the upper quartile of our occupational ranking which is based on the indicators of labour shortage) with those less likely to be experiencing labour shortage (in the lower quartile of our ranking) when identifying skills that are most likely to be in shortage.

The skills and knowledge areas found to be *relatively* more important in occupations that are more likely to be facing labour shortage (and hence are more likely to be in shortage themselves) can be categorised into four broad skill groups:

- **STEM knowledge:** both in more applied areas, such as Medicine and Dentistry and Engineering and Technology, and in more general areas, including Mathematics, Physics, and Biology; also the **application of STEM skills**, including scientific and mathematical reasoning, and using and updating relevant knowledge.
- **Technical skills:** including equipment selection and repair and use of technical equipment or processes.
- **Digital and data skills:** including making decisions and solving problems, analysing data, evaluating and categorising information, and troubleshooting.
- **Mental processes:** including selective attention, perceptual speed, and visualisation.

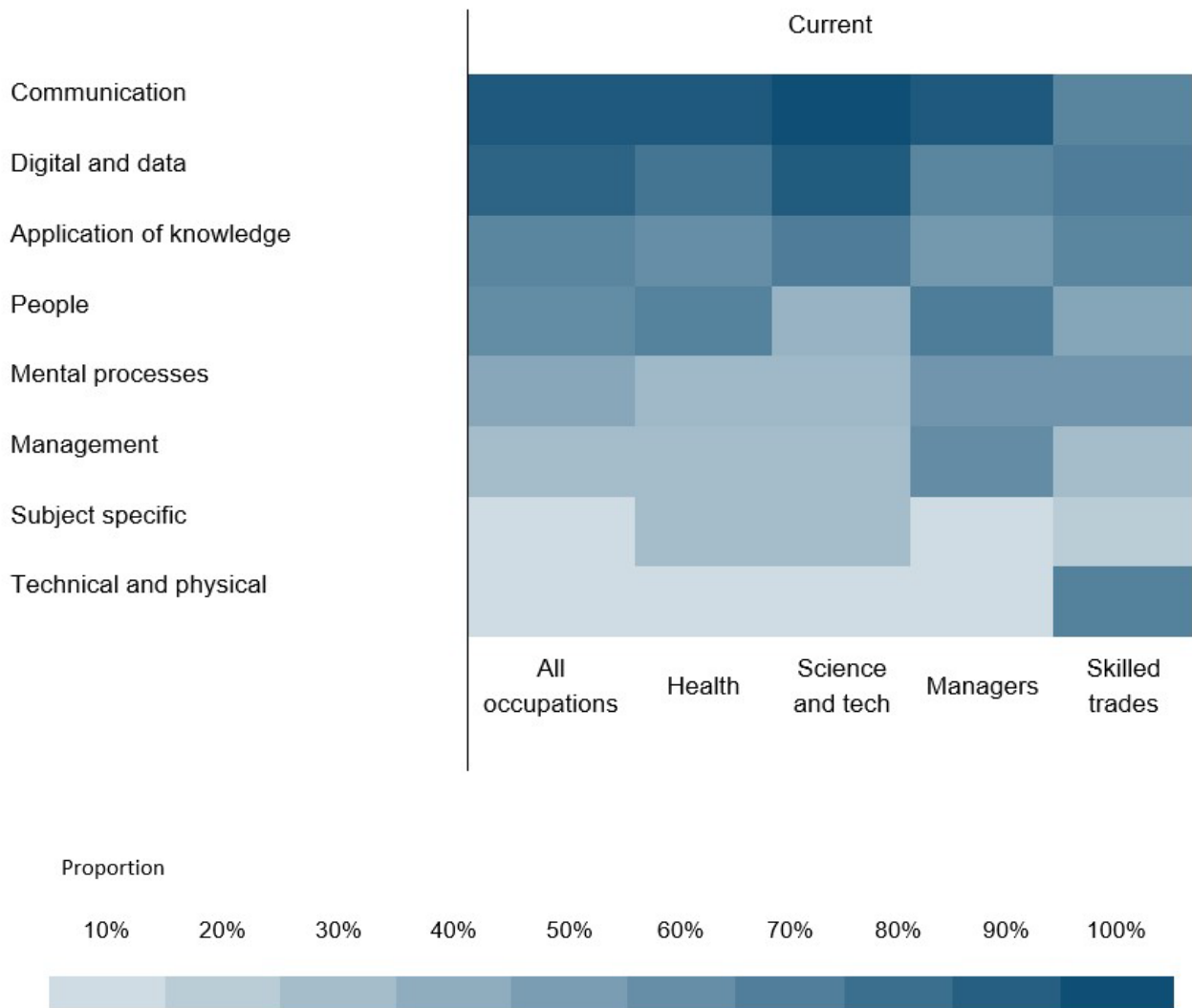
The underlined skills are also in high demand across the economy, although more so in occupations more likely to be facing labour shortage. The other skills are not in such high demand across the economy, so are more specific to the needs of occupations that are more likely to be facing labour shortage.

The fact that both core transferable skills and other more specific skills are important in occupations more likely to be facing labour shortage suggests it may be people with ‘depth and breadth’ skills in these areas who are in particular shortage (also known as ‘T-shaped’ skills). This refers to people who have in-depth knowledge of a particular area, as well as the ability to work collaboratively and apply knowledge across areas – a mixture of general and specific knowledge and skills.

How do skills needs in priority areas differ from those in the economy as a whole?

There is also a very strong overlap between the skills that are in high demand across occupations in the economy as a whole and those in occupations in our four priority areas. This is demonstrated in **Figure 1**, which highlights the proportion of skills in each broad skill group deemed to be in high demand – that is, in the upper quartile of our skills ranking based on aggregate importance scores – across different occupational groupings.

Figure 1: Importance of different skills in each priority area and the economy as a whole



Note: the figure shows the proportion of skills within each broad skill group in the upper quartile of our skills ranking (based on aggregate importance scores) across different occupation groups. The skill groups are ordered according to the proportion deemed to be in high demand across all occupations in the economy, with the highest proportion at the top (communication skills) and the lowest at the bottom (technical and physical skills).

The skills that are in high demand across the economy as a whole and in all four priority areas include:

- **Communication skills:** particularly oral comprehension and expression, listening;
- **Digital and data skills:** including getting information, making decisions, problem solving;
- **People skills:** establishing and maintaining relationships.

There are also certain skills that are relatively more or less important in some priority areas compared to the economy as a whole, also illustrated by **Figure 1**.

In **Health** occupations, knowledge-based skills, such as medicine and dentistry and psychology, are relatively more important than in other occupations, as are people skills at the caring end of the spectrum. For example, assisting and caring for others is the top ranked skill in health occupations, but is not in the upper quartile for the economy as a whole.

In **Science and Technology** occupations, STEM knowledge-based skills are relatively more important, while people skills are relatively less important.

Amongst **Managers**, skills focused on building teams, motivating and directing subordinates, developing objectives and strategies, and negotiating all come to the fore.

In **Skilled Trades**, communication, digital and data, and people skills are all less important than across the economy as a whole, while a range of technical and physical skills are substantially more important. Across all occupations in the economy, demand for technical and physical skills is relatively low, highlighting the specialist nature of many of these skills.

Which skills are likely to be in high demand in the future?

Again, there is a very strong overlap between the skills that are rated most important across occupations now and those that are rated most important across occupations in future. This suggests that the projected changes in occupational employment shares embodied in Working Futures are not sufficiently large to dramatically change the skills needs of the economy in the near future – at least if we assume that skills needs within occupations do not change over this period.

Of course, one of the challenges of predicting future skills needs using changes in the occupational distribution of employment is that it relies on being able to forecast or anticipate which occupations are likely to increase or decrease in size. Occupations that are entirely new or develop in unexpected directions will, by definition, not be captured by such predictions. More significantly, these types of projections are also unable to capture

changes in the skills needed *within* occupations because of product and process change and innovation. Therefore, the Board commissioned RAND to undertake some qualitative research to try to understand how skills needs might be expected to change *within* occupations (the study focused on a small subset of occupations) across the four priority areas. This involved interviews with experts who possess detailed knowledge of the skills required to carry out these jobs and explored how they expected these needs to change over the next 5-10 years. It was designed as a preliminary exercise with a view to exploring what kind of information could be obtained in this way, and to provide insights into how best to conduct this type of research in future.

Constrained resource meant that RAND were able to consider only a very limited number of occupations in each sector and interview only a handful of experts. It also proved challenging to elicit specific views on whether and how future skills needs were likely to differ significantly from what is needed now. Consequently, the qualitative research has proved more helpful as a check on the findings of the quantitative analysis – where we found significant overlap between the skills identified as important across the two approaches, which is reassuring – than as a means of obtaining significant new insights. Better resourced studies might prove more productive but would still likely be limited to only a small number of occupations to ensure the necessary depth of insight; careful consideration would need to be given to the occupations chosen for further exploration. Nevertheless, it is important to fill these gaps in our knowledge, both at national and local level, and so similar studies may perhaps be more successful if implemented at a local level as part of Local Skills Improvement Plans (LSIPs).

Which skills are of increasing importance overall across the economy, and in each priority area?

In very broad terms, SOC major groups 1 (managers, directors, and senior officials), 2 (professional occupations), 3 (associate professional and technical occupations) and 6 (caring, leisure, and other service occupations) are expected to grow in the future (i.e. more people are expected to work in these occupations in future compared to now). On the other hand, employment in SOC major groups 4 (administrative and secretarial occupations), 5 (skilled trade occupations), 7 (sales and customer service occupations) and 8 (process, plant and machine operatives) is expected to fall. SOC major group 9 (elementary occupations) is anticipated to remain fairly unchanged.

These patterns drive the picture of skills that are increasing vs. decreasing in importance over time. Across all occupations, the skills that are expected to see the largest growth in importance are:

- **STEM knowledge:** including specialist skills such as medicine and dentistry, biology, science, therapy and counselling, and psychology;
- Skills related to **educating and training others**, as well as being an active

learner;

- **People skills:** including negotiation, persuasion, and resolving conflicts;
- **Mental processes and application of knowledge skills:** including critical and creative thinking, complex problem solving, and decision-making.

Some of these skills – such as STEM knowledge skills – are important for a relatively small subset of occupations that are expected to see strong growth in employment over time (e.g. Ambulance Staff and Dental Nurses). Compared to the skills that are likely to be in high demand in future, there are relatively fewer core transferable skills on this list, perhaps because skills used across a wide range of occupations are expected to increase in importance as a result of employment growth in some occupations but decrease in importance as a result of employment decline in others, leaving their net importance score relatively unchanged.

In terms of our priority areas, for Health, Science and Technology, and Managers, the skills that are important now are the same as the skills that are important in future and those that see the greatest increases in importance over time, because many occupations in these areas are projected to grow over time. For Skilled Trades, the fact that overall employment is projected to contract suggests that all skills used in these occupations are declining in relative importance over time. However, it is important to note that even where there are projected falls in employment in particular occupations, there will still be the need for positive replacement demand – workers with skills in these areas to replace those that leave the labour market for one reason or another (e.g. retirement, migration). Indeed, looking across the economy, replacement demand is expected to generate eleven times¹⁴ as many job openings in the labour market as result from net job growth. Consequently, even skills which are declining in relative importance will still need to be delivered by the education and training system to equip replacement workers with the requisite skills. The Unit for Future Skills may wish to consider using detailed estimates of replacement demand as a complement to estimates of changes in net employment in order to better understand gross changes in skills needs over the next few years.

¹⁴ Section 4.5.2 (pages 87 and 88) of the Working Futures report
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/863506/Working_Futures_Main_Report.pdf

4 Key messages

This analysis identifies skills that are in high and/or growing demand, and that may be in shortage. There is evidence that many of these skills are rewarded in the labour market¹⁵ and some evidence that improving skills more generally can raise productivity¹⁶. In principle, therefore, this analysis can support the Department for Education – and other organisations, and indeed individuals, interested in skills development – to focus skills provision and investment on areas of greatest value to individuals and the economy.

However, we need a better understanding of the reasons why particular skills appear to be in shortage before concluding that trying to increase the supply of those skills is the right policy response. We need better evidence on the most effective ways to develop the skills we need, and a better understanding of the extent to which developing certain skills in isolation is sufficient, or whether the benefits of investment in skill development are only realised if several skills (a ‘bundle’ of skills) are developed at the same time. And while reducing skills mismatches should reap rewards in terms of increasing productivity, there are limits to the benefits of doing so if the jobs for which these skills are needed are primarily in low productivity occupations or sectors.

Core transferable skills

There are a set of core transferable skills which we identified as being important across many occupations in the economy today, including the priority areas we identified, and are also expected to be important in five years’ time. These include **communication skills, digital and data skills, application of knowledge skills, people skills, and mental processes**.

Investing in the development of these core transferable skills is likely to be worthwhile, in the sense that it will equip people with skills that are important in many occupations in the labour market, both now and in the future, offering greater resilience to unexpected future labour market shocks by giving workers the skills necessary to change jobs if or when the need arises.

Firms have weaker incentives to invest in these types of skills, because they may not realise the full benefits of their investment if workers use their new skills to change jobs

¹⁵ There is a vast literature on the returns to different types of skills. Focusing particularly on skills identified in this analysis, there is evidence of persistently high returns to cognitive skills (e.g. inductive reasoning, verbal comprehension) from Edin et al. (forthcoming) and Deming (2017) and to basic skills (e.g. literacy and numeracy) from Vignoles et al. (2011). There is also evidence of growing rewards for ‘soft skills’ or ‘social skills’ (e.g. negotiation/persuasion, social perceptiveness, perseverance) from Edin et al. (forthcoming); Deming (2017); Josten and Lordan (2021).

¹⁶ For example, there is evidence of a link between training and productivity at firm level in the UK from Dearden and Van Reenen (2006),

(unless the pay-off is realised quickly). Consequently, these types of skills are often under-invested in by firms in comparison to firm-specific skills. There may therefore be a stronger case for the government to invest in these types of skills directly, or a need to better incentivise firms to do so.

Investing in the development of core transferable skills is worthwhile, as they equip people with skills that are important in many occupations, are transferable across occupations, and are at risk of under-investment from employers.

Current vs. future skills needs

The core transferable skills we identified were found to be important across many occupations both now and in the future. We also identified a set of skills that are expected to be relatively more important in the future than now. Some of these overlap with or are in the same domains as the core transferable skills we identified. Across the economy, these include **people skills**, **mental processes** and **application of knowledge skills**, and **skills associated with being able to teach others and be a good learner**. This last area highlights that the capacity for further skill development may be of growing importance in the future.

Other skills that are likely to grow in importance are specialist skills that are only used in a relatively small number of occupations, including some in the priority areas. These include STEM knowledge (particularly relevant for Health and Science and Technology occupations) and certain types of technical skills. Care skills, important for Health occupations, and a range of management skills, including motivating and directing subordinates, developing strategies and objectives, which are important for Managers, are also expected to become relatively more important over time.

Some of these skills – especially STEM knowledge – are also potentially in shortage now. This suggests that investments in these skills would also be worthwhile, as they are skills which either appear to be in shortage now, or are likely to become increasingly important in future, potentially putting them at risk of shortage in future.

There are other skills (e.g. certain technical skills) that are potentially in shortage now but are expected to be of decreasing importance for the economy in future, as the numbers of jobs that use these skills declines over time. Here the decision may be more finely balanced, as the potential short-term benefits of addressing skills needs may need to be traded off against the need for further retraining in the not-too-distant future, as opportunities to use these specialist skills decline.

Identifying or designing education and training programmes that develop the more specialist or occupation-specific skills that fall into this category alongside core

transferable skills may therefore be a good compromise, leading to the production of individuals with ‘T-shaped’ skills.

Skills that are expected to increase in importance, especially those that are in shortage now, are another worthwhile investment, as they are at risk of being in shortage in the future.

Identifying or designing education and training programmes that produce skills that are potentially in shortage now, even those that are likely to decline in importance in future, alongside core transferable skills may be a particularly effective way of filling potential skills shortages.

Can we say anything about the reasons for potential shortages?

We have not yet addressed the reasons why particular skills may be in shortage, which is important when thinking about appropriate policy responses. To do so, we need to be able to say something about the supply of skills and then compare this meaningfully with the demand for skills. Ideally, we would also be able to say something about the demand for and supply of skills at particular skill levels (e.g. low level vs. advanced level) and in particular geographical locations. But we are limited by the available data (discussed in more detail in the accompanying technical report).

Without being able to meaningfully compare the demand for and supply of particular skills, it is difficult to assess whether the skills our analysis has identified as potentially in shortage are the result of a genuine undersupply of those skills, or the result of a more general issue with the labour market preventing efficient matching between people and jobs (or some combination of these two factors).

For instance, it could be that fewer people possess a particular skill (at a particular level, in a particular area) than there are jobs requiring that skill, suggesting that increasing the availability or incentive to undertake training to develop this skill may help reduce skill shortages.

On the other hand, it could be that there are already people with these ‘shortage’ skills in the labour market (and in the right location), but that they are choosing to apply these skills in occupations facing less shortage, or not using these skills at all. In this case, the appropriate policy response may be less about increasing training opportunities or incentives, and more about trying to understand what it is about certain occupations (or areas) that make them less attractive and then trying to tackle these issues as far as possible – for example, by addressing low pay or poor working conditions.

Better supply-side data is needed in order to understand the underlying drivers of any perceived skills shortage, and then develop the appropriate policy response. Without this information, we risk investing heavily in certain skills, perhaps unnecessarily, while seeing shortages remain.

Developing skills

We have weak evidence on the best way to develop skills, especially core transferable skills. We do not know which types of approaches or programmes are most effective, nor when and where it is best to deliver them – whether by integrating them into the general school curriculum, including them within more occupation-specific training routes, or developing them as part of on-the-job training.

We need more robust evaluations of different skills development approaches to provide evidence to support any investment the government may wish to make in the development of these skills. A limitation to our ability to do this effectively is that many existing education and training routes do not clearly specify the skills (rather than knowledge areas) they are designed to generate or improve.

Consideration should also be given to ways in which these skills can be developed amongst current, as well as future, members of the labour force. Changes to the school curriculum, for example, will only affect the flow, not stock, of skills in the labour force. It would take a very long time to upskill the whole labour force if the development of these skills was limited only to those still in education.

Robust evaluation of the different approaches to skills provision is needed, both for core transferable skills and more specialist skills identified as important now and in the future. Particular consideration should be given to how these skills can be developed amongst current as well as future members of the labour force.

Can we ‘solve’ skills mismatches? And would that be enough?

As described above, there are limits to what we can say about how the demand for and supply of skills compares – in other words, about the extent of skill mismatches and how to solve them. This primarily stems from limitations in the data itself, particularly on the supply-side (explained in more detail in ‘Opportunities and challenges for improving labour market information on skills’).

Better use of existing data – such as new linkages between existing administrative or survey datasets to enable the tracking of individuals from education into and across

occupations – could be made to shed light on the supply of skills, and in particular the routes through which individuals develop the skills they possess, e.g. whether via formal education qualifications or on-the-job training. Greater clarity on the specific skills, not just knowledge, that particular education and training programmes aim to deliver, together with evaluations of their effectiveness in delivering these skills, would also contribute to our understanding of the supply of skills, as well as the most effective solutions to any identified skills mismatches. These suggestions are discussed in more detail in ‘Opportunities and challenges for improving labour market information on skills’ (referenced in the introduction to this report).

However, in other areas, limitations will inevitably remain. For example, it will never be possible to obtain information about all the skills that individuals possess; even if we had the resources to ask every individual about their skills, many of the skills of interest are hard to measure in an objective way and given people’s skills change over time as they gain more qualifications or experience, we would need to do this repeatedly to keep our information up to date.

There are also limits to the potential benefits of reducing or eliminating skills mismatches. While better meeting the skills needs of the economy should increase productivity, skills (human capital) are not the only drivers of productivity. As analysis in the reports addressing the third question set out by the previous Secretary of State highlight¹⁷, skills are an important contributor to the performance of a local area, but they are certainly not everything. Without complementary investments in the other types of capital outlined in the Levelling Up White Paper – physical, intangible, financial, social, and institutional – the need for which will vary from place to place, there is a risk that the benefits of individual, firm, or government investments in skills are not fully realised.

There is also a danger that the occupations for which skills are currently demanded are not those that have the greatest capacity to increase productivity. We need to ensure that we ‘level up’ and not ‘level down’, with greater consideration given to how to avoid the possibility of a low skill, low productivity equilibrium (at least in some areas), including finding ways to encourage firms to move towards a higher skill, higher productivity equilibrium.

We anticipate that the new UFS will take forward some of the research findings and insights from the work of the SPB with a view to further enhancing the evidence base on skills and skills mismatches. This should include improvements to skills focused LMI, including a common skills taxonomy to enable better linkages between qualifications,

¹⁷ Skills and Productivity Board. (2022) SPB Overview of Question 3: What is the role of skills and the skills system in promoting productivity growth in areas of the country that are poorer performing economically?, London: Skills and Productivity Board

skills and jobs. Such information could also help facilitate the identification of both current and potential future skills mismatches.

The evidence that the Board has collated also strongly indicates the importance of the UFS working closely with colleagues across government to ensure that skills interventions and investments are not considered in isolation, so that the full benefits of skills interventions for productivity can be realised.

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