



# Commission on Sustainable Learning for Life, Work and a Changing Economy

Creating a workforce  
for a prosperous and  
productive future

Adding an extra  
£108 billion to our  
economy

September 2018



This report was prepared by Bates Wells & Braithwaite London LLP on  
behalf of Commission on Sustainable Learning for Life, Work and a  
Changing Economy

# About the Commission

The Commission on Sustainable Learning for Life, Work and a Changing Economy is an expert group bringing together practitioners and leading voices from across the education sector.

It was established, with support from leading education provider Pearson, to provide a clear and independent overview of the challenges facing education in the UK – with an emphasis on vocational and technical education – and to generate practical solutions.

The Commission is seeking the views of educators, learners, employers and members of the public – to look at the factors driving our skills needs well into this century, how our current education system is or is not equipped to deliver them, and the innovations, changes and challenges that may be faced along the way.

To date, the Commission has held evidence sessions in London, Nottingham, at the Wellington Festival of Education and in the North East, each looking at different aspects and hearing from a range of witnesses.

## **Commissioners and organisations involved include:**

- Ian Ashman (former President, Association of Colleges)
- Alice Barnard (Chief Executive, The Edge Foundation)
- Rod Bristow (President, UK & Core Markets, Pearson)
- Neil Carmichael (Chair)
- Jim Clifford (Partner & Director of Advisory/Impact, Bates Wells Braithwaite)
- Ann Francke (Chief Executive, Chartered Management Institute)
- Nick Hudson (Chief Executive, Ormiston Academies Trust)
- James Kirkup (Director, Social Market Foundation)
- Ian Koxvold (Head of Education Strategy, Pwc)
- John Laramy (Principal & Chief Executive, Exeter College)
- Ronel Lehmann, Founder, Finito Education Limited)
- Dave Phoenix (Vice-Chancellor, London South Bank University)
- Cindy Rampersaud (Senior Vice-President, BTEC & Apprenticeships, Pearson)
- Mark Stewart (General Manager and Human Resources Director, Airbus)
- Professor Geoff Wake (University of Nottingham)

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## Foreword



The Commission on Sustainable Learning for Life, Work and a Changing Economy is ambitious for the United Kingdom and, crucially, for the millions of people all eager to contribute more to our economy and their communities. This report is about making the most of that talent and individual endeavour in a modern, inventive and productive economy.

The Commission has met several times in London, Nottingham and Newcastle; it has heard from many witnesses from all walks of life and distilled evidence from a vast array of reliable sources. I thank all members of the Commission for their contributions and commitment; it remains a privilege to work with such a dedicated group. We all acknowledge our primary purpose to explore ways to deliver a first class, sustainable and all-inclusive education system.

This first report is, essentially, a summary of where we are now and an overview of existing literature and work in this area, but with some clear signals pointing to the way forward. Above all, we conclude with a properly researched, evidence-based prediction on how the economy could respond, if policies are introduced to bring about a fundamental change in culture where young people from all backgrounds are inspired and equipped to develop technical and professional skills to support their career ambitions.

It is not enough to rely on yet another batch of initiatives and relatively small pots of money to deliver the workforce we need. Instead, all assumptions must be rigorously tested and new and bold ideas, rooted in evidence, should be advanced.

This report paves the way for a radical and far-reaching set of recommendations in our second report due in November. For now, we make the case for change and seek to highlight the benefits that this could deliver. I commend this report to you.

A handwritten signature in black ink that reads "Neil Carmichael .". The signature is written in a cursive, slightly slanted style.

Neil Carmichael  
Chair of the Commission on Sustainable Learning for Life, Work and a Changing Economy.

# Executive Summary

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# Executive Summary

i This report considers the question:

***“What is the potential value, in economic terms, that can be gained from well-designed and sustainable technical and vocational education?”***

ii Based on a review of the existing literature and commentary it provides a collective view from multiple interested parties of the skills needs that the Government’s vocational skills reforms seek to address, and what that means in practice. Taking the perspectives of individuals, their communities and employers, and the State, the report looks at the potential economic value that could come from having a workforce that can deliver good quality results through meaningful employment and that is available where it is needed.

iii Our industries need adults with appropriate skills: in literacy, numeracy and problem-solving; soft skills enabling them to manage and to relate to others in the workplace; and in management and organisation. Employees with these skills have better outcomes in the labour market than their less proficient peers: they are more employable, and they are more effective in terms of productivity and efficiency. Against this clear need, and its concomitant opportunity, **the UK is lagging behind its competitors, and faces three distinct challenges:**

1. Skills shortages – where organisations cannot recruit suitably qualified people - affecting about 1% of employees
2. Skills gaps – where employees have lower skills in their roles than the business needs – affecting about 10%
3. Skills under-utilisation – where employees are not using all their skills in their current jobs – affecting a significant 35% to 45%.

iv Taken together these challenges emphasise a dual problem, encompassing both supply- and demand-side factors. **A supply-side solution - even if effective - is only half of the answer.** Developing better and more relevant skills is all very well, but if the jobs are not available which will make good use of the skills available, the value created in those skills will not filter through into economic improvement. Seeking to replicate at a regional level the successful investment in London schools will not solve the demand side of the equation in cities where jobs are scarce or restricted.

v Finding the right people with the right skills remains a constant challenge for employers. Three-quarters of manufacturers finding it difficult to recruit engineering roles in the past 3 years and 72% were concerned about findings the skills they need for their business. These difficulties will only be exacerbated further as the manufacturing industry increasingly moves towards the production of high-value goods and services as well as utilising new technologies.

vi The regional picture is important – we urgently need a mechanism that effectively links local employers, schools, colleges and universities, so that students don’t leave formal education and automatically re-locate to find meaningful work. Every region needs some kind of employment ‘draw’ or whole regions will suffer from a working age talent drain, reducing the vibrancy of the region reduces and shifting the demographic to older age groups. IPPR research states that we have a nationally designed skills provision system with insufficient local focus. The majority of vocational training provision is driven by a funding and accountability system set by central government agencies, which means that providers are not incentivised to respond to the needs of employees or local employers. Failing to meet business needs is tantamount to putting a brake on those businesses’ ability to perform to their full potential and contribute to the UK’s productivity and competitiveness.

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- vii **We start from a position of lagging behind the other OECD countries in terms of effectiveness, efficiency and competitiveness.** The UK ranks 11th out of the 30 OECD countries in terms of productivity (GVA per hour worked). This puts the UK outside the top quartile of OECD performance. Furthermore, the World Economic Forum rated the UK economy as the 12th most competitive in the world in 2017 - a fall of three places from the previous year. Two-thirds of the United Kingdom's workers are employed in businesses with productivity that falls below the industry average. Using the 10 UK Core Cities' combined average productivity as a baseline, Munich scores 88% higher, Frankfurt 80.7%, Rotterdam 42.8% higher and Barcelona outperforms by 26.7%.
- viii We must address our national, regional and sectoral performance, but it won't happen simply through a policy change, particularly if that change is short-lived or only partly implemented – as has happened all too often in the past. This is not to say that the Government's recent moves to introduce T levels, and to align and clarify the range of qualifications available, are wrong. They are indeed useful. However, these changes alone, without being properly integrated into the wider system, will create more confusion – maybe even detracting from any effective improvement they might bring.
- ix Our performance in skills development has never been more important. **Competitiveness in the future will be determined far more by how we develop and use human skills than on ownership of dwindling natural resources.** Whilst that fact serves to level the playing field in one respect, at the same time it highlights the time imperative we are under. We are already lagging behind when it comes to using skills effectively, and none of our competitors is standing still.
- x Yet we cannot build a skills system today that is configured to meet future needs of our workforce and economy - we simply do not know what those will be. **Instead, the system itself, and the resilience of the workforce it helps to develop, need to respond to a changing and largely unknowable future.** That demands a system that is well-founded, stable and resilient, but which is adaptive and in which communication and information drives improvement. A scenario planning approach to system design is probably demanded here.
- xi The operating environment for manufacturing and service industries, for example, is having to respond to such diverse drivers of change as automation, digitisation and other technical and technological advances, as well as the effects of globalisation counterbalanced with localism and protective nationalism, and geo-political change (such as Brexit). McKinsey global research suggests that by 2030, 75 million to 375 million workers (3% to 14% of the global workforce) will need to switch occupational categories. These demand-side or macro drivers are balanced with supply-side ones such as urbanisation (the UN is forecasting that almost 70% of people will live in cities by 2050), combined with the rise of the gig economy, remote and portfolio working, and an ageing workforce facing a longer working life before retirement. Finally, there are wider global factors such as emerging middle classes; growing and shifting social inequalities and stagnating social mobility, and climate change and its consequences.
- xii **Skills development and the system that enables it must embrace and respond to these drivers of change – and others we cannot predict – if we are to remain competitive in their wake.** To do this we need to develop a much stronger ability to anticipate future skills needs and plan to fill them. A lesson can be learnt from Canada's prescient investment in teacher nearly a decade ago. Teachers were not needed at that time, but population growth showed they would be needed now, and Canada has a ready pool of home-grown talent that is now being repatriated, having gained valuable experience in other countries in the interim.
- xiii So, how do we make it worthwhile for employers to contribute to this investment in time and money in the name of skills development? First and foremost is a need for skills system stability – a scenario

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where the foundations of the system are allowed to bed in, and provide a stable framework on which to build a multi-faceted, living and dynamic network of support for continual learning. This means putting an end to the constant stream of initiatives, without due thought to how they complement and build on one another. **National and regional strategies need to be developed in a way that brings alignment and proper strategic focus. That's the only way we can truly compete (when we know what race we're running).**

xiv **In an effective and engaged system, labour market intelligence is vital, including employer voice in course and qualification design.** Employers cannot realistically expect the skills system to produce what they need if they are not sufficiently clear and vocal about that need in good time (and there needs to be a mechanism and a clear incentive to make that happen). One example here is Germany's Chambers of Trade – they are established bodies, always available for consultation and are able to both advocate with businesses and represent them. Other countries have different models, but the UK is notable for its lack of systematic and reliable labour market intelligence – a critical component for aligning supply and demand of skills.

xv **With continuing change and an extension to people's working lives comes a greater need than ever for individuals to periodically retrain, perhaps radically, in order to stay ahead.** Training needs to be viewed by employers as more than just an entry requirement. It needs to be seen as a fundamental part of investment in a valuable workforce. This broader view from employers needs to be matched by a change of attitude on the part of learners themselves. Participation in formal learning is known to decline with age, and adult learning is disproportionately taken up by wealthier, more highly skilled individuals, potentially exacerbating existing inequalities. A number of barriers to retraining in later life are evident and add complexity to the skills challenges we face:

- Cost and funding
- Lack of relevant and accessible training
- Time constraints
- No forced moment of choice (“why now...?”)
- Not aware of the need (individual or employer)
- Lack of information about training possibilities
- Training does not lead to a new job, or job improvement
- Pre-contemplation phase – individual may need prompting to get over uncertainty

xvi With many of these factors being human ones, and accepting that the workforce comprises decision-makers living in a social context, we can easily appreciate that skills and personal development are of much wider relevance than in just employability and productivity, important though these are. **Working is not just about having a job: good jobs generate self-worth and self-esteem.** They enable the individual to enjoy better health, and avoid mental health problems. They give social status and access to social networks, and encourage wider community participation. Skills honed in the workplace can be given back to the community in the form of voluntary work – and vice versa.

xvii A snapshot of the British economy today shows a high degree of imbalance. An estimated 1.1 million people work in the gig economy, 55% of people in poverty are in a working family, 21% of all employee jobs pay less than the real Living Wage. 51% of UK employees report that their skills are being under-utilised, among the highest levels in the EU, compared to 33% in France, 36% in Netherlands, 37% in Sweden, 38% in Denmark and 45% in Germany.

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- xviii In summary, we need:
1. An organised, long-term, stable system, which grows, responds and develops as demands change;
  2. Transparency of information about need, including regional priorities and opportunities;
  3. An engagement with the network of employers, training providers, and exam awarding bodies that draws their energies into improving and adapting the learning environment;
  4. A widespread realisation that a workforce should be continually learning, and striving to manage that learning for self-improvement;
  5. Proper, focused, and accessible funding in the system, not just to cover technical skills, but to embrace the wider workplace social and interpersonal skills that make an effective worker.
- xix What will happen if we don't do this? There are clear indications already emerging from the evidence.
- xx **Forecasts for future job growth are for an increasingly 'hourglass' shaped economy, with continued demand for low skilled and high skilled labour, but a reduction in the number of 'middle skill' jobs.** The natural extrapolation of this sees more sectors and regions 'trading down' to low skilled (and low value) jobs, as opportunities for advancement to the middle skill level reduce. In turn, this shrinking middle ground is not fertile enough for development of higher skills and the national economy, as well as its skills base becomes bifurcated. None of this is a recipe for success, let alone competitive advantage.
- xxi Poorly targeted investment in skills funding will yield sub-optimal results, damaging individual, organisational and national achievements. Inevitably, not all those that can benefit from training will get it, interest in and enrolment on vocational training will reduce rather than grow. This is already showing through in a marked reduction of take-up of apprenticeships, as just one indicator. **Added to this the existing lack of management and decision-making skills and we see a picture of declining potential unfolding.**
- xxii Instead of a the whole system working and interacting smoothly, the various parts of it will increasingly work in isolation, driving fragmentation and inefficiency deep into the whole learning environment. Even with strong leadership, good policy-making, and whole-system cohesion within local areas, the advantages that could otherwise be delivered will be undermined, and denuded of resource, if the system at a national level exerts pressure in the opposite direction.
- xxiii Learners (who are also workers) of all ages will be compromised in their ability to develop meaningful skills that are valued and useful in their career or personal lives. Those with special needs will be particularly challenged, as they seek to navigate a complicated system, and as dwindling demand or funding for extra support reduces its availability. Older workers will struggle to remain relevant in the workforce and a wealth of potentially valuable skills will risk being mothballed, instead of updated. Their experience will be lost to the workforce and with it their ability to influence and train a new generation of workers.
- xxiv Policy and regulation will continue to work at odds with the needs of industry and the workforce at local and regional as well as national levels. Funding will not be well-focused, and accessing it will be complicated and likely to deter those that need it most. Skills mis-matches will worsen in the absence of credible labour market intelligence. Failing to get skills right will increase our already sub-par performance on the international stage.
- xxv One recourse will be to import skills from overseas suppliers, or to bring in overseas workers. This will divert fiscal revenues out of the National economy, and reduce UK economic activity. At an extreme,

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UK industry will become less efficient, and less able to deliver competitively priced and desired outputs, including the highly valued UK education sector itself, which will no longer be sought after as an export, as it becomes less relevant to the world economy.

xxvi We are already some way down the path towards these outcomes, and the time to take a new approach is now. **If we can strengthen the UK's skills base such that we achieve a top quartile position for Low, Intermediate, and High skills in the OECD's ranking of countries by adult education level, this could translate into an improvement of £108bn in GDP over a 10 year period (or £21bn a year by 2026).**

xxvii With that potential gain on the table, can there be any justification for not addressing our skills needs now?



# Introduction

- I Whether a learner is seeking to acquire a vocational qualification or a technical skill, what matters most is that the training or education received has a meaningful and valuable outcome: learning will make a difference to the learner themselves, perhaps to their family or community, probably to their employer, and the aggregate effects of all learner outcomes will have an impact on the overall UK economy.
- II Today's world of work is very different from the one in which previous generations grew up. The ever-increasing pace of technological change, continuing globalisation and connectivity, and demographic changes playing out around the world, creates a fundamentally different basis for concepts such as 'work', 'career', 'employment' and even 'retirement'. Has our education and training system kept pace with the effects of these changes or are we still equipping young people to succeed in a world of work that no longer exists? If the latter, what does that mean to the UK's skill base, competitiveness and its place in the world economy?
- III This report discusses the UK's future skills needs in general - reflecting current needs and the expected consequences of trends such as demographic and technological shifts and other external drivers of change. We then look at these needs specifically from the perspective of three stakeholder groups: individual learners; employers and communities; and the wider UK economy.
- IV We look at the effects of recent and current policy changes and commentary in the literature regarding the effects of those changes. In particular we are concerned with the implications of whether the changes in train will 'do the job' or whether there is a risk of 'getting it wrong' when it comes to developing a system that supports lifelong learning for life, work and a changing economy. Finally we look at what getting it wrong will mean, in terms of impact on our stakeholder groups, and how that might translate into tangible economic impact.
- V The rest of this report is structured under the following chapters:
- Part One: Literature Review
- Chapter 1: Why skills matter, and current skills needs
- Chapter 2: Future skills needs (the effect of change to our economy and working lives)
- Chapter 3: Policies in place to address skills needs
- Chapter 4: Review of responses to policy change
- Chapter 5: A systems view
- Part Two: Impact Assessment
- Chapter 6: Implications of a system that is not aligned to future needs
- Chapter 7: Potential economic impact of 'getting it wrong'
- Conclusions
- Recommendations for further investigation
- VI Part One of the report summarises the largely complete literature review. Part Two indicates early stage possible findings, and is still under review, requiring further research and analysis.

# Part One: Literature Review



# Part One: Literature Review

## Chapter 1: Why skills matter, and current skills needs

### Literacy, numeracy and problem solving

The importance of foundation skills such as numeracy and literacy has been understood for some time, yet the OECD survey of adult skills<sup>1</sup> noted an estimated nine million working-aged adults in England (more than a quarter of those aged 16 to 65) with low literacy or numeracy skills, including many younger people and those with university-level qualifications. Deficits of such crucial skills persisting into adult life points towards a need for a skills development system which is accessible long after the formal phase of education ends – learning provision that is age agnostic, yet deliberately designed to be accessible to the diverse needs of specific age groups or phases in a life course.

*“Skills have become the global currency of 21st-century economies.”*

The survey also revealed some compelling arguments for investing further in skills development in adults, referring to skills as the ‘global currency of 21<sup>st</sup> Century economies’. In its assessment of the proficiency of 16-65 year-olds in just three key skills (literacy, numeracy and problem solving in technology-rich environments) OECD reported that:

*‘Adults with higher proficiency in literacy, numeracy and problem solving in technology-rich environments tend to have better outcomes in the labour market than their less-proficient peers. They have greater chances of being employed and, if employed, of earning higher wages...Proficiency in information-processing skills is positively associated with many aspects of individual well-being, notably health, beliefs about one’s impact on the political process, trust in others, and participation in volunteer or associative activities...Results from the survey show clearly that what people know and what they do with what they know have a major impact on their life chances.’*

### Soft skills

From the perspective of our national economic success, there are two primary areas of concern underpinning the concept of skills as a ‘global currency’:

1. that we have a workforce that is suitably skilled, efficient and attractive to employers (both domestically and in the sense of potential ‘exports’ to other markets); and
2. that we can sustain an output of products and services that are competitive in our chosen markets – with the implications on skills arising from desired standards of quality, price, and routes to market.

Survey evidence from UK employers shows that these needs are not being met. There is widespread concern that labour market entrants are not adequately prepared for the world of work – reducing productivity as employers remediate to fill the gaps and limiting the life chances of the workers themselves. Key skills deficits in those entering the world of work include team-working, decision-making and resilience, as well as more intangible qualities such as a good work ethic, or professional pride.

The Federation of Small Businesses’ submission to the House of Lords Select Committee on Social Mobility<sup>2</sup> records that “small businesses say young people they encounter are often not sufficiently prepared for the workplace. This includes not understanding how to present themselves, poor communication skills, and lack of time-keeping”.

<sup>1</sup> OECD. (2016). Skills Matter: Further Results from the Survey of Adult Skills, OECD Skills Studies. Paris: OECD Publishing.

<sup>2</sup> University Alliance. (2015). Submission to the House of Lords Select Committee on Social Mobility, Federation of Small Businesses

# Part One: Literature Review

## Management skills

The problem is perpetuated by poor management and organisational skills further up the management chain, including poor utilisation of the skills available. This suggests that these skills are as important as job-specific skills or technical qualifications in the wider workforce if the aggregate latent value of skills is to be fully realised. The OECD survey of adult skills revealed a link between the intensity with which skills are used and productivity – the logic being that skills use stimulates investment, employee engagement (and lower staff turnover) and innovation. Contributory factors from the employer include aspects of work design (team work, autonomy, task discretion, applying new learning) and practice (participation, incentive pay, training and working hours flexibility) – all of which require good management and leadership skills.

A review of middle management in this country will show that managers are lacking visibility of workers' skills and needs. There are also indications of unmet development needs in existing managers (resulting in skills gaps). It is argued that managers are not assessing their own training needs effectively, and businesses are assuming management skills can be learnt 'on the job', rather than requiring formal training.<sup>3</sup>

## Skills challenges

Today's employers report three distinct skills challenges. These are defined by the UK Commission on Employment and Skills (UKCES)<sup>4</sup> as follows:

**Skills shortages** - occur when organisations cannot recruit sufficient people who are appropriately qualified, skilled or experienced to fill the vacancies they have.

**Skills gaps** - exist when members of the existing workforce in an organisation are seen to have lower skills than are necessary to meet current business needs.

**Skills under-utilisation (mis-match)** - is a reflection of whether people are fully using in their current job the skills they have.

According to UKCES in *Ambition 2020*<sup>5</sup>, skill shortages concern only about 1% of employees, skill gaps less than 10%, and skills under-utilisation between 35% and 45% of the workforce. The report goes on to point out that the latter is essentially a demand-side problem – hinting at the importance of system-wide thinking in applying policy interventions. The skills provision landscape may be complex, but it is also delicately balanced as a dynamic system – every challenge the UK faces can be addressed in one or more discrete part of the system, and applying a fix in the wrong place will likely exacerbate, rather than improve, the situation. Overall, skill shortage vacancies are actually low (around 170,000 across the UK) though they are more significant in small establishments, in some key occupations (eg skilled trades, associate professional and technical occupations), and in a number of sectors (eg construction and audio/visual) and localities (eg London).<sup>6</sup>

*Being in work, and the associated acquisition and application of new skills have benefits to mental and physical health that in turn influence personal, family and community wellbeing.*

Skills under-utilisation is a case in point - people may be relatively well-matched when taking a job, but as their experience grows and the job content does not, they increasingly feel they can do more than

<sup>3</sup> UKCES. (2014). *The Labour Market Story: Skills Use at Work*. London: UKCES.

<sup>4</sup> UKCES. (2009). *Ambition 2020: World Class Skills and Jobs for the UK*. Wath-upon-Deane: UKCES.

<sup>5</sup> UKCES. (2009). *Ambition 2020: World Class Skills and Jobs for the UK*. Wath-upon-Deane: UKCES.

<sup>6</sup> UKCES. (2009). *Ambition 2020: World Class Skills and Jobs for the UK*. Wath-upon-Deane: UKCES.

## Part One: Literature Review

their job demands. This is as much to do with job design and work organisation as with skills development *per se*, both difficult for public policy to influence directly. Given that this is the challenge that has the most widespread effect on the workforce, and an endemic effect on UK productivity and competitiveness, an improvement here would have significant impact. A UKCES survey shows that 2 million staff in UK have skills not currently being used in the workplace.<sup>7</sup>

### ‘Low skills equilibrium’

Many places in the UK are currently in ‘low skills equilibrium’ – a situation arising when the availability of low-skilled jobs is matched by a low-skilled workforce.<sup>8</sup> Workers in those jobs have little or no incentive to train further as there are few jobs locally which demand higher skills. Those who already have higher skills – and could help stimulate local economic growth – have no incentive to stay in that locality in the absence of appropriate employment opportunities. This is a phenomenon that is experienced at a spatial as well as a sectoral level, and points to a need for better alignment of local employment opportunities with the workforce (existing employees and new entrants).

In terms of up-skilling existing employees, IPPR research<sup>9</sup> found that firms in financial and business services are more likely to invest in training than those in the lower skilled service sectors. It also found that most employers do not believe their workforce needs additional training and that this in part reflects the structure of the UK’s economy, which has long been characterised by a ‘long tail’ of businesses that do not require skilled employees in order to succeed.

That notwithstanding, there is a need to ensure that cities and regions outside of London (where opportunities are plentiful) offer a supply of good jobs, together with a high demand for skills and good training opportunities. If not – if jobs continue to be characterised by low skills needs that don’t support the ambitions of learners and employees – the skills we are building in individuals will migrate to other areas, threatening the vibrancy or even the viability of whole cities or regions with regard to economic activity. Simply investing in schools is only addressing part of the problem (the skills supply side) – school-leavers need jobs to go to and at least some of them need to be persuaded to stay and work locally, or the job market will stagnate.

### Key social determinants

*Working is not just about having a job: good jobs generate self-worth and self-esteem.*

Quite apart from the financial imperative for most families, being in work, and the associated acquisition and application of new skills, has benefits to mental and physical health that in turn influence personal, family and community wellbeing. The well-respected Marmot Review<sup>10</sup> showed how education and being employed are included amongst key social determinants of health. Indeed, current unemployment policies are built on the belief that people are ‘better off in work’. The emphasis should be on quality of work, however, not just on having a job – as Marmot points out that:

*“The relationship between employment and health is close, enduring and multi-dimensional. Being without work is rarely good for one’s health, but while ‘good work’ is linked to*

· Vivian, D., Winterbotham, M., Shury, J., James, A. S., Hewitt, J. H., Twedde, M., Downing, C., Thornton, A., Rosie Sutton, Stanfield, C. and Leach, A. (2015). Employer Skills Survey 2015: UK Results. London: UKCES, IFF Research.

· Walport, M. and Leunig, T. (2017). Future of Skills & Lifelong Learning. London: Foresight and Government Office for Science

· Dromey, J. and McNeil, C. (2017). Skills 2030 - Why the Adult Skills System is failing to build an Economy that Works for Everyone. IPPR North, JP Morgan Chase & Co.

· Marmot, M. (2010). Fair Society, Healthy Lives - The Marmot Review. Strategic Review of Health Inequalities in England post-2010, p68

## Part One: Literature Review

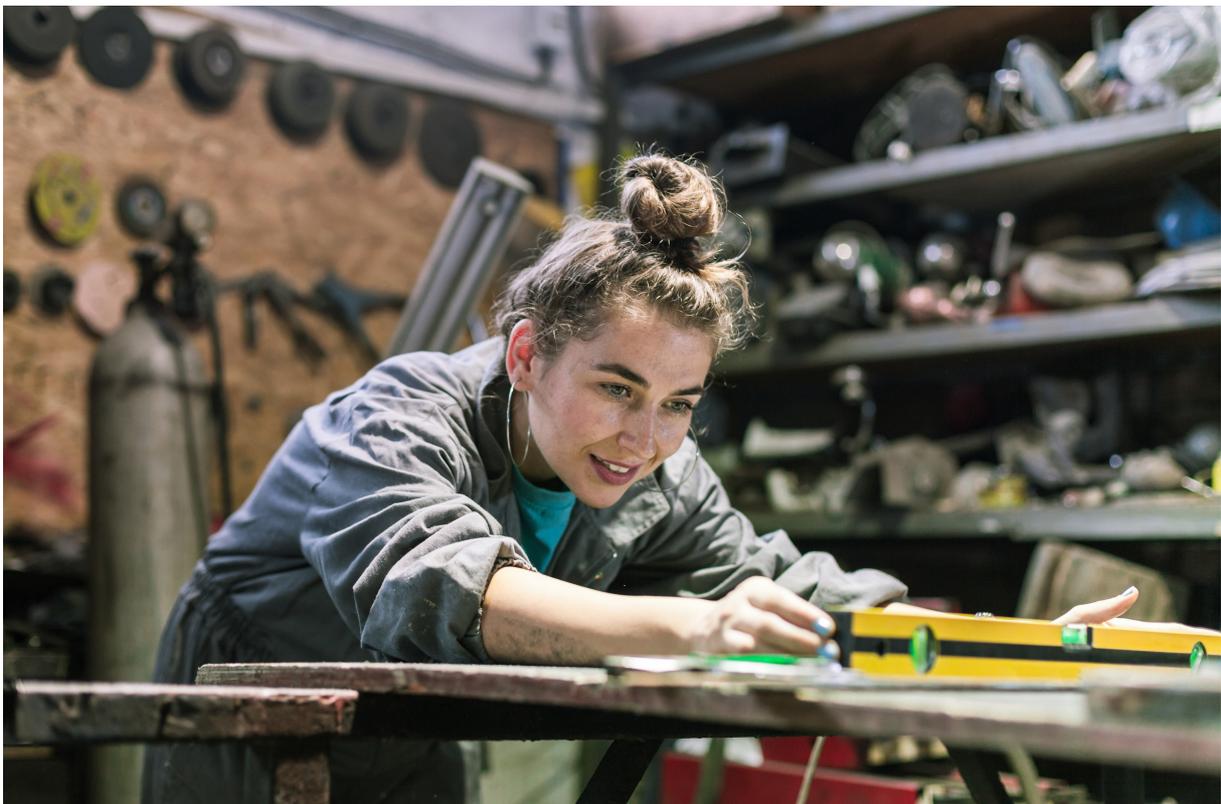
*positive health outcomes, jobs that are insecure, low-paid and that fail to protect employees from stress and danger make people ill.”*

With stress in the workforce arising from all three of the skills challenges faced by employers, but most notably that of under-utilised skills, a link between skills and good health is self-evident. Two needs arise here - the need for better intelligence at a national level as to which skills might be needed where (which in turn allows for proper planning of provision), and the need to improve in-work skills of managers and leaders such that latent skills are recognised and used, rather than wasted and frustrated.

Not all learners will be acquiring skills as part of their working lives, of course. Most people at some stage in their lives will have needs and goals outside of work that inspire them to learn something new. How well they can find the right solution to their learning needs depends on a trio of factors:

1. having accurate information about courses and training available, including how relevant each option is;
2. being able to access the training in whatever mode, and whatever time suits them; and
3. being able to afford the training – either personally or with the benefit of external funding.

All of these factors can be addressed in multiple ways – including through policy change – but to get the solutions right we need to understand the way in which technological and societal trends and disruptions will affect the UK’s skills needs.



# Part One: Literature Review

## Chapter 2: Future skills needs

This section begins with a general discussion of skills, and how skills needs might be expected to change in the future – whether through the evolution of existing needs or as a result of changes outside of the world of education and development. We follow this with a review at the levels of individuals, employers and their communities and at state level.

### Adapting to change

We are living in an age of constant and accelerating change. Whilst we cannot predict the future with any degree of certainty, we do know that certain trends will continue to have a fundamental effect on our lives and work. Learning to live with – and adapt to – change is becoming central to our personal, national and global success. We can build a solution around current and future challenges as best we can, but that capability is limited by how much of the future is knowable now. Policies in particular need to be designed to cope with more than one potential scenario. Furthermore, if we are to have an empowered and self-determining workforce, we need to ensure people are equipped with the right skills and support to enable them to navigate a complex system and uncertainty as to what the future will bring. This means being alive to the need for different or additional skills than just the technical know-how that is front of mind in many skills development discussions.

### Skill sets and characteristics

When considering skills needs it is helpful to distinguish between different types of skills that matter to individuals and to employers. Various typologies are widely used, including the Centre for Real-World Learning's vocational skills framework<sup>11</sup> and this version of it adapted by the RSA's Louise Bamfield, in a 2013 think piece<sup>12</sup> to provide a 'whole system framework for skills, knowledge and capabilities'.

Table 1

	Skill Set	Skill Characteristics
1	Functional and basic skills	Including language comprehension & communication, numeracy & digital literacy
2	Specialist or advanced knowledge (knowing how and knowing that)	Encompassing practical, technical, craft-based and theoretical/conceptual
3	Craftsmanship or Professionalism	A set of attitudes and dispositions towards ones work, especially the sense of pride in a job well done; the capacity to exercise informed, expert judgement drawing on a wealth of relevant experience
4	Relational and emotional intelligence	Relating to and empathising with other people; knowing how to present and communicate to different audiences
5	Business and enterprise skills	The economic and social sides of work, eg being able to spot and take advantage of market opportunities; managing time and resources effectively etc.
6	Understanding Innovative and collaborative capacity	Being inspired to collaborate and innovate, enquire and investigate, adapt and respond to changing circumstances.

<sup>12</sup>Bamfield, L. (2013). Rebalancing the UK's Education and Skills System Transforming capacity for innovation and collaboration. London: RSA Action and Research Centre

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The causes or drivers of change are well-rehearsed, but here we summarise the potential impact on skills needs of some of the more predictable trends, as viewed from the varying perspectives of individuals, employers and the wider economy, before looking in more depth at the future skills needs of each of those audiences.

*Skills development and the system that enables it must embrace and respond to these drivers of change – and others we cannot predict – if we are to remain competitive in their wake.*

Table 2

Trend or Driver of Change	Characteristics	Potential Impacts Observed or Anticipated in:			Examples of Skills-Related Needs Arising
<b>Technology and digitisation (excluding Automation)</b>	<p>Changing the work we do and how we do it</p> <p>Use of technology as an enabler or utility</p>	Lower skilled workers could become trapped in lower skilled jobs	Hollowing out of middle skilled jobs, leading to a bifurcation or workforce and business strategy	Competitiveness hinges on having access to a high skilled workforce, but with particular specialised skills	In some cases gives rise to new occupations, sectors and skills – need to keep up
<b>Automation of simple or routine complex tasks</b>	<p>Replaces some low skilled jobs</p> <p>Allows for greater productivity with fewer workers</p> <p>Sectors this affects will expand in the future – including areas such as hospitality</p>	Can lead to unemployment or even a state of low skills equilibrium, where low skill supply is matched by low skills demand and there is no improvement incentive on either side	Higher capital spend on automation could lead to lower spend on workforce leading to further deskilling of the low-skilled	Competitive differentiator lies in how work and jobs are designed to utilise skills better	Jobs become less driven by procedure, so analytical and creative thinking and decision-making become key
<b>Globalisation and connected World</b>	<p>Competition for skilled workers</p> <p>Pace of change elsewhere can lead to unexpected shifting of the norm</p>	<p>Industry or sector may change its focus or location</p> <p>Skills can be transferred from one employer or sector to another</p>	Supply chain is important, including confidence in skills standards for migrant workers	<p>New trading partners beyond EU may affect working practice (and language)</p> <p>Complex and JIT delivery chains demand reliable and precise organisation</p>	<p>Up-skilling or re-skilling may be necessary to avoid layoffs (communication, organisation and planning skills)</p> <p>Skills standards and qualification governance gain in importance</p>

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Trend or Driver of Change	Characteristics	Potential Impacts Observed or Anticipated in:			Examples of Skills-Related Needs Arising
<b>Counter-trend of localism or protective nationalism</b>	Jobs in certain industries 're-patriated'  Demand for domestic produce and manufacturing increases	More jobs become available, but likely to be in either lower-skilled or highly-skilled roles  Those working part time hours have choice to work longer	Certain industries struggle to recruit, driving up wages  Certain regions lose stability as core industries decline	Success depends on driving demand for high value sectors - both domestic and in foreign trade deals	Some lower-skilled jobs such as those in agriculture will be replaced by automation  Higher-skilled jobs give rise to a policy shift and associated investment towards professional skills development in struggling sectors (eg, healthcare)
<b>Geo-political change and power shifts</b>	Brexit gives rise to an urge to recruit British workers in a time of already near full employment  New trade alliances change technological or manufacturing strategies	Short term workload impact as EU colleagues leave UK or vacancies harder to fill  Workers in 'gig' economy may swap to traditional employment modes in search of financial security	Could be a glut of low skilled, low paid jobs available – care needs to be taken to avoid a low skills equilibrium  Potential for employers to substitute capital for labour (automating roles)	Could affect future growth of higher skilled jobs, especially if new industrial strategy follows;  Short term shortage of skills drives costs and reduces competitiveness – likely to be particularly noticeable in manufacturing and construction	Emphasis on technical skills as new industrial focus emerges  For employees, this is combined with demand for improved workplace skills as competition for new roles increases
<b>Urbanisation</b>	70% people living in urban areas by 2050  Negative effect on both skills supply and job openings in rural and coastal communities	Urban dwellers highly mobile, using networks and freely available infrastructure to move jobs  Rural and coastal workers more loyal to employers, but vulnerable to sector or regional shocks	Urban employers in competition for skills  Rural and coastal employers must increase efforts to align local skills development to their needs	Infrastructure investments are critical  Industrial strategy must align with regional skills strategies	Cities attract high value knowledge-intensive industries; more varied employment opportunities available to those willing to travel  Policy instruments such as tax incentives may be needed for training and re-skilling

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Trend or Driver of Change	Characteristics	Potential Impacts Observed or Anticipated in:			Examples of Skills-Related Needs Arising
<b>Ageing workforce/population</b>	<p>50 year career</p> <p>Old Age Dependency Ratio set to fall to 284 by 2020 as a result of policy change including raising retirement ages, but then rise to 370 by 2039 as Baby Boomers retire<sup>13</sup></p>	<p>Young people will work for longer than previous generations, and will need to be increasingly productive to maintain standard of living</p>	<p>Employees have less financial security that previous generations</p> <p>Job security may become a draw</p> <p>Employers need to make responsible recruitment decisions</p>	<p>Change of attitude towards senior citizens – now an active part of the economy for longer, but in different ways</p> <p>Will all employers make the change, or will skewed employment arise?</p>	<p>Skills need to develop, including core skills and foundations such as English and Maths</p> <p>Remaining employed is more important than ever</p>
<b>Household demographic trends/ Portfolio careers/ Emerging economies</b>	<p>More part-time workers</p> <p>More people exploiting digital technology to work flexible hours</p> <p>Demise of some workplace-based jobs</p> <p>Products as services</p> <p>Changing relationship between employees and employers</p>	<p>Millennial generation have divergent work behaviours – is divergence the new norm (trailing but imitating social individualism?)</p> <p>More self-employed or people juggling multiple jobs</p>	<p>One size does not fit all for employee recruitment, training and retention</p> <p>Small and micro businesses tend to think staff are fully proficient and not to invest in training</p> <p>Employers may not want to invest in employees who will not stay for long</p>	<p>Average earnings may not keep pace with standard of living expectations, leading to lower personal pension provision or savings</p> <p>Funding models for ongoing learning (eg Personal Learning Accounts)</p>	<p>On-the-job training becomes more difficult with divergent working practices across workforces</p> <p>Online skills development takes precedence</p> <p>Time management, financial literacy and business development skills are important</p> <p>Broader skills needs become un-supported but remain as differentiators in employment</p>
<b>Emerging middle classes/ Social inequalities</b>	<p>Disparity widening?</p>	<p>Expectations of higher qualifications</p> <p>Better job prospects and mobility (social and spatial)</p>	<p>Overqualified workforce requiring compensation above value to company</p>	<p>Trend towards higher pay for lower quality work</p> <p>Competitiveness affected with relation to other countries</p>	<p>Training methods adapting to different starting points and backgrounds (digital teaching adapting tasks to previous answers, for example)</p>

<sup>13</sup> Nash, A. (2016). Compendium: How the population of England is projected to age. ONS [Online]. Available: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/compendium/subnationalpopulationprojections/2014basedprojections/howthepopulationofenglandisprojectedtoage> [Accessed].

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Trend or Driver of Change	Characteristics	Potential Impacts Observed or Anticipated in:			Examples of Skills-Related Needs Arising
<b>Climate change and its impacts</b>	Resource scarcity Altered travel patterns Manufacturing and supply chain changes necessary	Different choices about travel to work and other forms of consumption	Workers may be more inclined to seek local jobs, changing pattern 'match' of jobs and requisite skills	New sectors (eg, green industries) likely to emerge more strongly, whilst traditional sectors see a decline	Green economy jobs – long term outlook unclear – recognition and enablement of portability of skills and qualifications across industries is key

### Individual learners

The work we do, our working patterns and our attitudes towards work are changing – all of which point towards the need for an evolution in our approach to skills development. McKinsey research<sup>14</sup> suggests that in about 60% of occupations, at least one-third of the constituent activities could be automated, implying substantial workplace transformations and changes for all workers. Jobs that cannot be easily automated will be the ones reliant on human skills – for example retail assistants, care workers, hotel receptionists, warehouse workers or building labourers. A report by the RSA<sup>15</sup> agrees that these occupations are more likely to evolve than be made obsolete, but that evolution implies a potential need to re-skill as a result many people will need – or choose - to switch occupations or upgrade skills.

*With continuing change and an extension to people's working lives comes a greater need than ever for individuals to periodically retrain, perhaps radically, in order to stay ahead.*

Skills provision – in terms of both content and delivery – needs to respond to the varying outcomes required by learners. *A Guide to the Skills System*<sup>16</sup> observes that today's young people are looking for meaning in their work, not necessarily for a route into their next job; tradesmen on the other hand, are more likely, when thinking about progression, to start their own businesses. This gives rise to important differences both in the skills each group seeks to develop and in the value they place on them. For the tradesmen, the ability to exercise self-determination in their work, or to serve and be part of local community could justify personal investment in business skills training to add to existing technical skills. For the younger person, the expectation is more likely to be that their manager will support them in their current role, and that that support will keep pace with their personal growth in the role.

Fundamental for a learner is the desire to know that their learning is useful and respected; that it will lead to better job prospects (or satisfaction in home or social life); and that the provider of the course can be trusted to deliver good content in an accessible format at an appropriate pace. Further, for those courses that are assessed in some way, that assessment must be fair and predictable.

<sup>14</sup> Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, J., Batra, P., Ko, R. and Sanghvi, S. (2017). Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages [Online]. Available: <https://www.mckinsey.com/featured-insights/future-of-organizations-and-work/Jobs-lost-jobs-gained-what-the-future-of-work-will-mean-for-jobs-skills-and-wages#part1> [Accessed].

<sup>15</sup> Delloit, B. and Wallace-Stephens, F. (2017). *The Age of Automation: Artificial intelligence, robotics and the future of low-skilled work*. London: RSA.

<sup>16</sup> Skills Commission. (2015). *Guide to the skills System*. London: Skills Commission.

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Failure to meet these requirements could discourage individuals to invest (time and money) in their own continuous career development. Government funding, and employer and individual investment will instead be directed towards low value provision with little return on that investment. Measurement and ranking criteria are important here - rankings and league tables that give due weight to an institution's record of achieving appropriate, significant and satisfactory student destinations could be a real attraction to students making choices at key transition points and planning their eventual careers.

*Participation in formal learning is known to decline with age and adult learning is disproportionately taken up by wealthier, more highly skilled individuals.*

The gap between guided learning in schools and colleges and taking responsibility for one's own career and learning choices in later life has never been wider. In formal education, choices are limited and come at pre-determined times with easily accessible support and guidance available. Once beyond formal education the certainty and orderliness of career decisions is removed and the learner is left to fend largely for themselves. With options proliferating and implications of poor choices resonating far into a learner's future, the need for high quality advice and information with regard to training pathways and options is clear. So too is the value of developing core skills such as active enquiry, risk evaluation and decision-making, which can be applied to one's one learning journey. Implementation of recommendations in the Careers Strategy<sup>17</sup> including statutory requirements to improve careers guidance in schools and the adoption of the Gatsby Benchmarks<sup>18</sup> - will help young people, but more needs to be done for adult learners, who will face skills choices later in life that are just as significant in their effect as those made at school age.

Uncertainty about the nature and shape of future industrial and trading strategies emphasises the need for qualifications that are recognised across borders and that can be portable (or at the very least translatable in terms of qualification level) across industries.

The influence of demographic and societal drivers of change will give rise to needs such as skills development provision which fits in with flexible working patterns – for example, online courses designed to be followed in short time periods. Changes to delivery modes will, however, need to take account of the needs of different learner types. The Sainsbury Report<sup>19</sup> placed renewed emphasis on the needs of those with SEND (special educational needs and disabilities) or those who are not ready to enter further training at 16, proposing a formalised 'Transition Year' during which requisite skills can be built.

When it comes to formally assessed skills acquisition (as opposed to informal or on-the-job learning) qualifications and training need to be both accessible and affordable. This is particularly pertinent to the so-called 'Sandwich Generation' – the estimated 2.4m of UK adults who are juggling work with caring for children and elderly relatives. The situation arises when an ageing population is combined with the societal trend towards starting a family later and gives rise to serious financial and time pressures. Fitting training or skills development into lives like these will be challenging.

Research by KPMG<sup>20</sup> highlights the need for governments to focus on the effects of 'youth bulges' arising from demographic change. Noting that 75% of the global population has access to a mobile phone KPMG suggests that training providers could capitalise on the so-called 'app economy' when it comes to a choice of delivery platform. Whilst this advice is aimed primarily at developing economies, it holds true for the UK and resonates with habits formed in the emerging 'gig' economy in which

<sup>17</sup> Gatsby. (2013). Good Career Guidance. London: The Gatsby Charitable Foundation.

<sup>18</sup> Table showing the eight Gatsby benchmarks of Good Career Guidance is in appendices

<sup>19</sup> Sainsbury, D. (2016). Report of the Independent Panel on Technical Education.

<sup>20</sup> KPMG International. (2013). Future State 2030: The global megatrends shaping governments.

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products or assets are accessed as services ‘on demand’. This approach also addresses the question of affordability mentioned earlier by reducing costs into manageable tranches.

Participation in formal learning is known to decline with age and adult learning is disproportionately taken up by wealthier, more highly skilled individuals. Evidence heard by the Commission points to eight barriers or reasons why workers do not retrain:

1. Cost and funding
2. Lack of provision
3. Time constraints
4. No forced moment of choice (catalyst)
5. Not aware of the need
6. Lack of information about training possibilities (brokerage)
7. Lack of connection with a new job (the training does not lead to a new job)
8. Pre-contemplation phase (may need prompting to get over a lack of confidence)

This last barrier refers to the literature on behavioural change, and specifically to Prochaska’s 5 stages of behavioural change<sup>21</sup> – often referred to as the Transtheoretical Model, drawing as it does on multiple sources: Pre-contemplation (unaware of the problem); Contemplation (aware of the problem and of the desired behaviour change); Preparation (intends to take action); Action (practices the desired behaviour); and Maintenance (works to sustain the behaviour change). The model is a useful tool when looking to address barriers to skills development. Research on workplace training consistently cites a lack of awareness that skills are outdated as a key barrier to training uptake.

Working is not just about having a job. Good jobs generate self-worth and self-esteem, and this yields benefits in all aspects of a person’s life, rippling through into mental and physical wellbeing and increasing the likelihood of someone contributing to their wider family, social group or neighbourhood. Work need not be reimbursed, either. Voluntary work can do just as much to increase personal wellbeing and stimulate local economic activity as can paid employment. Indeed, many aspects of public service provision at local level are enhanced by volunteer activity, with mutual benefit regularly being recognised and measured (not least in a reduction in demand on health and social services).

### Employers and communities

*Skills shortages led organisations to spend £63bn last year in extra recruitment fees, raising salaries on offer, training ‘sub-optimum’ new hires and temporary staffing.*

*‘We need to fundamentally change how individuals and businesses treat skills acquisition and development: from a one-off experience in our youth to a lifelong commitment; from a business expense to an essential recurring investment in competitive advantage and business success’. (UK Commission for Employment and Skills<sup>22</sup>)*

The quote from UKCES summarises a complicated reality. New research by the Edge Foundation<sup>23</sup> highlights an estimated 60,000 technology-related vacancies in the UK, and predicts that that figure will reach 1 million by 2020. The Open University Business Barometer<sup>24</sup> (using survey data from a representative sample of businesses) revealed that organisations spent £63bn last year - in extra recruitment fees, raising salaries on offer, training ‘sub-optimum’ new hires and temporary staffing - as

- Prochaska, J., Norcross, J. and Diclemente, C. (1995). *Changing for Good: A Revolutionary Six-Stage Program for Overcoming Bad Habits and Moving Your Life Positively Forward*. New York: Harper Collins.

- UKCES. (2009). *Ambition 2020: World Class Skills and Jobs for the UK*. Wath-upon-Deane: UKCES.

- The Edge Foundation. (2018). *Skills Shortages in the UK Economy*. Edge Bulletin. The first Skills Shortage bulletin from the Edge Foundation focussed on Engineering, and further bulletins are planned on the Creative and Cultural sector and on Science, Energy and Utilities. As such, the figures quoted here tell only part of the story.

- The Open University. (2018). *Business Barometer July 2018*. London: The Open University, 2018

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a result of skills shortage. Per organisation the Barometer shows large enterprises losing a potential of £81,000 in lost GDP through this kind of spending over the course of the year, with the impact on SMEs (those with fewer than 250 employees) being around £20,300 per organisation.

The report underlines the importance of training as a long-term solution to skills shortage and helping to maintain UK competitiveness. However this may be a more affordable route for larger organisations than many SMEs, who make up 97% of the UK employer base. Strategies for filling stubborn vacancies do little to solve the problem - 54% of Barometer respondents expected to hire at a lower level than expected (forcing further decisions about human capital investment); 62% thought they would have to increase salaries on offer for those vacancies (which does little to solve the skills shortage at sector level); and 61% expected to spend more on recruitment fees (driving in both time and cost to the recruitment exercise). Significantly, 57% of organisations expected to spend more on temporary staff – a 10% rise on this year’s practice, which – if reflected in other industries - implies a further impact on the employment patterns in the UK. More workers accepting serial temporary roles will affect conditions in other areas of the economy such as mortgage approvals, pension contributions and savings ratios, leading to fundamental instabilities or restricted funding availability in related areas.

The report of 2017 Skills and Employment Survey (SES2017)<sup>25</sup> predicts an easing of shortages in ICT skills, suggesting that the effects of technical advances are becoming less pronounced in the wider world of work as proficiency in the use of technology as a utility increases:

*“The introduction of new ICT at workplaces appears to have become less skills-demanding. This is corroborated by a falling proportion of survey respondents who state that additional computing skills would enable them to do their job much better. The proportion roughly halved from around 25% in 2001 to 12% in 2017. The skills bias nature of ICT may thus have been transitory. As has been suggested in other research, the maturing of ICT and its more widespread use, makes the adoption of new vintages of general purpose ICT a familiar and less skills-intensive process. But at the same time, changes in the way work is organised increasingly complement high skills.”*

*The system itself, and the resilience of the workforce it helps to develop, need to respond to a changing and largely unknowable future.*

Whilst this is comforting with respect to ICT, we can confidently predict that another disruptive change is just around the corner. We will always have a set of technological skills needs which change over time as generations adopt the utility aspects and specialise the advanced skills. Being prepared for this is less about predicting that new technology, and more about having the right systems in place to recognise the need as it arises, and to retrain people, or train people from scratch, for future technological challenges, helped by a deeper understanding of the evolution of that new technology.

The Skills and Employment Survey 2017 report sounds a note of caution regarding the government’s high skill strategy, for example, warning that the nuances of supply and demand need to be taken into account in a much better way than we are currently managing. There is a clear need for employers to make their skills needs more transparent – both by contributing to labour market intelligence at a national level and by direct involvement with schools, colleges and training providers locally to ensure that skills are being developed that match the needs of the labour market.

<sup>25</sup> Henseke, G., Felstead, A., Gallie, D. and Green, F. (2018). Skills Trends at Work in Britain: First Findings from the Skills and Employment Survey 2017. London: Centre for Learning and Life Chances in Knowledge Economies and Societies, UCL Institute of Education.

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One example is the widespread belief that the UK has a shortage of workers with STEM (Science, Technology, Engineering and Mathematics) skills. In a January 2018 report<sup>26</sup> the National Audit Office said that the Government did not have “a robust, independent evidence base that defines the STEM skills problem.” and that:

*“Existing evidence indicates that there is a STEM skills mismatch rather than a simple shortage...Our research indicates that there are particular shortages of STEM skills at technician level, but an oversupply in other areas, such as biological science graduates, who are then often underemployed in an economy in which they are not in high demand. There is also evidence to suggest that, at graduate level and above, the problem is sometimes one of quality rather than quantity, with people not having all of the employability or practical skills they need to enter the workforce.”*

If employers’ seeking of skills is itself skewed to fit what they believe is available, then even this STEM skills mismatch will be misrepresented.

Findings from the Open University’s Business Barometer also show that employers are valuing skills that are not overtly part of current curricula, pointing towards the effects of a changeable political, economic and technological climate and the resulting need for management and leadership skills in navigating change smoothly.

Skills such as coping with uncertainty, decision-making and assessing and managing risk are increasingly demanded in the workplace, but not taught routinely in schools as part of a core curriculum. Neither are they consistently covered in post-16 provision. Optional activities and learning frameworks, such as Duke of Edinburgh awards, National Citizenship Scheme and Combined Cadet Forces activities go some way towards filling this gap, but rely on personal motivation and agency on the part of the learner (and note that all of the above are aimed at younger people), as well as awareness of the opportunities and support from family, friends and educators to undertake the programmes.

Schools and colleges should be seen not just as educators preparing students for an unmapped world, but rather incorporated, however loosely, into employment supply chains. The world of work needs to better forecast and make known its skills needs, informing and supporting relevant skills development.

At the same time, local actors need to understand how accessible optional or skills enrichment activities are to all social groups, and to work together to address gaps. For example a local comprehensive school might not have the same offering as a private school – whether as a result of funding, curriculum focus, or general ethos. Local businesses or community groups can do much to provide alternative opportunities, designed to build core transferable and leadership skills in students whose opportunities are otherwise limited. Germany and Sweden are good examples of countries that have the requisite infrastructure in all schools to enable students to engage in extracurricular activities.

Strategic trends in service provision – and indeed in wider public discourse – put great emphasis on the importance of place-based solutions. This is in recognition of differences in need, approach and resources from one location to another, as well as differing characteristics of life and work in urban, rural and coastal environments. RSA’s Commission on Inclusive Growth found that there is a need for a national strategy for inclusive growth, agreed and supported by the centre but devised and implemented by local actors with a keen sense of place.<sup>27</sup>

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<sup>26</sup> National Audit Office. (2018). Delivering STEM (science, technology, engineering and mathematics) skills for the economy. London: Department for Business, Energy & Industrial Strategy Department for Education.

<sup>27</sup> RSA. (2017). Inclusive Growth Commission: Making our Economy Work for Everyone. London: Inclusive Growth Commission

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The devolution of the Adult Education Budget from 2019/20 offers a chance for cities and local areas to better focus investment on their unique needs with regard to skills development.<sup>28</sup> We are already seeing initiatives emerging to dovetail the needs of the local labour market with the courses provided by local colleges (supported in many cases by collaborative input from local job centres in signposting opportunities).

Research by the RSA<sup>29</sup> supports the need for more engagement of this type at local and regional level, suggesting that local councils have an important role in helping to broker forms of employer engagement and reduce the mismatch between training courses and local jobs. Barriers to this kind of collaboration and joined-up strategy include local authority budget cuts and the pressure of meeting individual targets which are not aligned to strategic local needs.

### The UK economy

The UK's strategies for industrial and economic growth or competition provide an obvious starting point for understanding future skills requirements, however ensuring that those people with the required skills are in a position to take advantage of jobs available is a recurring theme.

A NIESR briefing<sup>30</sup> observes that the overall mix of capital to labour employed in the economy is too low to allow sufficiently high growth in real wages. This outcome, whilst limiting the impact of the recession on unemployment, has limited the growth in income per head in the recovery. The UK has seen a much bigger fall in trade as a proportion of GDP than France or Germany in the past eight years, forcing it to rely increasingly on its own internal markets to drive demand. This is “a challenge that consumers have met, but businesses have refused to join”, resulting in a proliferation of low skill, low productivity jobs, further exacerbating the problem of a ‘hollowing out’ of the labour market – the so-called ‘hourglass economy’ in which intermediate skills are in short supply.

### Regional Policy

*The regional picture is important – we urgently need a mechanism that effectively links local employers, schools, colleges and universities, so that students don't leave formal education and automatically re-locate to find meaningful work.*

There are regional factors at play too – not least the fact that national strategies are often misaligned with local and regional development plans. This situation arises when strategy development (skills and industrial strategies, for example) takes place irregularly or under changing leadership, or when local plans are responsive to specific tax or investment incentives offered from the centre.

A framework in which strategies are developed, checked or routinely communicated from top down, bottom up and region to region would do much to address the inevitable consequences of competition for scarce skills, or ‘cookie cutter’ plans designed to win a share of restricted funding. This would help to create a coherent UK-wide skills strategy that meets the needs of both local economies and national industries. Reducing unnecessary competition for skills, and working to realign skills gaps and mismatches across regions would contribute to a less differentiated picture when it comes to regional GDP.

<sup>28</sup> Learning and Work Institute. (2016). *Ambition London: Making learning work*. Leicester: Learning and Work Institute, p8

<sup>29</sup> Bamfield, L. (2013). *Rebalancing the UK's Education and Skills System Transforming capacity for innovation and collaboration*. London: RSA Action and Research Centre, p13

<sup>30</sup> Bryson, A. and Forth, J. (2015). *The UK's Productivity Puzzle: Discussion Paper No. 9097*. London: National Institute of Economic and Social Research.

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UKCES explains that within the UK, London and the South East together account for over a third of the UK's GDP. Evidence<sup>3</sup> shows that London has the highest GVA per hour worked (some 29.7% higher than the UK average) and the highest levels of gross disposable household income.<sup>31</sup>

Recent trends in growth across the UK have led to little change in the distribution of UK GDP across the regions and nations as uneven growth has served to further consolidate the level of UK value added produced in Southern England with a declining share in the North West, Scotland and West Midlands.

### Chapter 3: Policies in place to address skills needs

The Independent Panel on Technical Education, chaired by Lord David Sainsbury was set up in 2015 to advise ministers on actions to improve the quality of technical education in England and, in particular, to simplify the currently over-complex system and ensure the new system provides the skills most needed for the 21<sup>st</sup> century. The Panel's report<sup>32</sup> highlighted 'serious problems' with the existing system, citing poor performance in comparison with other OECD countries in respect of developing intermediary skills and post-secondary technical education, which has a direct impact on productivity.

Areas of concern from the Panel included:

1. too many qualifications (over 13,000), not all of which hold value for learners or employers
2. a disconnection between the needs of employers and the content of higher technical education qualifications
3. the bifurcation of educational routes we have already mentioned, lacking in practical and effective 'bridges' between the two
4. a noticeable lack of focus on the core and enabling skills of English and maths perpetuating poor outcomes for the UK in these subjects
5. variable (and in many cases, poor) standards in educational facilities and the teachers and trainers responsible for developing skills in others

The Skills Commission paints an equally stark picture in its *Guide to the Skills System*, particularly with regard to the number of qualifications available:

*"There has been a series of attempts to introduce new, centrally sponsored vocational qualifications with the hopes they will satisfy industry needs, provide a broad content offer, or restore public confidence in vocational and technical education. This has resulted in the introduction of a plethora of qualification types since the 1980s from NVQs, GNVQs, AVCEs, Applied A Levels, Diplomas, numerous branded qualifications, and the more recently rebranded suites of qualifications such as EBaccs and Tech Baccs....the constant churn has done much to devalue the vocational pathway as learners, parents, and employers have struggled to keep up. As a result, the academic route remains the gold standard despite the examples of world-class vocational training available across the country."*

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<sup>3</sup> UKCES. (2009). *Ambition 2020: World Class Skills and Jobs for the UK*. Wath-upon-Deane: UKCES.

<sup>32</sup> Sainsbury, D. (2016). *Report of the Independent Panel on Technical Education*.

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The Sainsbury Review is one of a long list of major reviews into the system since the turn of the Millennium, many of which have resulted in significant policy change, but most of which are characterised by a relatively short time horizon as successive Governments are frustrated in their attempts to introduce a complete packages of policy reform within the timetable available to it. The resulting partial implementations rarely succeed in the intended manner (they were, after all, designed to work as a complete package), and just as rarely are



outcomes robustly measured. Instead, all too often, a new package of reforms is proposed. This raises concerns both about the unintended long term consequences of some of these interventions, and about the decision-making framework under which changes to our skills system are made, including the level and scope of enquiry applied. We now need to fix that, so that changes are real improvements on an existing system and not stand-alone additions to it. The literature review suggests that by introducing T Levels into an already complex system, for example, it will be hard to get their implementation right and to reap the potential benefits of what is, at heart a sound initiative.

Taking a longer term view of skills policy development would also address the current reality that each time a new policy is launched, funding and attention from all corners follows that move – leaving the rest of the system and learners elsewhere unattended or under-funded. We need to think about and plan policy changes systemically, not in a piecemeal fashion if we are to avoid such unintended consequences.

Some of the most influential reviews and their intended outcomes are summarised in the table in Appendix A. It is notable that most such reviews are focussing on just one or two distinct aspects of the skills system – reacting to specific issues in isolation. This is a concern noted by the Skills Commission, along with noting the frequency in change of responsibility for outcomes and inputs to the system, which, it argues, gives rise to a focus on structural changes and a potential lack of focus on both quality of provision - with teachers and educators having to frequently adapt to those changes with short lead times – and long-term stability in employer engagement at all levels (though it acknowledges the recent addition of the Careers Education Company (CEC), which seeks to cover the navigation and advice problem.

In most recent efforts to match the needs of employers with the needs of individual learners, two major changes have been made to the apprenticeship system. These are designed to address many of the concerns voiced about the current system and – being recent and high profile - are at the forefront of much of the discussion in the literature about skills needs:

New apprenticeship standards are to be designed by employers under the oversight of the Institute for Apprenticeships. These standards are intended to be better connected to the needs of the labour market, offering a more direct route into employment upon completion, but also allowing for progression to higher levels of training or education.

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An apprenticeship levy – applying to employers in England with an annual pay bill above £3m, the levy is set at 0.5 % of the annual pay bill, offset by £15,000 annual allowance. Employers not paying the levy, who offer apprenticeships to 16 to 18 year olds, will receive 100 % of the cost of the training from the Government, up to the maximum funding bands.

The results of these latest changes remain to be seen, but some responses to them are discussed in more detail in Chapter 4. Broadly speaking, criticism has been levelled not at the innovations themselves (which most seem to consider a strong addition to the qualification landscape), but in their implementation, particularly with regard to the differing needs of SMEs compared with larger employers, and the cumulative burdens felt by each as a result of the changes.

In the case of T levels, for example, attention is drawn to the requirement for employers not only to take on apprentices, but also to support 45 day T level work placements. The consensus view is that smaller employers have not been well enough represented in the design phase (representation being qualitatively different from having voice). Employers may need more clarification around their expected activities and contributions, and almost certainly need stronger incentives to meet those expectations.

More worrying concerns are raised with regard to the design of the T level pathways (and perhaps the underlying taxonomy or classification scheme) and whether there is enough fluidity between and across them. When drilling down into the plethora of jobs that can be found in the catering and hospitality industry, for example, it is easy to see clearer skills links with jobs in other industries than between, say a chef and a hotel manager. Work placements may make it hard for learning to be fluid and self-selecting.

The literature and commentary is generally supportive of the apprenticeship levy as a way of getting employers involved in the development of future skills but again there are suggestions that its implementation (and perhaps its design) is flawed. The process for sign-up and operation is said to be fraught, and information and sign-posting are so far deemed inadequate by some commentators.

### **Policy agenda over the past decade – key points**

Appendix A summarises the key changes in skills policy since the turn of the Millennium. Below we extract key highlights from each of the most significant reform packages or reviews:

#### **National Skills Task Force (2000)**

Remit to assist in developing a “national skills agenda which would ensure that Britain has the skills needed to sustain high levels of employment, compete in the global marketplace, and provide opportunity for all”. The Task Force included employer and trade union representatives as well as education and training providers.<sup>33</sup>

The priority areas identified as essential were:

- reducing the levels of illiteracy and innumeracy amongst adults and raising the skill levels of those without level 2 qualifications;
- establishing an excellent foundation learning system, to include high-quality vocational and apprenticeship options supported by a public funding entitlement for all young people up to the age of 24 to achieve their first level 3 qualification; and

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<sup>33</sup> Payne, J. (2000). National Skills Task Force issues final report [Online]. Eurofound. Available: <https://www.eurofound.europa.eu/publications/article/2000/national-skills-task-force-issues-final-report> [Accessed].

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- a series of measures designed to aid small businesses, widen the availability of learning for the adult workforce and help small firms to introduce modern “flexible working practices” that would improve both competitiveness and employer investment in training.<sup>34</sup>

Some argued that it promised a “quick-fix, catch-all” solution to deep-rooted structural weaknesses confronting the UK economy.<sup>35</sup> It aimed by 2010, to reduce the proportion of adults with low levels of literacy and numeracy from just over 20% to 10%; to increase the proportion of 25-year-olds with a level 3 qualification from 41% to 70%; and to increase the proportion of the adult workforce with a level 2 qualification from 68% to 80%.<sup>36</sup>

### Tomlinson Report (2003)

The Tomlinson Report, as the Final Report of the Working Group on 14–19 Reform, was published by the UK Government in October 2004. The proposals, much watered down, were the basis for the 2005 14–19 Education and Skills White Paper.

Key proposals included:

- providing courses which stretch children, ensuring that children have basic literacy and numeracy skills;
- raising the status of vocational qualifications, reducing the amount of assessment and the number of exams;
- simplifying the system, making it easier to carry over achievements from one course of study to the next; and
- introducing the 14–19 diploma to replace GCSEs, A- and AS-Levels, BTECs and AVCEs.<sup>37</sup>

### Leitch Review of Skills (2006)

Review of the UK's long term skills needs. The big focus of Leitch was on what the report termed ‘adult skills’, which meant all those aged 20 or over. The report set out specific targets on skills at basic, intermediary and higher level, although the last two were expressed as qualification targets. A target to get 40% of the working-age population to level 4 (degree or equivalent) was adopted. Leitch also created a new infrastructure and adapted existing institutions including two funding programmes for adult skills.<sup>38</sup>

True to form, Leitch did not last long, although it was arguably because of the financial crisis of 2008 and the urgent need to prioritise that led the Coalition Government in 2010 to scrap the targets. Moreover, some programmes, such as Train to Gain, had produced disappointing results, which might have justified its abandonment even in a more generous funding climate. Funding was also withdrawn from qualifications with low take-up or demonstrating little value in a much needed cull of the plethora of qualifications on offer.<sup>39</sup>

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- Payne, J. (2000). National Skills Task Force issues final report [Online]. Eurofound. Available: <https://www.eurofound.europa.eu/publications/article/2000/national-skills-task-force-issues-final-report> [Accessed].

- Payne, J. (2000). National Skills Task Force issues final report [Online]. Eurofound. Available: <https://www.eurofound.europa.eu/publications/article/2000/national-skills-task-force-issues-final-report> [Accessed].

- Payne, J. (2000). National Skills Task Force issues final report [Online]. Eurofound. Available: <https://www.eurofound.europa.eu/publications/article/2000/national-skills-task-force-issues-final-report> [Accessed].

- Working Group on 14-19 Reform. (2004). 14-19 Curriculum and Qualifications Reform - Final report. Nottinghamshire: DfES Publications.

- Brinkley, I. and Crowley, E. (2017). From ‘inadequate’ to ‘outstanding’: making the UK’s skills system world class. London: CIPD.

- Brinkley, I. and Crowley, E. (2017). From ‘inadequate’ to ‘outstanding’: making the UK’s skills system world class. London: CIPD.

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However, some of the principles of Leitch were retained, especially around greater employer engagement and participation, the sharing of funding responsibility, and the commitments to improve basic skills and qualifications.

### **The Wolf report (2011)**

The report was highly critical of the system as it stood and therefore considered improvements in vocational education for 14-19 year olds and thereby to promote successful progression into the labour market and higher education and training routes. The review considered all formal qualifications for the 14-19 phases which include vocational content and concluded that we should be encouraging more young people to take an apprenticeship.<sup>40</sup>

27 recommendations called for a huge shake-up in careers advice and qualifications. It addressed funding changes to remove the perverse incentives which encouraged schools and colleges to steer young people into easy options, rather than ones which will help them progress. This aimed to reduce costs, and allow closer and more direct links between awarding bodies, employers and 'providers' (i.e. schools, colleges and training providers.)<sup>41</sup>

Employers were to be directly involved in quality assurance and assessment activities at local level, on the basis that this was the most important guarantor of high quality vocational provision.<sup>42</sup>

The proposed funding changes were to also encourage innovation. However, some believed that the proposals to change the funding routes and to make employers make a compulsory contribution for 16, 17 and 18-year-olds would create a barrier to entry for many young people.<sup>43</sup>



### **Richard Review of Apprenticeships (2012)**

Following the Wolf report, the government set in motion a review process on apprenticeships. Doug Richard set out a comprehensive vision for the future of apprenticeships. His independent report, The Richard Review of Apprenticeships, calls on the Government to improve the quality of the programme and make them more focused on the needs of employers.

Key recommendations included:

- redefining apprenticeships and their outcomes;
- government funding creating the right incentives for apprenticeship training; and
- far greater diversity and innovation in training encouraged with employers and government taking a more active role in assuring quality.

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<sup>40</sup> Brinkley, I. and Crowley, E. (2017). From 'inadequate' to 'outstanding': making the UK's skills system world class. London: CIPD.

<sup>41</sup> Whittaker, F. (2014). What has happened to 14 to 19 vocational education? [Online]. Available: <https://feweek.co.uk/2014/03/28/what-has-happened-to-14-to-19-vocational-education/> [Accessed].

<sup>42</sup> Whittaker, F. (2014). What has happened to 14 to 19 vocational education? [Online]. Available: <https://feweek.co.uk/2014/03/28/what-has-happened-to-14-to-19-vocational-education/> [Accessed].

<sup>43</sup> Whittaker, F. (2014). What has happened to 14 to 19 vocational education? [Online]. Available: <https://feweek.co.uk/2014/03/28/what-has-happened-to-14-to-19-vocational-education/> [Accessed].

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## The Sainsbury Report (2016)

The review was tasked with advising ministers on actions to improve the quality of technical education in England and, in particular, to simplify the currently over-complexed system and to ensure that the new system provides the skills most needed for the 21<sup>st</sup> century.

The report sought to ensure that each of the new technical routes had a 'common core' (including English and maths requirements, and digital skills) which is aligned to apprenticeships, and that the Institute for Apprenticeships would work with employers to articulate a common set of transferrable workplace skills which could apply across all the new technical routes.<sup>44</sup>

The review envisaged two pathways for learners who didn't want to take an academic route - apprenticeships and T Levels, and recommended the development of a framework of 15 occupational routes to skilled employment so learners could choose the best path.

## Post-16 Skills Plan (2016)

The Sainsbury Report recommendations were delivered in the government's Post-16 Skills Plan. Apprenticeships and T Levels are intended to be based on the same set of employer designed standards (which have been developed by apprenticeship trailblazer groups) but there will be differences in the content. Apprentices will train for a single occupation while T Level students will undertake a broader programme, gaining skills and knowledge relevant to a range of occupations in a route.

One of the key proposals is the introduction of a common framework of 15 routes across all technical education at levels 2 to 5, encompassing both college-based and employment-based learning. The new Institute for Apprenticeships, set to be fully operational by April 2017, will see its remit expanded to take over responsibility for this framework as the Institute for Apprenticeships and Technical Education. It will take over responsibility for technical education in April 2018 and will have a remit to develop a coherent strategy and place employers in the lead on designing the standards across all technical education.<sup>45</sup>

This is clearly a substantial change to the system, with thousands of qualifications being distilled down to just 15 routes. This may lead to a much simpler and straightforward process for learners and parents. However, there is a question as to whether these 15 routes can realistically cover all job roles. Analysis from the Association of Employment and Learning Providers (AELP) has indicated that 57% of jobs in our economy are outside the scope of the recommendations. So there is a need for a regular review to ensure the number of pathways and the areas they focus on are kept up-to-date and keep up with changing job roles and work practices.<sup>46</sup>

## Chapter 4: Review of responses to policy change

The literature review yielded three recurring themes with regard to provision:

- First, that the provision landscape needed to be simplified and improved with the addition of mechanisms to ensure relevance, quality and usefulness of qualifications;

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· Brinkley, I. and Crowley, E. (2017). From 'inadequate' to 'outstanding': making the UK's skills system world class. London: CIPD.

· Saddler, J. (2016). Sainsbury Review and Post-16 Skills Plan [Online]. Available: <https://www.londoncouncils.gov.uk/members-area/member-briefings/sainsbury-review-and-post-16-skills-plan-0> [Accessed].

· Saddler, J. (2016). Sainsbury Review and Post-16 Skills Plan [Online]. Available: <https://www.londoncouncils.gov.uk/members-area/member-briefings/sainsbury-review-and-post-16-skills-plan-0> [Accessed].

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- Second, that pathways through and between learning options needed to be clearly available and easily accessible (for example, opportunities to move from academic to technical, or to transfer skills from one technical domain to another;
- Third, that more needs to be done to signpost the usefulness, portability and applicability of skills with respect to other contexts than that in which they are acquired. This point is particularly relevant in the light of an ageing workforce which is likely to bring with it extended working age ranges and consequent changes in the type of work any one individual will do over time.

*Apprenticeship provision in England is still very much weighted towards intermediate / level 2, with very few starts at higher level.*

### Apprenticeships and the Apprenticeship Levy

Response to the new apprenticeship model has been mixed, with some observers<sup>47</sup> claiming that ‘one size won’t fit all’ and that larger companies may be more likely to experience net benefits from hiring apprentices than SMEs, due to economies of scale and a different salary structure. If true, this suggests that small businesses may need more support than is currently proposed. The same report suggests that returns to apprentices are higher if they start their apprenticeship at a younger age. This raises questions around effectiveness and value for money in England, where 60% of new apprentices in 2017/18 were aged 19 or older (2017/18).



That apprenticeships might still be an unattractive offer for many is evidenced by the number of companies offering places and the number of students filling them – both of which are falling. In the first quarter of 2017/18, the number of apprenticeship starts fell by 30%, from 164,200 to 114,400 compared to the previous year.<sup>48</sup> A report by Pearson<sup>49</sup> recommends that the Government should retain the ambition for everyone to attain at least a level 2 in English and Maths by the age of 19. To support this, it should develop Functional Skills into a high quality, relevant and recognised qualification whose success is measured on progression rates, employment outcomes and equipping young people with basic skills. It should also monitor whether students taking apprenticeships are progressing well enough and review the suitability of this route for those lacking basic literacy and numeracy. The 15 new technical routes could allow for higher contextualisation of maths to help ensure retention and student engagement with the subject.

A CIPD report<sup>50</sup> flags key concerns with the apprenticeship reforms and its impact on training. A concern is that investment is being taken away from other non-apprenticeship forms of workforce

<sup>47</sup> Wieland, C. and Härle, N. (2018). Apprenticeship training in England – a cost-effective model for firms? Policy Brief. Educating Policy Institute; J.P. Morgan; Bertelsmann Stiftung.

<sup>48</sup> Wieland, C. and Härle, N. (2018). Apprenticeship training in England – a cost-effective model for firms? Policy Brief. Educating Policy Institute; J.P. Morgan; Bertelsmann Stiftung, p1 and 2

<sup>49</sup> Anderson, R. (2017). Educating for our Economic Future. London: Education Policy Institute, Pearson, p43

<sup>50</sup> CIPD. (2018). Assessing the early impact of the apprenticeship levy – employers’ perspective. London: CIPD.

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training and development<sup>51</sup>. Their survey found that 26% of employers believe the levy would have the effect of reducing investment in other forms of workforce training, with 14% of respondents saying the opposite. A further 47% don't believe the levy will make much difference in this respect and 1 in 12 don't know. SMEs (32%) are most likely to believe the levy will lead to less investment in other forms of workforce development. There is a concern that all existing training activity will be rebadged in apprenticeships, especially concentrated at level 2 and 3, though this is yet to be founded.

The apprenticeship levy has also been the subject of some criticism. The Institute for Public Policy Research (IPPR) has suggested<sup>52</sup> that the levy fails to restore employer investment to the levels of a decade ago and calls on the Government to expand the apprenticeship levy into a wider 'skills levy', set at 0.5% of payroll for employers with 50 or more employees, and 1.0% for the largest. According to IPPR this would raise £5 billion and increase access to the fund.

The British Chambers of Commerce workforce survey 2017<sup>53</sup> surveyed over 1,400 business people from all regions of the UK to understand how the introduction of the apprenticeship levy is affecting UK businesses. The survey found that the new apprenticeship system is increasing costs and uncertainty for business, with 23% reporting that they have no understanding of the levy or don't know how they would respond to it. This figure rises to 66% for non-levy paying businesses.

CIPD research<sup>54</sup> in 2017 supports this view, voicing concerns that the system is not functioning well enough as a route into labour market for young people - just 25% of apprenticeship starts in 2016/17 went to young people aged below 19. More positively, 22% of young apprentice starts in 2016/17 were in engineering and manufacturing technologies and 47% of these starts were at either advanced or high level.

One key concern, as raised by CIPD, is the negative impact levy has on quality of training, suggesting that numbers of apprenticeships will increase without a parallel increase in capacity to manage and mentor them. This undermines the effective building of the skills needed or the workplace. CIPD recommends that there could be more awareness-raising at school level of apprenticeship opportunities and government funding to LEPs to raise awareness of reforms and the benefits of apprenticeships locally<sup>55</sup>.

Both survey responses would suggest that there is a need for clearer guidance and support for businesses – for example, signposting and educating about how apprenticeships can be used to up-skill or re-skill existing staff as well as new hires – as well as some way to go in raising awareness amongst learners of the benefits and opportunities provided by apprenticeships.

CIPD<sup>56</sup> assessed the early impact of the apprenticeship levy from an employer's perspective. Key amongst its findings were concerns that provision in England is still very much weighted towards intermediate/ level 2, with very few starts at higher level. This means that the UK still lags considerably behind the best systems in Europe such as Germany, Switzerland and Austria – where nearly all apprenticeships are at advanced or higher level. Even within level 2 intermediate apprenticeships concerns are being raised over quality and returns with example being reported of level 2 offerings containing little or no off-the-job training delivering low-level skills. This potentially exacerbates the

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- CIPD. (2018). Assessing the early impact of the apprenticeship levy – employers' perspective. London: CIPD, p9

- Dromey, J. and McNeil, C. (2017). Skills 2030 - Why the Adult Skills System is failing to build an Economy that Works for Everyone. IPPR North JP Morgan Chase & Co,p1 and Learning and Work Institute. (2016). Power to the People: The case for Personal Learning Accounts. Leicester: NIACE and Learning and Work Institute.

- British Chamber of Commerce. (2017). Workforce Survey 2017. Middlesex University London: BCC.

- CIPD. (2018). Assessing the early impact of the apprenticeship levy – employers' perspective. London: CIPD.

- CIPD. (2018). Assessing the early impact of the apprenticeship levy – employers' perspective. London: CIPD, p15

- CIPD. (2018). Assessing the early impact of the apprenticeship levy – employers' perspective. London: CIPD.

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problem of hourglass skills, with limited building of skills amongst those with level 2 to 4 already, or with workplace experience.

Undoubtedly such early responses need to be tempered as being partly the result of transitional or ‘teething’ problems, but a consistent set of outcome measures should certainly be monitored. Elsewhere in the literature it is suggested that businesses will take some time to respond to the changes in the apprenticeship system, arguing that they were not ‘properly consulted’ about them and so had less time to prepare that would have been desirable.

## Wider provision and regulation

A house of Lords Select Committee report<sup>57</sup> reflected on the provision and oversight of training and skills development, citing the ‘primacy of the undergraduate degree’, the ‘incentivisation of schools to

Figure 1: Funding and regulatory responsibilities

Level	Higher Education			Further Education	
	Six	Five	Four	Three	Two & below
<b>Courses</b>	Undergraduate degree	Technical/technician qualifications Foundation degree HND	HNC	T-Levels A-Levels NVQs	GCSEs
<b>Institutions</b>	Universities			Further education colleges	
	*				Sixth form colleges
<b>Funding</b>	Office for Students			Student Loans Company	
	*	Education and Skills Funding Agency			
<b>Regulation</b>	Office for Students			Education and Skills Funding Agency	
	*				
<b>Other agencies</b>	Quality Assurance Agency			Ofqual	
				Ofsted	
	FE Commissioner				
<b>Apprenticeships</b>					
	Six	Five	Four	Three	Two & below
<b>Courses</b>	Degree apprenticeship	Higher apprenticeship		Advanced apprenticeship	Intermediate apprenticeship
<b>Funding</b>	Institute for Apprentices (recommends funding bands)				
Levy	Employers via levy fund (administered by National Apprenticeship Service)				
Non-levy	Employers (10%); Government via EFSA (90%)				
<b>Regulation</b>	Office for Students			Ofsted	
	National Apprenticeship Service (apprenticeships delivery)				
<b>Other agencies</b>	Institute for Apprentices (development of standards and some quality assurance)				
<b>Information</b>	National Apprenticeship Service				
	UCAS (information only)				
	National Careers Service				

[\*] Further education colleges offer degrees, but require an external validator with degree awarding powers (usually a university)

*covers all forms of higher education’*

This latter point addresses the integration of new qualifications into the wider existing system. If apprenticeships do not attract UCAS points, it is argued, they will not routinely be considered as viable comparative alternatives to degrees. This concern arises elsewhere in the literature and points towards the need for truly systemic thinking around policy and structural change.

The report goes on to suggest that the system of post-school education is unbalanced in favour of one route (the academic route leading to university degrees), and as a result offers ‘poor value for money to some individuals, taxpayers and the economy’. Arguing for a better distribution of public funding

send pupils down the academic route’ and ‘employers requiring degrees for jobs which do not really need them’ as factors within the system that still need to be addressed. The report refers to the fragmentation of funding and regulatory responsibilities in training provision, and suggests that this favours the academic route over others.

4.1 In particular the public discourse around apprenticeships was seen to be lacking in ‘hooks’ that would change perceptions about their value.

- I. Apprenticeships, the report claimed
- II. ‘...offer a way of accessing higher education without incurring student debt and can address directly skills shortages in the economy. Schools should present all routes into higher education as equal and there should be a single, UCAS-style, portal that

<sup>57</sup> Economic Affairs Committee. (2018). Treating Students Fairly: The Economics of Post-School Education. London: The Authority of the House of Lords.

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across all forms and institutions in higher and further education it proposes a single regulator for all higher education (Level 4 and above) and a single regulator for other post-school education (Level 3 and below).

Further, it proposes that the Institute for Apprenticeships should be abolished and quality and outcomes of Level 2 and 3 apprenticeships and Level 4 and above apprenticeships should be the responsibility of these two new regulators. The underlying argument here – regardless of the specifics – is that regulation and oversight of the skills system should be based on the quality of its outcomes and not its provision structure – a change in approach which would arguably lead to longer term stability and a ‘provision-neutral’ policy landscape. Crucially, it may also enable greater innovation in the sector. One example of how entrenched structures may have inadvertently caused problems elsewhere concerns the ‘dramatic’ fall of part-time study and adult learning, crucial underpinnings to life-long and on-the-job learning. The report links that decline to reforms which aimed to increase participation in higher education, resulting in a ‘neglect’ of part-time and mature students which is short sighted, given the importance of flexible learning to mature students looking to learn new skills to adapt to changes in the labour market and working practices.

A final comment on the system concerns the permeability of learning pathways, which it argues is not yet in place. One recommendation is that flexible learning could be backed by a robust, properly enforced credit-based system (where, for example credits accrued studying a Level 4 qualification would count towards – and reduce the cost of – a full degree). This, it is noted, would require regulatory reform, which raises further concerns. The creation of the Institute of Apprenticeships calls into question how it will dovetail with the role of Ofsted and Ofqual’s framework for technical level qualifications. Suggestions of fragmentation in regulation should be taken as a serious warning, as this would further complicate an already complicated system.

Regulation is necessary but the way the current system is regulated is by no means efficient, nor is it agile enough to cope with expected fluidity of content in fast-moving technical industries. The obvious solution would be to consider new forms of delegated authority to regulate specific aspects of provision, however, this must be in the context of a strong strategic focus. Delegated regulatory authority could be useful in both local provision and in quality assurance of training, or ‘passporting’ across industries. Previous reforms (as part of the proposed Qualifications and Credit Framework (QCF) package) have suggested a lifelong training log accessible (with permission) to employers or other interested parties, similar to the digital patient record we now have in the NHS. Those suggestions were not implemented, largely due to IT limitations, but perhaps the future world of work demands such a tool and investment in the infrastructure required to make it work?



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## Chapter 5: A systems view

Boston Consulting Group’s in-depth research on education in markets around the world<sup>58</sup> has revealed four factors that are key to the success of TVET systems: The presence of a coordinated ecosystem in which all stakeholders, including a central agency with clear oversight of the TVET ecosystem, actively cooperate; Performance-based government funding and support; Parity between academic and technical education and a straightforward means for students to transition between the two tracks; Sustained, collaborative efforts from industry.

The *Guide to the Skills System*<sup>59</sup> makes a similar observation:

*“International Technological and Vocational Education and Training (TVET) systems typically overlap with general education systems from around the age of 14 and can be characterised by: Strong pathways into a range of occupations that are understood by the general public; High rates of employer engagement and well understood meanings of what this is; The association of vocational pathways with high quality and positive returns in the labour market”*

However it urges caution against simply importing policy solutions from these successful models into the UK, noting that many countries known for their successful TVET systems, such as Germany, Austria and Switzerland, are described as social market economies with highly regulated labour markets, whereas the UK’s economy is more marketised with a flexible labour market. Further differences in these markets arise because of their different structure with, for example, the German preponderance of large privately-owned businesses, which have been in the same family ownership for many generations, and have a strong commitment to and engagement with place. Detailed analysis of what makes policy work in different contexts is crucial before assessing the value of a policy imported from another country.

Figure 2



This underlines the importance of evaluating the skills needs of the UK with the benefit of an understanding of how the overall system works, including proper assessment of potential unintended consequences of policy change. The diagram from the British Council (above) represents key actors in the skills system but does not deal with the mechanisms that underpin each interaction. A review of the literature would suggest that it is not necessarily the shape of the system that is in need of improvement, but the mechanisms and interactions within it.

A Foresight report<sup>60</sup> discusses multiple contributory factors to the misalignment between supply and demand for skills which is in evidence today – many of which we have already discussed – and highlights the success in many countries of labour market information that is independently and robustly collected and informs stakeholders of skills needs predictions. The US O\*NET system,

- Puckett, J., Davidson, J. and Lee, E. (2012). Vocational Education: The Missing Link in Economic Development. The Boston Consulting Group.  
 - Skills Commission. (2015). Guide to the skills System. London: Skills Commission.  
 - Campbell, M. (2016). The UK’s Skills Mix: Current Trends and Future Needs. London: Foresight, Government Office for Science.

## Part One: Literature Review

Germany's BERUFENET and the Netherlands' POA ('Project Onderwijs en Arbeidsmarkt') are examples of large networks that link labour market and skills forecasts with careers advice and guidance to help match supply and demand.

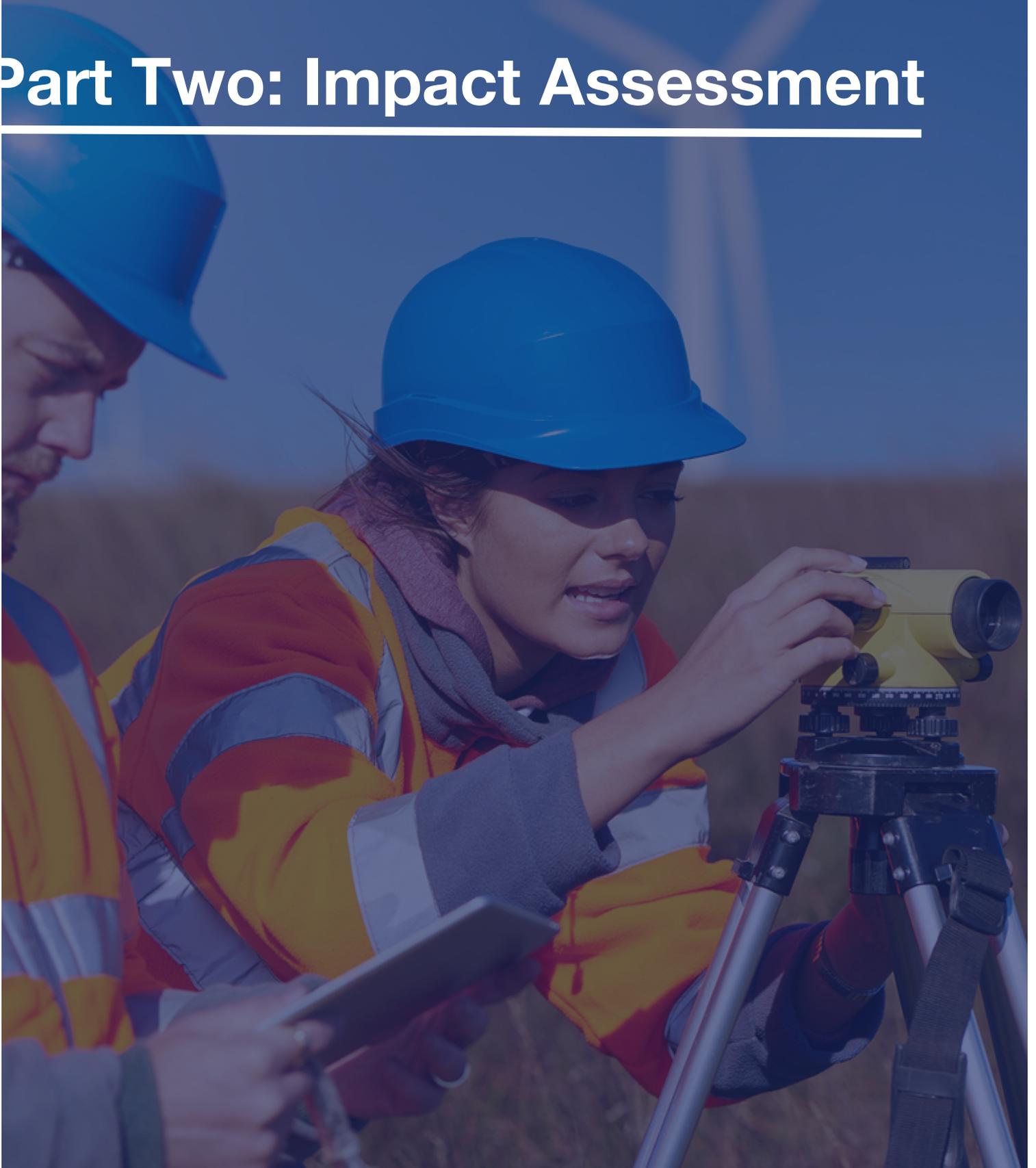
Given that skills mis-matches can occur in any economy, it is wise both to mitigate against them and to create a system that caters for their eventuality. The effects of changing skills needs must be addressed at all parts of the system, if their negative impact is to be minimised. In such a system: Intelligence from employers and industry forecasts shapes the pipeline of skills availability; careers guidance and quality contacts with the labour market shape a young person's understanding of options and their implications; training and qualifications are simple to understand and standards are known and trusted, making them portable across pathways; funding models are adaptive to local, national and personal need, so helping to address social mobility concerns and ensure that the skills being developed are valued.

*In an effective and engaged system, labour market intelligence is vital, including employer voice in course and qualification design.*



# Part Two: Impact Assessment

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## Part Two: Impact Assessment

### Chapter 6: Implications of a system that is not aligned to future needs

The commentary above hints at some of the effects of ‘getting it right or wrong’. Here we look at the implications for certain key groups. This section is illustrated by ‘case study’ exhibits which have been developed by BWB from the seven ‘Portraits of Modern Work’, as outlined by the RSA’s Future Work Centre<sup>61</sup>.

#### Low skilled adults and the unemployed

The most recent OECD adult skills survey<sup>62</sup> noted that an estimated 9 million working aged adults in England (more than a quarter of those aged 16 to 65) have low literacy or numeracy skills, including many young people and those with university-level qualifications. If this situation is not addressed effectively, these adults will have trouble extracting information from longer and more complex texts or performing numerical tasks involving several steps and mathematical information represented in different ways<sup>63</sup>. Put simply, they will not move through the labour market as easily or quickly as desired, impacting both productivity and overall mobility. The effects of low quality work, under- or unemployment on health are also widely acknowledged.

In all countries/ economies that participated in the Survey of Adult Skills, a considerable proportion of adults has no or very limited ICT skills. In addition, nearly half of adults have low proficiency in problem solving in technology rich environments. This means that they are “able to use only familiar applications to solve problems that involve few steps and explicit criteria, such as sorting e-mails into pre-existing folders.”

These findings may have implications for how governments conceive and implement policies relating to the digital economy, particularly concerning e-government and online access to public services.<sup>64</sup>

Cohorts whose specific needs need further research but who are particularly vulnerable to failures in the system include: those with special educational needs or disabilities (SEND); those currently or at risk of being not in employment, education or training (NEET); returners to work (for example, after taking a career break to look after young children); those who have lost jobs - perhaps as a result of industry decline - but who are not yet skilled to do anything else; the long-term unemployed who may be some way away from the labour market; older workers; ex-offenders; ex-Forces personnel, and those living in isolated areas (rural or coastal) for whom job availability as well as accessibility can present particular challenges.

Rosa left school with just two GCSEs. She quickly found work in the local supermarket though and worked her way up to shift supervisor. Rosa is now Mum to two children under 5 who keep her busy – even more so, now that their Dad is not around. The supermarket is laying people off and Rosa is worried her job will go. She knows she’s not popular with her boss, because she can’t do the early morning or late night shifts, what with looking after the kids, but she really needs to work to make ends meet. She’d love a job with office hours, but that would mean learning to use computers, and that’s not something they teach you in the supermarket!

- Balaram, B. and Wallace-Stephens, F. (2018). Thriving, striving, or just about surviving? Seven portraits of economic security and modern work in the UK. London: RSA - Future Work Centre.

- Dromey, J. and McNeil, C. (2017). Skills 2030 - Why the Adult Skills System is failing to build an Economy that Works for Everyone. IPPR North JP Morgan Chase & Co, p14.

- OECD. (2016). Skills Matter: Further Results from the Survey of Adult Skills, OECD Skills Studies. Paris: OECD Publishing, p35.

- OECD. (2016). Skills Matter: Further Results from the Survey of Adult Skills, OECD Skills Studies. Paris: OECD Publishing, p64.

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For example, the mandatory industry placement element of the new T levels has practical implications in an area where there are no local industries relevant to the course.

### Technical education at levels 4 and 5

Pearson research<sup>1</sup> has shown that – partly as a result of previous policies addressing the balance between university degrees and other outcomes including funding arrangements – intermediate tertiary education and technical training at levels 4 and 5 have suffered from a lack of attention, resulting in skills shortages in a range of industries.

According to the Post-16 Skills Plan, over time we would expect to see a reduction in the number of regulated qualifications that exist at levels 4 and 5 – at present there are around 1,800 on Ofqual's register of regulated qualifications which makes it hard for students and employers to know their worth, and for regulation to ensure that content and delivery are fit for purpose. Only level 4 and 5 qualifications which meet national standards and are entered onto the Institute's register of approved technical education qualifications will be eligible for public subsidy (via government-backed loans) as technical qualifications. There is a risk here that choice becomes too restricted into narrow pathways, which will not serve a learner well if, as we expect, the world of work becomes increasingly fluid. Other risks concerning the design of courses include course content that fails to keep up with changing techniques or practices in the world of work. This is most likely to be a result of failures in employer engagement, and will mean further training is necessary for the individual on arrival in the workplace – and further expense for employers, as they employ people who are simply not ready to do the jobs they are employed to do.

The 50 year career is a very real possibility but we are unlikely to see individuals staying in the same profession or job for the full extent of those 50 years. Adult learners who do not build sufficient core learning skills will be at a distinct disadvantage at those points where they are required to change direction and learn new skills. The rise of the 'gig' economy raises more questions as to the skills required to navigate the modern working world. Those earning their living by working multiple 'gigs' or having equally unpredictable employment will need core skills such as financial planning and budgeting – without those we run the risk of further demands on the welfare system.

A system with inadequate signposting and navigation support could result in high quality courses being closed due to lack of demand, and learners potentially wasting their own or their employers' money on training that is inadequate or inappropriate to their needs. In areas where jobs are plentiful this might not have a significant impact on any one individual, but in areas where jobs are scarce, the failure to equip people with the skills to take up those jobs has an economic as well as a personal impact. One example of how we might

Sammi is in her dream job. She always knew that she wanted to be a designer and has done really well since she left college. Her first employer loved her, and when her family encouraged her to move to a bigger firm with more prospects, she landed a job relatively easily. But that was six years ago now, and Sammi keeps missing out on promotions and opportunities. Everyone tells her she's great at what she does, but she just doesn't seem to have what it takes to progress. At her last appraisal she was told that her communication skills let her down in client meetings, and the more senior roles needed people with a bit more ability to solve problems and think for themselves. Sammi is fed up with that kind of advice though – how will she get good at those things if they won't give her the chance?

<sup>1</sup>Anderson, R. (2017). Educating for our Economic Future. London: Education Policy Institute, Pearson, p38.

<sup>2</sup>Department for Business Innovation & Skills. (2016). Post-16 Skills Plan. London: Department for Education, p27

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not yet have got signposting right can be found in a prototype online tool developed by Ofqual to help with navigating available provision<sup>67</sup> but which is designed to be navigated by provider first, rather than by skills or training outcome required. A simple switch of axes in the underlying taxonomy would serve learners much better.

Funding, access and format are the three core components that could threaten a good course delivery outcome. Providers will need to tailor courses to the needs of different groups. An adult learner will want to learn in a different way to a young person – probably in the evenings, likely to be at least partially online and possibly at their own expense, so requiring flexibility of payment and frequency of consumption. It is highly likely that responsibility for lifelong learning will be increasingly in the learner’s own hands and lack of attention to those three components will mean poor outcomes for many. Worse, these learners could remain largely hidden from view, since their intentions and potential may not be known to anyone but themselves.

### High skilled adults

The evidence suggests that while there has been significant progress in terms of boosting the skills among the working population, the training delivered is all-too-often not economically valuable, and the skills delivered are not effectively utilised in the workplace.<sup>68</sup> This has the dual impact of low returns on human capital investment and low morale in the employee. RSA research highlights the need to turn high skills into high value more modular, work-oriented training which can help workers at all skill levels to progress.<sup>69</sup>

The research goes on to say that lifelong learning should underpin the support available to all groups, given the importance of re-skilling in the context of fast-changing, technologically driven labour market trends, however, current support provided by Job Centres and the like fails to accommodate the needs of high skilled adults seeking to retrain. Provision has been characterised as being inappropriate (even patronising), and leading to further skills under-utilisation.

### Ageing workforce

In recent decades, discussion of older people in the workforce centred on inclusion, and offering opportunities for those people to continue working beyond the age of 65 if they wanted. In the future, the realities of an ageing workforce and a rising old age dependency ratio (OADR – the number of people of State Pension Age and over for every 1,000 people of working age) mean that there is an economic imperative for most people to keep working for longer.

Ali has worked in manufacturing all his life. He’s well educated, and the youngsters at work know they can go to him for advice if something’s not right – he can always find a way to fix things.

That’s one of the benefits of having been around for 30 odd years. Ali’s been slowing down a bit lately, and would really like to cut down on the physical side of the job. With retirement a good 15 years away, something will have to change or he won’t last. What would he do though? Who wants someone who’s an expert in manufacturing if he can’t do the work anymore? Ali’s worried about what people will think of him and worries that you ‘can’t teach an old dog new tricks’.

- Ofqual. (2017). Vocational and Technical Qualifications Landscape [Online]. Available: <https://analytics.ofqual.gov.uk/apps/2017/VTQ/VTQLandscape/> [Accessed].

- Dromey, J. and McNeil, C. (2017). Skills 2030 - Why the Adult Skills System is failing to build an Economy that Works for Everyone. London: IPPR North, JP Morgan Chase & Co, p15

- RSA. (2017). Inclusive Growth Commission: Making our Economy Work for Everyone. London: Inclusive Growth Commission

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Living and working longer does not stop the body from ageing, however (though there are recognised health benefits associated with keeping body and mind active) and there are practical considerations that need to be factored into our future working norms.

A Skills Commission report<sup>70</sup> argues that whilst the supply side of keeping older people in work can be addressed by raising the State Pension Age, interventions also need to be made to persuade employers that older people make valuable employees and to retrain and upskill older workers so that they can remain active in the labour market. The key risk here is on focussing only on the physical barriers to accessing work –such as health, geography or caring responsibilities – and not facing the very real challenges faced by older people such as ageism, stereotypes, psychological and informational barriers.

This last point is particularly pertinent. Not only do most older people lack knowledge on the types of learning provision and financial support available to them, but they are the least likely to be fluent with modern communication and information dissemination routes. They are unlikely to feel comfortable or adequately catered for in the same kinds of careers guidance environment that is designed to suit a school-leaver, for example, and we have already seen that adult learning tends to the informal end of the provision landscape, rather than towards formal, assessment-based qualifications.

Age UK has stated<sup>71</sup> that over-50s with degree level and professional qualifications found basic level support packages ill-suited to someone of their skills and experience and that this was particularly true for those who have been made redundant from senior or qualified positions. Getting support and skills development wrong for this cohort – or designing quality support but providing it in the wrong locations or through inappropriate channels risks a significant uplift in either unemployment of older people (as they simply cannot find suitable work) or under-utilisation of their skills...or both.



The Skills Commission report found that a lack of productivity in older age is more likely to be down to skills obsolescence than ageing itself. It went on to say that older workers:

*“perform well in so-called ‘adult learning modes’, where they are able to apply lessons immediately to real situations, and where they engage in bite-sized or modular learning. This suggests apprenticeships, NVQs, on-the-job training and online learning (where courses are typically divided into modules) would be particularly well suited to older workers”*

However these offerings will only be taken up by older workers if they are adapted to suit their specific needs. Older people are less likely to complete a year-long full-time course – focussing instead on the modules that are needed, so entry and funding criteria need to reflect this.

The question of funding is perhaps the easiest to get wrong, within our almost entrenched system of targeting skills funding at the ‘front end’ of a working life.

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<sup>70</sup> Murray, M. (2017). SPOTLIGHT ON...Lifelong Learning for an Ageing Workforce. London: Skills Commission, CAN Mezzanine.

<sup>71</sup> Deuchars, G. and Brooks, C. (2013). Consultation response: Adult careers information, advice and guidance in London. London: Age UK London.

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### Communities and employers

UK policy has a strong focus on engaging employers in both the design and delivery of TVET and ensuring the system is demand led rather than supplier driven. This is helping to improve quality and relevance<sup>72</sup>, however an RSA report supports the need for more engagement at local and regional level, asserting that local councils have an important role in helping to broker forms of employer engagement and reduce the mismatch between training courses and local job market.

Barriers making it difficult for organisations to work together effectively in this way include local authority budget cuts and pressure of meeting individual targets. The effects of getting skills provision wrong at a local level will be that employers experience skills shortages, skills surpluses (unattractive skills meaning individuals fail to secure good, meaningful employment) or skills mis-matches which drives further training expense into business models and generates dissatisfaction in the workforce.

In the face of skills shortages, employers will be forced to take one of two strategies:

- either to employ workers in whom they then need to further invest training and development resource before they become economically useful – this strategy having an obvious impact on productivity and profitability as well as competitiveness; or
- they will need to rethink their productivity strategy – focussing either on highly skilled work (and probably automating the lower-skilled tasks), or deskilling production.

Either way, employers will not be able efficiently to plan and invest in workforce training, and returns on the investment they do make will be slow to realise. We are likely in many cases to see a skew towards skills development investment for new hires and job changers (as employers seek to fill positions and bring employees to the point of productivity) which could result in a lack of investment in the progression of skills in existing employees. This could have the overall impact of a decline in effectiveness, competitiveness and innovation.

Regions in the UK are increasingly seeking a say in the skills policy that affects them at a local level. LEPs are producing local and regional skills strategies, but these do not yet appear to be aligned with national strategies for Industry, Skills and Careers. Without a mechanism and delegated responsibility for aligning the national with the local, we place serious risk on our ability to take our rightful place in international rankings.

### National Economy

A system not aligned to future needs of its own people, organisations, and economy, will encourage investment in things that are sometimes of long-term benefit and sometimes not. Sometimes it will even invest in things which cause disadvantage in that quest for long-term growth. It also risks adversely affecting pensions planning and sustainability, and the generation of fiscal revenues as pay and employer profitability and competitiveness fall.

*National and regional strategies need to be developed in a way that brings alignment and proper strategic focus. That's the only way we can truly compete (when we know what race we're running).*

However the greatest issue is in overall National competitiveness. Employers, whether producing products or services, must have those matching demand in home and export markets, in preference to, and more effectively than, non-UK suppliers. This same provision needs to apply to workforce availability and demand. The UK workforce needs to be sufficiently and appropriately skilled that they

<sup>72</sup>British Council. (2016). The UK Skills System - An Introduction. London: British Council, p9

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are sought-after by UK employers, and are also in demand to overseas ones, rather than overseas employees being drawn in to fill UK skills gaps encountered by employers trying to remain competitive in global and home markets.

Competitiveness in future is far more about how we use human skills than on ownership over dwindling natural resources. Time imperative as none of our competitors are standing still.

## Part Two: Impact Assessment

### Chapter 7: Potential economic value to be gained through skills development

Skills are a key driver of economic growth, an important source of competitiveness and a contributor to social mobility and inclusion. Generally, returns from spending on learning and training provision can be considered with respect to:

- benefits to the individual, for example increases in wages and the probability of remaining in employment;
- benefits to the employer, for example greater profitability (also positively affecting society);
- benefits to society, including public health benefits, reduced welfare dependency and higher tax revenues.

The benefits of getting skills right can be felt in five distinct areas:

- Workforce productivity (as measured in wage growth, company profitability, tax receipts, and GVA);
- Funding of training and qualifications;
- Tax and fiscal outcomes;
- Pensions and savings; and
- Welfare benefits.

At a macro level, the effects of getting skills ‘right’ or ‘wrong’ should affect the level of productivity in the UK.

#### Current state of UK skills

Skills are hard to measure in an internationally comparable way, with qualification levels usually used as a proxy. Data collated by the OECD is commonly used in academic work in this area. The OECD ranks countries according to the shares of the 25-64 year old population with low-level skills (below upper secondary education), intermediate level skills (upper secondary) and high-level skills (tertiary).

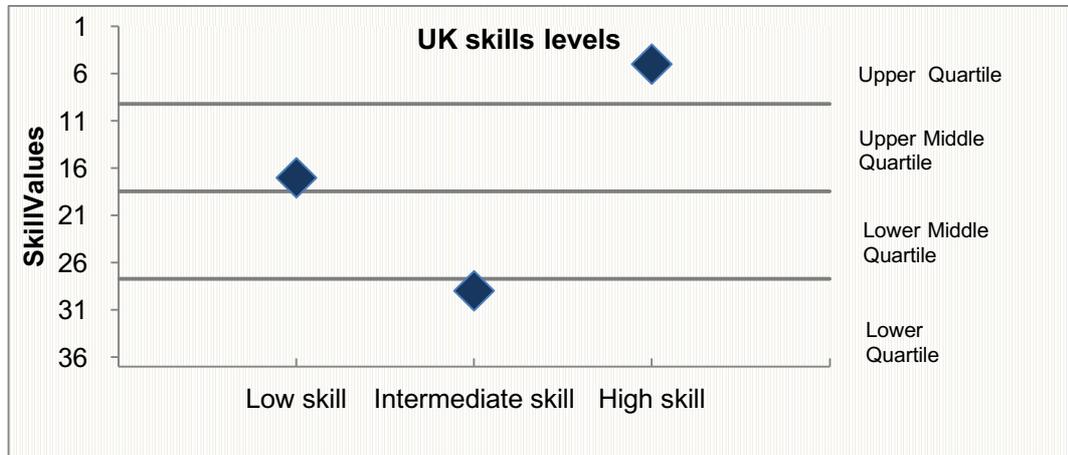
In the 2016 ranking - the latest available data - the UK ranked 3<sup>rd</sup> out of 36 countries for High skills, but slightly below average for Low skills and 29<sup>th</sup> out of 36 for Intermediate skills. These rankings are represented in figure 3, below, which shows the UK position in the ranks in 2016<sup>73</sup>:

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<sup>73</sup> Source: <https://data.oecd.org/eduatt/adult-education-level.htm> - Accessed: 24.08.2018

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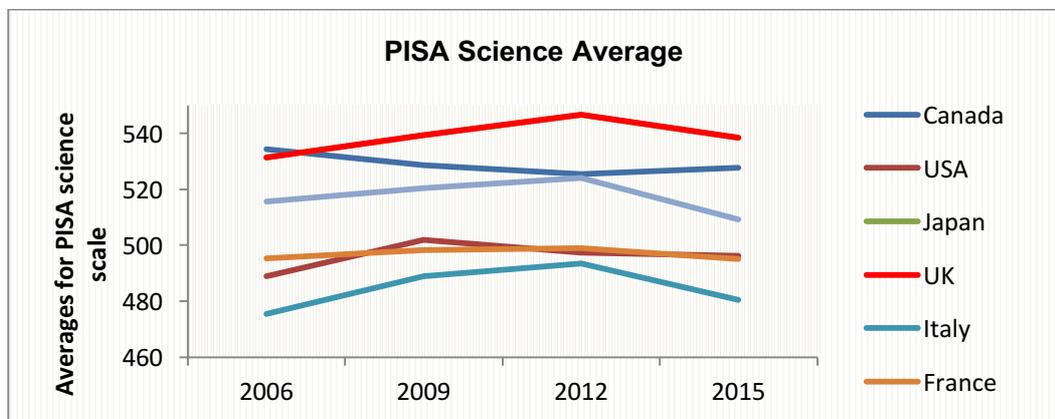
Figure 3



The OECD also runs the Programme for International Student Assessment (PISA), a triennial international survey which aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students.<sup>74</sup>

Figures 4-6, below, reflect the results of 2015 PISA study<sup>75</sup> (the last available data), in which the UK performed above average for science and maths, but below average for reading.

Figure 4



<sup>74</sup> PISA: About [Online]. OECD. Available: <http://www.oecd.org/pisa/aboutpisa/> [Accessed 23.08.2018].

<sup>75</sup> Source: PISA International Data Explorer. <http://piaacdataexplorer.oecd.org/ide/idepisa> - Accessed: 30.08.2018

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Figure 5

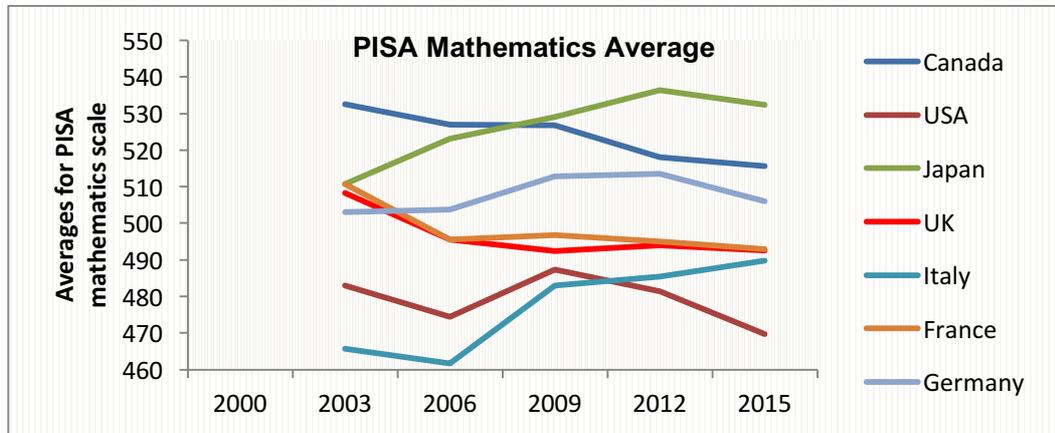
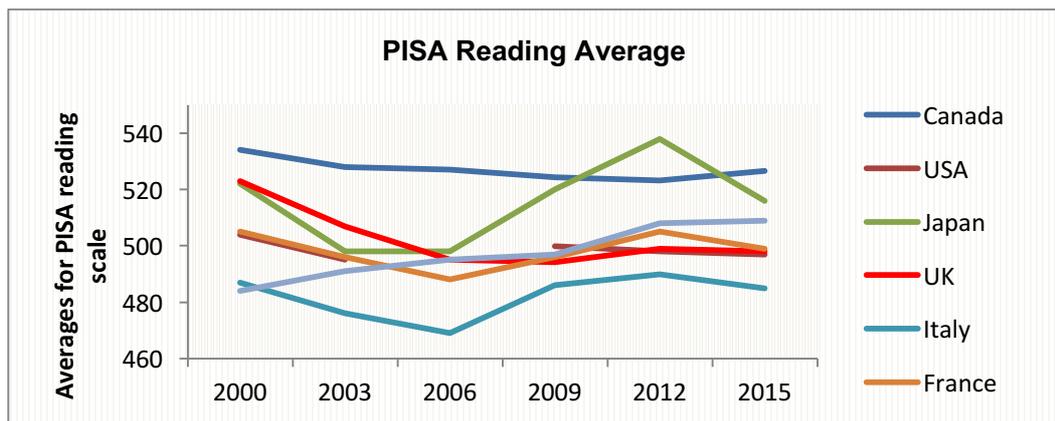


Figure 6



### Productivity

Increasing productivity is generally considered to be the only sustainable way from an economic point of view of improving collective living standards in the long term.<sup>76</sup> The Government's productivity framework<sup>77</sup> highlights skills as one of the 5 key drivers of productivity growth, with the other four being:

- Investment;
- Innovation;
- Enterprise; and
- Competition.

<sup>76</sup> Methodology: Productivity Handbook [Online]. ONS. Available:

<https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/methodologies/productivityhandbook> [Accessed 23.08.2018].

<sup>77</sup> Camus, D. (2007). The ONS Productivity Handbook: A Statistical Overview and Guide ONS.

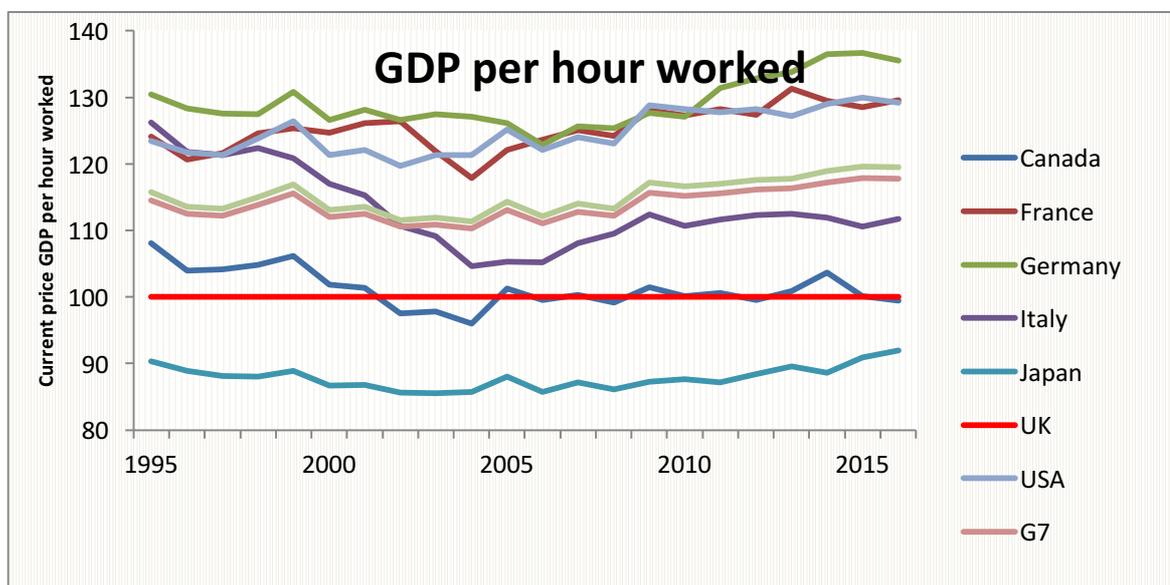
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The UK's GDP for 2017 (the primary measure of productivity at a national level) was £2,002,140.<sup>78</sup> Whilst still positive, the annual rate of GDP growth has been declining over the last 3 years.

For many years the UK's productivity has lagged behind key competitors - productivity in Germany and France has exceeded that in the UK since the 1970s.

Figure 7, below, shows the UK's GDP per hour worked relative to the other G7 countries, where each country's GDP is shown as a percentage of the UK's GDP<sup>79</sup>. This shows that the UK's GDP is well below the G7 average, and that only Japan had consistently lower GDP per hour worked in recent years.

Figure 7



The literature broadly agrees that the productivity gap between the UK and many competitors is at least partly a skills gap,<sup>80</sup> although differences between countries in terms of investment in capital and R&D may be more important.<sup>81</sup> Cultural differences in terms of ownership of businesses, owners' responsibilities to the workforce and community, and attitudes to long-term investment also have an effect.

### Regional variation

Differences in skills levels may also explain regional variations in the UK when it comes to productivity,<sup>82</sup> although this is also partly down to differences in: industry mix; capital; and business ownership.<sup>83</sup>

There is widespread discussion in the literature about regional differences in skills and in productivity in the UK, and 'getting it right'

*We start from a position of lagging behind the other OECD countries in terms of effectiveness, efficiency and competitiveness.*

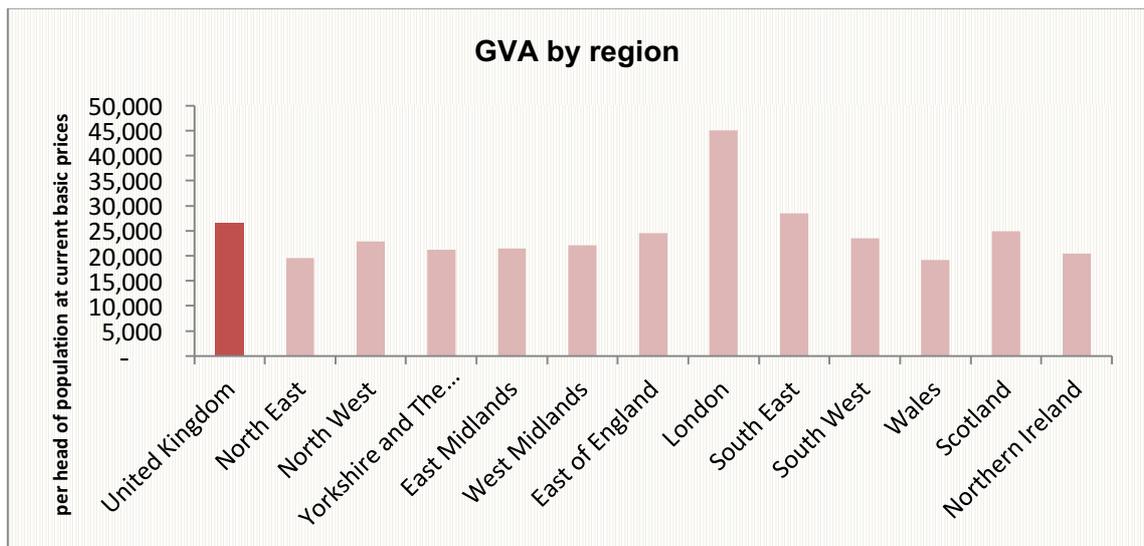
<sup>78</sup> Scruton, J. (2018). Gross Domestic Product: chained volume measures: Seasonally adjusted £m. ONS  
<sup>79</sup> Source: <https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/datasets> – Accessed: 30.08.2018  
<sup>80</sup> Gambin, L. (2009). Exploring the links between Skills and Productivity: Final Report. Coventry: Warwick Institute for Employment Research.  
<sup>81</sup> Crafts, N. and O'Mahony, M. (2001). A Perspective on UK Productivity Performance. Institute for Fiscal Studies, 22, 271-306.  
<sup>82</sup> Gambin, L. (2009). Exploring the links between Skills and Productivity: Final Report. Coventry: Warwick Institute for Employment Research.  
<sup>83</sup> Boddy, M., Hudson, J., Plumridge, A. and Webber, D. J. (2006). Regional Productivity Differentials: Explaining the Gap.

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means doing so for the whole of the UK, lest we exacerbate the current trend of a highly productive South East and much lower productivity elsewhere.

Figure 8, below, shows estimates of GVA incomes to the region in which the economic activity takes place<sup>84</sup>. There is a high income of GVA in London and the South and to a lesser extent in the North of England.

Figure 8



Improving skills should therefore start to close the productivity gap – both with other countries, and between UK regions. Getting skills ‘wrong’ will mean a continuation, if not worsening, of the gap.

### Skills supply and demand

From the point of view of an employer, labour is a resource. A company’s skill requirement will depend on its product/service strategy, and for employers, getting skills ‘wrong’ means the labour supply (including skills level) not matching demand.

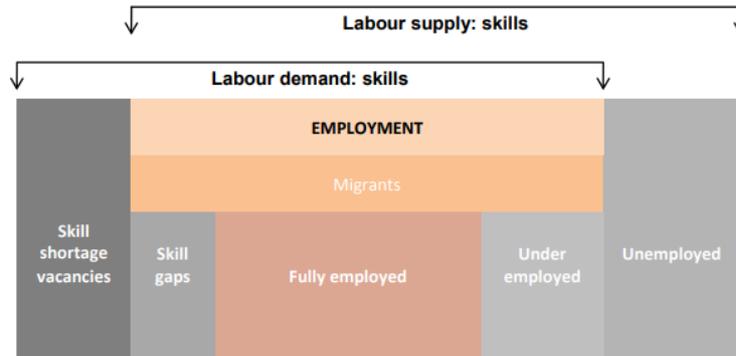
The UKCES project developed the following model to show how labour supply and demand interact, highlighting 5 possible scenarios.<sup>85</sup>

- Skills shortage vacancies – demand exceeds supply
- Skills gaps – demand exceeds supply, so companies fill vacancies with labour without the appropriate skills for the role
- Full employment – demand and supply match
- Under employment – labour supply exceeds demand, such that people are in roles they are over qualified for
- Unemployment – demand for labour exceeds supply.

<sup>84</sup> Source: <https://www.ons.gov.uk/economy/grossvalueaddedgva> – Accessed: 31.08.2018  
<sup>85</sup> UKCES. (2014). The Labour Market Story: Skills Use at Work. London: UKCES.

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Figure 9: Skills supply and demand mismatches



Source: UKCES (2010)

Each of these scenarios is considered below in turn:

### Skills shortage vacancies

There are fairly low levels of skills shortages in the UK – according to UKCES, only 4% of employers have skills shortages – although some sectors are affected more severely than others.<sup>86</sup> In addition, there are regional variations, with London drawing in skilled labour, causing shortages elsewhere.<sup>87</sup>

If companies are unable to fill vacancies they will not be able to carry out their ideal production processes, which will reduce productivity and profitability (or will need to mitigate in other ways that will reduce profitability, such as pay expensive temporary staff, or stretch existing staff). Reduced profitability means lower Corporation Tax receipts for the state.

### Skills gaps

Some companies mitigate vacancies by filling roles with staff without the required skills for the role. UKCES evidence suggests that 15% of employers face skills gaps, and that 5% of all employees are not fully proficient in their roles.<sup>88</sup> Analysis by McKinsey found that 10% of UK workers had a level of proficiency lower than is required for their role.<sup>89</sup>

Whilst logically this should have a less detrimental effect on productivity and profitability than a vacancy, nevertheless the companies will be less productive than if labour with the right skill level was available.

### Full employment

The UK has fairly high employment levels, and (despite low average skill levels, by some measures), there are low levels of skills shortages, and employers report that they are satisfied with the skills level of their employees.<sup>90</sup> This suggests a large 'fully employed' category, with skills and labour supply and skills and labour demand matching.

Yet even this scenario is problematic, as it appears to be partially a result of low demand for high skilled labour. Evidence from PIAAC indicates a relatively low demand for educational qualifications by UK

- UKCES. (2014). The Labour Market Story: Skills Use at Work. London: UKCES.

- UKCES. (2014). The Labour Market Story: Skills Use at Work. London: UKCES.

- UKCES. (2014). The Labour Market Story: Skills Use at Work. London: UKCES.

- Dimson, J., Hunt, V., Mikkelsen, D., Scanlan, J. and Solyom, J. (2016). Productivity: The route to Brexit success [Online]. Available: <https://www.mckinsey.com/featured-insights/europe/productivity-the-route-to-brexit-success> [Accessed].

- UKCES. (2014). The Labour Market Story: Skills Use at Work. London: UKCES.

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employers, with only a third of jobs in England and Northern Ireland requiring tertiary qualifications (OECD, 2013).

Within a company, increasing skills levels enables workers to accomplish more difficult tasks and to address more complex problems, which means the company can add more value to products and services in its production process. Companies reliant on low skilled labour are generally adding less 'value' through their production process, i.e. are less productive. They are likely to have low profit margins, and therefore be paying relatively low levels of Corporation Tax.

Evidence from studies comparing industrial units suggests that on average British firms tend to produce lower quality goods and are less productive than their European counterparts.<sup>91</sup> To grow productivity in the long run the UK needs to become a high value added economy.<sup>92</sup> Whilst this requires highly skilled labour, skills policy alone can do little to get us to this state. Companies need to be encouraged to alter their product strategies. Otherwise increasing skills will have only a marginal effect on productivity, as more workers will fall into the 'Under employment' category.

### Under- employment

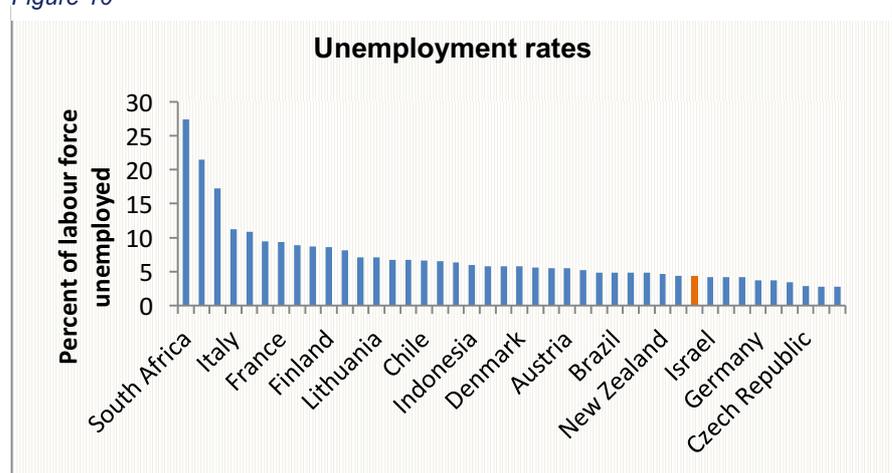
Recent analysis<sup>93</sup> by McKinsey shows that, relative to its OECD peers, the United Kingdom has a high rate of mismatch between workers' existing skills and those required for their job. Overall, 24% of workers have mismatched skills, 12% having a level of proficiency higher than is required or having important skills that are not being utilised.

PIAAC indicates that around 30% of workers in England and Northern Ireland possess a qualification which exceeds the level required for someone to be recruited to their job, with this being the second highest figure out of 22 OECD countries, exceeded only by Japan. (OECD, 2013)

### Unemployment

As shown in Figure 10<sup>94</sup>, right, the UK has relatively low unemployment rates, well below the OECD average. Unemployment means individuals are not earning, not paying taxes, receiving higher levels of welfare benefits, and not contributing to overall productivity.

Figure 10



<sup>91</sup> Sianesi and Van Reenen (2003) quoted in Gambin, L. (2009). Exploring the links between Skills and Productivity: Final Report. Coventry: Warwick Institute for Employment Research.

<sup>92</sup> UKCES. (2014). The Labour Market Story: Skills Use at Work. London: UKCES.

<sup>93</sup> Dimson, J., Hunt, V., Mikkelsen, D., Scanlan, J. and Solyom, J. (2016). Productivity: The route to Brexit success [Online]. Available: <https://www.mckinsey.com/featured-insights/europe/productivity-the-route-to-brexitsuccess> [Accessed].

<sup>94</sup> Source: <https://data.oecd.org/unemp/unemployment-rate.htm> - Accessed: 30.08.2018

## Part Two: Impact Assessment

These 5 scenarios are all illustrations of how getting skills wrong, ie having a mismatch between skills supply and demand, or having a low skills demand economy, leads to low productivity. This impact is felt by:

- Individuals through unemployment or low wages;
- Employers through lower profitability; and
- The state through lower tax receipts and higher welfare benefits.
- Overall, this is reflected in lower GDP and lower GDP growth.

The diagram on the next page maps the effects of these 5 scenarios (when compared to a position where skills supply and demand match), showing the 3 levels of outcomes (individual, companies, state), as well as indicating the effect on GDP/GVA overall.



## Part Two: Impact Assessment

Effects of each of the employment scenarios compared to an ideal scenario in which demand for and supply of high skilled labour are matched:

Table 3

	Labour market demand		Labour market supply		
	Skills shortage vacancy	Skills gap	Fully employed (low skill)	Under employed	Unemployment
Individuals / employees	N/A	N/A	Low earnings and little chance of career progression - reduces ability to save eg for housing, and for pensions	Low earnings and little chance of career progression - reduces ability to save eg for housing, and for pensions	No income, and no ability to save
Companies / employers	Lost productivity, and therefore profit, if functions cannot be completed  Reduced profit margins, if paying for expensive temporary staff, or additional recruitment costs	Reduced productivity, and therefore lower profits  Potentially higher training costs  Potentially lower staffing bill, if employing more junior staff	Low profit margins as low value added product strategy	Low profit margins as low value added product strategy compared to the skill in its workforce	N/A
UK state - income	Reduced Corporation Tax if companies less profitable	Reduced Corporation Tax if companies less profitable	Reduced Corporation Tax if companies less profitable  Low VAT as UK products low value  Low Income Tax and National Insurance as employees on low wages	Reduced Corporation Tax if companies less profitable  Low VAT as UK products low value  Low Income Tax and National Insurance as employees on low wages  Reduced Student Loan repayments	Lower Income Tax and National Insurance as individuals not in employment
UK state - expenditure	N/A	N/A	Higher Working Tax Credit and Housing Benefit payments (part of Universal Credit) as individuals on low wages  Potentially higher costs in longer term if aging population has low personal savings	Higher Working Tax Credit and Housing Benefit payments (part of Universal Credit) as individuals on low wages  Potentially higher costs in longer term if aging population has low personal savings	Higher Unemployment and Housing Benefits (Universal Credit)
GVA	Lower GVA if companies less productive	Lower GVA if companies less productive	Lower GVA if companies less productive	Lower GVA if companies less productive	Lower GVA as potential employees not being productive

## Estimating the effect on GDP of getting skills ‘right’ or ‘wrong’

Because productivity (as reflected in GDP) is influenced by a number of factors, any forecast linking skills growth to productivity is likely to be inaccurate. Nevertheless, the general evidence of the positive correlation between the two things is clear.

Over recent decades, skills improvements have directly accounted for around a fifth of the growth in average labour productivity in the UK.<sup>95</sup> According to calculations produced for the Leitch review, it is suggested that improvements in formal qualification levels between 1994 and 2004 made a contribution of 0.2 percentage points to annual productivity growth and increased the employment rate by 0.4 to 0.6 percentage points.<sup>96</sup>

The Leitch Review’s modelled the economic effect of ‘making UK skills world class’ (which in the review broadly meant improving UK skills such that the UK would rank in the upper quartile of the OECD skills tables for low, middle, and high skill). The Review’s analysis suggests that the annual rate of productivity growth would rise by around 0.1 percentage points from its then current underlying trend of 2%. This is equivalent to an average of £1 to 2 billion of output per year.<sup>97</sup>

Holland et al. (2013) found that a 1% rise in the share of the workforce with a university education will over the long term (10 years in their analysis) raise the level of labour productivity by 0.2-0.5%.<sup>98</sup>

There is also a strong statistical link between economic growth and PISA (Programme for International Student Assessment) scores. Assuming the United Kingdom could achieve a 25-point PISA improvement - something several countries have done, according to McKinsey - that could bring a 6.0% GDP increase after 50 years (£110 billion) or a 0.5% increase in long run annual GDP growth.<sup>99</sup> Assuming all other countries stayed at current levels a 25-point PISA improvement would take the UK to [position in table]



Using a sample of OECD’s more recent Programme for the International Assessment of Adult Competencies (PIAAC) data from 22 countries, Hanushek et al. (2013) show that a one standard deviation increase in numeracy skills is associated with an 18 percentage point increase in wages at the individual level. Wage growth is sometimes used as a proxy for productivity growth (albeit a somewhat inaccurate one), so this can be taken to be indicative of growth in productivity.

When the OECD simulated the gains to labour productivity from reducing skills mismatches to OECD best practice levels, it estimated the economic benefits to the United Kingdom at £90 billion per year.

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- Aznar, A. R., Forth, J., Mason, G., O'mahony, M. & Bernini, M. UK skills and productivity in an international context. BIS research paper. Department for Business Innovations & Skills with the National Institute of Economic and Social Research (NIESR).  
- Leitch Review (2006), quoted in Gambin, L. (2009). Exploring the links between Skills and Productivity: Final Report. Coventry: Warwick Institute for Employment Research.  
- HM Treasury. (2006). Prosperity for all in the global economy - world class skills (final report). HM Treasury on behalf of the Controller of Her Majesty's Stationery Office.  
- Holland, D., Liadze, I., Rienzo, C. & Wilkinson, D. 2013. The relationship between graduates and economic growth across countries BIS Research Paper. Department for Business Innovations & Skills with The National Institute of Economic and Social Research (NIESR).  
- Dimson, J., Hunt, V., Mikkelsen, D., Scanlan, J. and Solyom, J. (2016). Productivity: The route to Brexit success [Online]. Available: <https://www.mckinsey.com/featured-insights/europe/productivity-the-route-to-brexit-success> [Accessed].

Skills by themselves do not create productivity. Employee skill needs to be managed. Productivity and good management is found in the research to be strongly correlated.<sup>100</sup> The United Kingdom lags behind Germany, Japan, Sweden, and the United States, but is slightly ahead of France, Italy, and Poland, for good management skills.

### Estimates of the positive effect on GDP of getting skills ‘right’

If we follow the logic taken by the Leitch review (2006) and update that to reflect current GDP levels, growth rates and our current position for Low, Intermediate, and High skills in the OECD ranking of countries by adult education level, we might equate getting skills ‘right’ with the potential to gain a top 25% OECD ranking. This would have the effect of improving the potential annual growth rate of GDP by 0.1%. Whilst this may seem a modest effect, it would equate to £108bn of GDP over a 10 year period (or £21bn a year by 2026).

### Balancing productivity, employment, and equality

Whilst productivity growth is a key aim of UK economic policy, this needs to be balanced against both employment levels, and equality. The ideal scenario would see the UK economy growing, whilst becoming more equal, and maintaining high employment levels. Whilst the UK currently has very high employment levels, to some extent this comes at the cost of low productivity growth.

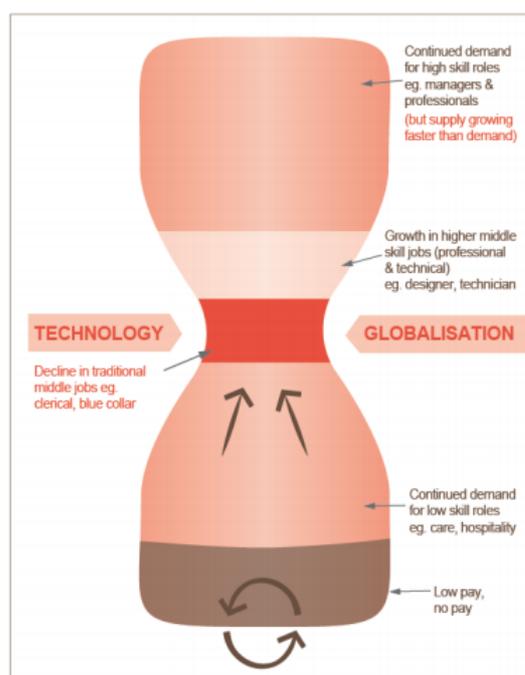
Getting skills ‘right’, therefore, cannot just mean increasing skills supply and demand at the ‘highly skilled’ end. Whilst this might lead to a more productive economy, it could come at the price of higher unemployment rates. Nor is the current situation of high employment, but low skill particularly satisfactory.

According to a Foresight, Government Office for Science report the UK skills mix is becoming increasingly high skill orientated with the proportion of adults qualified to Level 4 and above nearly doubling over the years from 2002 to 2020. The proportion of adults not qualified to Level 2 halved over the same period but there are still likely to be nearly 7 million adults who are not qualified to Level 2 by 2020. When internationally benchmarked, the UK’s position, recent performance and future prospects are mixed, being relatively strong at the higher level, but relatively weak at both intermediate and low levels, which are the higher volume ones.

Forecasts for future job growth are for an increasingly ‘hourglass’ shaped economy, with continued demand for low skilled and high skilled labour, but a reduction in the number of ‘middle skill’ jobs.<sup>101</sup>

This is borne out widely in the literature on the so-called ‘Productivity Paradox’. The paradox relates to the impact of an increase in technological advances, which may not show up in increased total factor

Figure 11



<sup>100</sup> - Dimson, J., Hunt, V., Mikkelsen, D., Scanlan, J. and Solyom, J. (2016). Productivity: The route to Brexit success [Online]. Available: <https://www.mckinsey.com/featured-insights/europe/productivity-the-route-to-brexit-success> [Accessed].

<sup>101</sup> - UKCES. (2014). The Labour Market Story: An Overview. London: The UK Commission for Employment and Skills.

productivity scores – the view of productivity that incorporates the added contributions of innovation and technology for many years. An article by MIT<sup>102</sup> earlier this year suggest that technological advances such as AI have a latent value of such significance that the advances can be classed as ‘general purpose’ technologies - that is to say that, like electricity or the internal combustion energy, they will eventually have a transformative effect on our lives, but that realising those benefits will take time (the article suggests ‘a lifetime’) and will be dependent on other, as yet unknowable complementary and exploitative technologies. This demands patience and caution from economies such as the UK’s, whose skills policies are relatively short term in outlook.

This suggests that middle skill workers needed to have their skill level increased, to avoid unemployment. Meanwhile, more demand needs to be created for middle and higher skilled labour, and low skilled workers skill increased, to decrease the low skill equilibrium.

Throughout this report we have talked about the dual focus of skills development – in both an employment and a social mobility and inclusion context. A key concern arises in the second case, which points towards a need to monitor who is driving prosperity through skills. Tuijnman explores the risk that - unless it is properly targeted, the provision of lifelong learning and skills may actually exacerbate inequality. In his research<sup>103</sup> Tuijnman examines the implications of the hypothesis that the likelihood of participating in later-life learning is influenced by earlier education experience meaning lower-skilled and lower-income workers are less likely to participate.

In addition to effects on (i) productivity, and (ii) the effectiveness of investment in training and education, the economic impact - should that hypothesis be proven - would be felt in (iii) the fiscal and (iv) the benefit arenas, as well as rippling into (v) health and wellbeing support costs, including long-term savings and pensions. The implication is that a policy to increase lifelong learning needs to address the underlying factors driving a person’s openness to learning later in life – including issues such as self-confidence and awareness – as well as the provision of learning itself.



- Rotman, D. (2018). The productivity paradox: Why brilliant AI technologies are not leading to widespread growth and prosperity. [Online]. Available: <https://www.technologyreview.com/s/611482/the-productivity-paradox/>

- Tuijnman, A. (1991). Lifelong education: a test of the accumulation hypothesis. *International Journal of Lifelong Education*.

## Chapter 8: Conclusions

Despite a number of high profile and wide-reaching changes to the UK's skills system, we continue to under-perform with regard to skills utilisation and releasing our potential in terms of economic performance.

Getting the skills conundrum right leads to a valuable prize – ONS statistics show a 19 point productivity gap with the rest of its G7 counterparts, and experts point towards the dearth of high quality jobs as being responsible.

Analysis is consistent in calling for a skills system that matches skills 'in the pipeline' to predicted skills needs in the labour market. Whilst this is true, the reality is more nuanced. Targeted action needs to be taken - with proper impact evaluation across the system – to address areas and industries in low skills equilibrium. This is important because the lack of high value work is forcing an ever more fragile reliance on the domestic market to stimulate economic activity.

Skills provision, funding and regulation (or quality assurance) remains complex and rooted in existing provision structures. If provision is to stay ahead of – or even keep pace with - evolving demand in a changing economy some of these structures and boundaries will need to be softened or challenged.

Our popular appreciation of what is meant by 'skills' needs updating. A pedagogically-informed study into how and when different skills are most usefully developed would better inform national curriculum design as well as the design of course content and delivery modes.

Finally, policy change must be focussed on outcomes and their ongoing monitoring and measurement, and not on input figures or delivery routes. The quality of provision will need to be assured more forcibly if the burden of funding continues to shift towards the learner. New funding models may need to be explored.

The potential value of technical and vocational training – as posed on our original question, cannot be viewed only as an economic one. There are significant economic gains to be won or lost through workforce productivity, certainly, as well as rankings in comparative international measures.

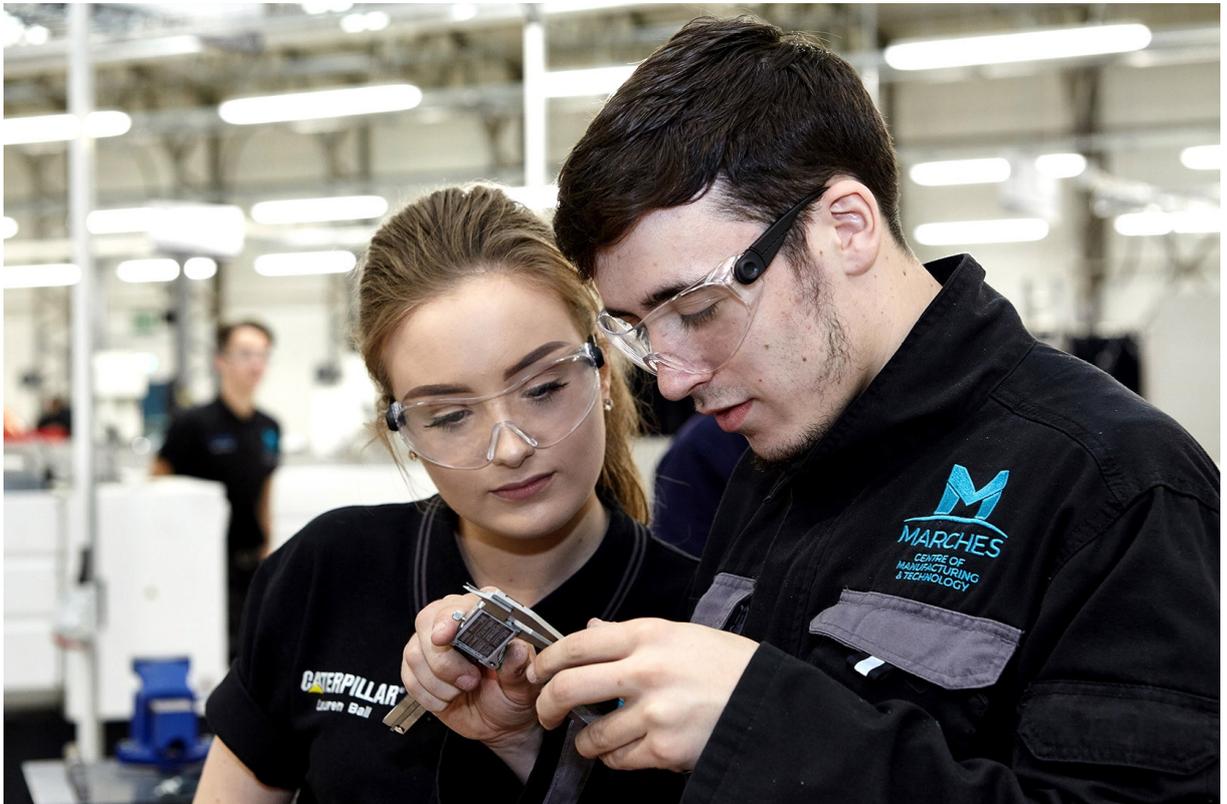
The full picture reveals a richer and more diverse set of effects, however, which we risk by 'getting it wrong' including: individual and societal health and wellbeing, and the implications that has on the public purse (in the form of demand for service provision); a more socially, spatially and sectorally mobile workforce; and industries that are able to follow innovative, value-adding growth strategies, both nationally and internationally.

*If we can strengthen the UK's skills base such that we achieve a top quartile position for Low, Intermediate, and High skills in the OECD's ranking of countries by adult education level, this could translate into an improvement of £108bn in GDP over a 10 year period (or £21bn a year by 2026).*

## Chapter 9: Recommendations for further investigation

We found a number of areas in which research is potentially light, and would recommend further investigation of:

- Funding and cost models - in particular, lessons learned from successful models in other countries, with regard to flexibly focussing funding strategies on areas of greatest need whilst leaving the structural elements of the system intact. This should recognise the differences in nature of those economies and cultures and the extent to which their principles would need to be adapted to a UK context;
- Options for improved labour market intelligence – this being crucial to facilitating alignment between skills supply and demand. Instinct may lead to a centralised solution, but social and technological trends suggest a networked, employer-led model may be more sustainable;
- Detailed analysis of sectors in which skills shortages persist. This analysis should seek to uncover the exact nature of such shortages and to inform the most appropriate remedial action.
- Regional analysis of productivity and competitiveness and potential impact of skills challenges on this situation.



## Appendix A

### The Key Reports on the Current Policy Agenda – Findings, Changes and Outcomes

Review or Policy Change	Findings/ Concerns Necessitating Review	Changes Resulting	Intended Outcomes
<p><b>National Skills Task Force (2000)</b></p> <p><b>Remit to assist in developing a “national skills agenda which will ensure that Britain has the skills needed to sustain high levels of employment, compete in the global marketplace, and provide opportunity for all”. The Task Force included employer and trade union representatives as well as education and training providers.</b><sup>104</sup></p>	<p>The final report reflects ongoing concerns that the UK continues to lag behind its major international competitors, both in terms of its productivity and skill levels.<sup>105</sup></p> <p>One in five UK adults are functionally illiterate, and there are concerns that the economy suffers from major “skill shortages” in the areas such as “basic skills” (literacy and numeracy), generally transferable “key skills”, “information technology skills” and critical, “intermediate level skills”.<sup>106</sup></p> <p>The report calls for a “new national skills agenda” that “will lead over the next few years to a step change in the skills of the nation’s workforce and ensure that we are better able to deliver the skills required for economic success and social cohesion”.<sup>107</sup></p>	<p>An “action plan for changes in the curricula, qualifications, apprenticeships, funding and institutions of the post-16 education and training system to produce the required improvements in the skills ‘supply side’ designed to tackle the priority areas of skills deficiencies”;</p> <p>“An approach to the continuing management of post-16 education and training, using levers such as funding, planning, labour market information, guidance and others, that shapes both the demand for, and supply of, skills over time so minimising skill shortages and gaps in the future”; and</p> <p>“Clear and explicit targets for improvements in skill levels, plus measures of our economic performance in managing the match between supply and demand, to raise public confidence, drive progress and monitor success”.</p>	<p>By 2010, to reduce the proportion of adults with low levels of literacy and numeracy from just over 20% to 10%;</p> <p>By 2010, to increase the proportion of 25-year-olds with a level 3 qualification from 41% to 70%; and</p> <p>By 2010, to increase the proportion of the adult workforce with a level 2 qualification from 68% to 80%.</p>
<p><b>Tomlinson Report (2003)</b></p>		<p>The Final Report of the Working Group on 14–19 reform was published by the UK Government in October 2004. The proposals, much watered down, were the basis for the 2005 14–19 Education and Skills White Paper.</p> <p>Key proposals included, providing courses which stretch children, ensuring that children have</p>	

		basic literacy and numeracy skills, raising the status of vocational qualifications, reducing the amount of assessment and the number of exams, simplifying the system - making it easier to carry over achievements from one course of study to the next and 14–19 diploma to replace GCSEs, A- and AS-Levels, BTECs and AVCEs.	
<p><b>Leitch Review of Skills (2006)</b></p> <p><b>Review of the UK's long term skills needs.</b></p>	<p>Interim report “Skills in the UK: the long term challenge” published in December 2005. It committed the Review, in its final report, to identify the UK’s optimal skills mix for 2020 to maximise economic growth, productivity and social justice, set out the balance of responsibility for achieving that skills profile and consider the policy framework required to support it.</p> <p>The Review sets out a compelling vision for the UK. It shows that the UK must urgently raise achievements at all levels of skills.</p>	<p>Routing all public funding for adult vocational skills in England, apart from community learning, through Train to Gain and Learner Accounts by 2010.</p> <p>Strengthening employer voice, increasing employer engagement and investment in skills. Increase employer investment in Level 3 and 4 qualifications in the workplace.</p> <p>Launch of a new ‘Pledge’ for employers to voluntarily commit to train all eligible employees up to Level 2 in the workplace.</p> <p>Increase people’s aspirations and awareness of the value of skills to them and their families.</p> <p>Create a new integrated employment and skills service, based upon existing structures, to increase sustainable employment and progression.</p>	<p>Commitment to becoming a world leader in skills by 2020, benchmarked against the upper quartile of the OECD. This means doubling attainment at most levels of skill.</p> <p>Responsibility for achieving ambitions must be shared between Government, employers and individuals:</p> <p>95 % of adults to have functional literacy and numeracy.</p> <p>More than 90 % of adults qualified to at least Level 2.</p> <p>Shifting the balance of intermediate skills from Level 2 to Level 3.</p> <p>More than 40 % of the adult population qualified to Level 4 and above, up from 29 % in 2005, with a commitment to continue progression.</p>
<p><b>The Wolf report (2011)</b></p> <p><b>Remit to consider improvements in vocational education for 14-19 year olds and thereby to promote successful</b></p>	<p>The report sets out its analysis under three main headings: the social and labour market context; the educational context; and an audit of current provision.</p>	<p>It makes 27 recommendations, all addressed to the Department for Education (DfE) or to the DfE and the Department for Business, Innovation and Skills (BIS) –</p>	<p>Funding changes to remove the perverse incentives which currently encourage schools and colleges to steer young people</p>

<p><b>progression into the labour market and higher education and training routes. The review considered all formal qualifications for the 14-19 phase which include vocational content.</b></p>	<p>Sweeping changes to funding and accountability system for 16–18 year olds, including removing some qualifications from league tables and the introduction of per pupil, rather than per qualification funding.</p> <p>This challenge is mirrored in the adult skills system by the presence of profit-making providers and low levels of government funding – giving providers added incentives to keep costs down and only offer high volume courses that can generate a profit.</p>	<p>though many have implications for providers, employers and other bodies.</p> <p>Funding should be on a per student basis post-16 as well as pre-16, and institutions should be expected to offer and provide coherent programmes of study, within broad parameters, rather than being funded on the basis on individual qualifications.</p> <p>Post-16, English and Mathematics should be a required component of study programmes for those without good GCSEs in these subjects.</p> <p>There should be much greater freedom for awarding bodies to develop and for institutions to offer the vocational qualifications they prefer for 16-19 year old students.</p> <p>Regulation should move away from qualification accreditation towards awarding body oversight, and there should be no obligation for vocational qualifications for 16-19 year olds to be part of the Qualifications and Credit Framework.</p> <p>Major efforts should be made to provide greater access to the workplace for 16-18 year olds. More 16-19 year olds be given opportunities to spend substantial periods in the workplace, undertaking genuine workplace activities, in order to develop the general skills which the labour market demonstrably values.</p>	<p>into easy options, rather than ones which will help them progress.</p> <p>This should reduce costs, and allow closer and more direct links between awarding bodies, employers and ‘providers’ (i.e. schools, colleges and training providers.)</p> <p>Employers should be directly involved in quality assurance and assessment activities at local level, on the basis that this is the most important guarantor of high quality vocational provision.</p> <p>The proposed funding changes should also encourage innovation.</p>
<p><b>Richard Review of Apprenticeships (2012)</b></p>	<p>Following Wolf report, the government set in motion a review process on apprenticeships. Doug Richard set out a comprehensive vision for the future of</p>	<p>Key recommendations included redefining apprenticeships and the outcomes, government funding creating the right incentives for apprenticeship training and far greater diversity and innovation in</p>	

	<p>apprenticeships. His independent report, The Richard Review of Apprenticeships, calls on the Government to improve the quality of the programme and make them more focused on the needs of employers.</p>	<p>raining encouraged with employers and government taking a more active role in safeguarding quality.</p>	
<p><b>The Sainsbury Report (April 2016)</b></p> <p><b>Tasked with advising ministers on actions to improve the quality of technical education in England and, in particular, to simplify the currently over-complex system and ensure the new system provides the skills most needed for the 21st century.</b></p>	<p>The direction of travel to date in 14-19 education has been to emphasise the difference between qualifications that prepare learners for further study, and those that prepare them for employment. The report emphasises this separation, with a call for the creation of two distinct pathways post-16, the 'academic' and the 'technical', but crucially, demands the creation of meaningful bridges between the two to facilitate changes in direction.</p> <p>The current technical education system – with over 20,000 courses from 160 providers – was confusing, with no clear indicators as to which courses would provide the best chance of gaining employment. The panel recommended simplifying the current system so technical education is provided through 15 “high-quality” routes, with standards being set by employers.</p>	<p>Recommends that the Government develops a coherent technical education option which develops the technical knowledge and skills required to enter skilled employment, which leads from levels 2/3 to levels 4/5 and beyond, and which is highly valued because it works in the marketplace</p> <p>The technical option should be recognised as having two modes of learning: employment-based (typically an apprenticeship) and college-based: (i) Employment-based – this is most commonly delivered via an apprenticeship, usually at level 2 or level 3, and includes a combination of on-the-job learning of skills (in the workplace) and at least 20% off-the-job learning of knowledge (in a college or private training provider). (ii) College-based – this is typically a two-year, full-time study programme which should include work placements appropriate to the technical education route and individual student or the “transition year”.</p> <p>Reviewing how to improve the study of maths and English from 16-18 including looking at the case and feasibility for more or all students to continue to study maths to 18 in the longer term.</p>	<p>Simplification of the provision landscape with technical routes achieving parity in esteem with academic</p> <p>Improved work readiness for labour market entrants</p> <p>Reduced skills mis-matches with technical standards being set by employers</p>
<p><b>Post-16 Skills Plan (2016) –</b></p> <p>The Sainsbury Report recommendations were delivered in the government’s Post-16 Skills Plan. Apprenticeships and T Levels</p>			

are intended to be based on the same set of employer designed standards (which have been developed by apprenticeship trailblazer groups) but there will be differences in the content. Apprentices will train for a single occupation while T Level students will undertake a broader programme, gaining skills and knowledge relevant to a range of occupations in a route.

Industrial Strategy - includes a National Retraining Scheme - to be introduced by end of this parliament

Careers Strategy - CEC, Careers Leaders and Gatsby Benchmarks addressing navigation and advice



## Appendix B

### Composition of the Skills System by Administration

	Departments responsible for skills policy	Major policy & initiatives	Changes to the curriculum & qualification offer	Institutional change	Inspection & Quality Enhancement	Local & Regional interests represented by	Sectors & industry represented by
<b>1973-1979</b>	Department of Education & Science 1964-92	Training Opportunities Scheme	School leaving age raised to 16	Centres of Advanced Technology become universities	HMI DES	LEAs	Industry Training Boards
<b>Conservatives under Thatcher 1979-1990</b>	Department of Education & Science Department of Employment	Technical and Vocational Education Initiative (TVEI) Youth Training Scheme (YTS) New Training Initiative	NVOs introduced National Curriculum introduced		HMI FEU FESC	LEAs (powers reduced) Local TVEI projects and Area Manpower Boards	Industry Training Organisations
<b>Conservatives under Major 1990-1997</b>	Department for Education 1992-95 Department for Education & Employment 1995-2001	Youth Training Administrative support for IIP provided through TECs Training Credits	GNVOs Modern Apprenticeships	Colleges leave LEA remit 'incorporation' Polytechnics become universities Skillcentres privatised	Ofsted FEDA	TECs (Training and Enterprise Councils)	National Training Organisations
<b>Labour 1997-2010</b>	Department for Trade & Industry, Department for Innovation, Universities & Skills, 2007-09 (later BIS) Department for Education and Skills, 2001-07 (later Department for Children Schools & Families) DWP	New Deal EMA Train to Gain Skills Pledge Individual Learning Accounts	Diplomas Advanced Vocational Certificates (later Applied A-levels) Young Apprenticeships Advanced Apprenticeships Programme Led Apprenticeships	National Skills Academies Centres of Vocational Excellence Jobcentre Plus	Ofsted Adult Learning Inspectorate LSDA (later LSIS) IfL	9 RDAs (Regional Development Organisations) 1998-2012 47 local Learning and Skills Councils	26 Sector Skills Councils
<b>Coalition 2010-2015</b>	BIS DfE DWP	EMA, requirements for work experience and funding of Connexions removed Qualifications reform Trailblazer Apprenticeship and incentives for small businesses Employer Ownership of Skills Pilot The Work Programme	Participation age raised to 18 & pupils able to transfer to college or UTC from 14 Study Programmes introduced Reformed GCSEs, A-levels & new Tech Awards & Levels Review of vocational qualifications Traineeships Trailblazer Apprenticeships Degree Apprenticeships	New Academy Schools & UTCs First new FE college since 1992 established 7 National Colleges Chartered Colleges	Ofsted FE Commissioner Education and Training Foundation	39 LEPs City Deals	8 Industrial Partnerships Trailblazer participants

## Appendix C

# The 8 Gatsby Benchmarks of Good Career Guidance

1.	<b>A stable careers programme</b> Every school and college should have an embedded programme of career education and guidance that is known and understood by individuals, parents, teachers, governors and employers.
2.	<b>Learning from career and labour market information</b> Every pupil, and their parents, should have access to good quality information about future study options and labour market opportunities. They will need the support of an informed adviser to make best use of available information.
3.	<b>Addressing the needs of each pupil</b> Pupils have different career guidance needs at different stages. Opportunities for advice and support need to be tailored to the needs of each pupil. A school's careers programme should embed equality and diversity considerations throughout.
4.	<b>Linking curriculum learning to careers</b> All teachers should link curriculum learning with careers. STEM subject teachers should highlight the relevance of STEM subjects for a wide range of future career paths.
5.	<b>Encounters with employers and employees</b> Every pupil should have multiple opportunities to learn from employers about work, employment and the skills that are valued in the workplace. This can be through a range of enrichment activities including visiting speakers, mentoring and enterprise schemes.
6.	<b>Experiences of workplaces</b> Every pupil should have first-hand experiences of the workplace through work visits, work shadowing and/or work experience to help their exploration of career opportunities, and expand their networks.
7.	<b>Encounters with further and higher education</b> All pupils should understand the full range of learning opportunities that are available to them. This includes both academic and vocational routes and learning in schools, colleges, universities and in the workplace.
8.	<b>Personal guidance</b> Every pupil should have opportunities for guidance interviews with a career adviser, who could be internal (a member of school staff) or external, provided they are trained to an appropriate level. These should be available whenever significant study or career choices are being made. They should be expected for all pupils but should be timed to meet their individual needs.

## Appendix D

### Tables from Chapter 7

Figure 3 full table

Skills rankings		Intermediate skills (Upper secondary)		High skills (Tertiary)	
Low skills (Below upper secondary)					
Location	Value	Location	Value	Location	Value
1 Mexico	63.4	1 Czech Republic	70.5	1 Canada	56.3
2 Turkey	61.5	2 Slovak Republic	69.8	2 Japan	50.5
3 Costa Rica	60.1	3 Poland	62.6	3 Israel	49.9
4 Portugal	53.1	4 Hungary	59.6	4 Korea	46.9
5 Colombia	47.5	5 Germany	58.2	<b>5 United Kingdom</b>	<b>46.0</b>
6 Spain	41.7	6 Slovenia	56.6	6 United States	45.7
7 Italy	39.9	7 Latvia	55.3	7 Australia	43.7
8 Greece	28.3	8 Austria	53.1	8 Finland	43.6
9 Belgium	24.9	9 Lithuania	52.8	9 Norway	43.0
10 New Zealand	23.4	10 Estonia	50.1	10 Luxembourg	42.9
11 Netherlands	22.9	11 Switzerland	46.2	11 Switzerland	41.2
12 Iceland	22	12 United States	44.5	12 Sweden	41.1
13 France	21.9	13 Finland	44.3	13 Iceland	40.5
<b>14 OECD - Average</b>	<b>21.6</b>	14 France	43.5	14 Lithuania	39.7
15 Luxembourg	21.2	<b>15 OECD - Average</b>	<b>43.2</b>	15 Estonia	38.8
16 Australia	20.1	16 Denmark	42.6	16 Denmark	38.2
<b>17 United Kingdom</b>	<b>19.3</b>	17 Italy	42.4	17 Belgium	37.5
18 Denmark	19.3	18 Sweden	41.6	18 New Zealand	36.3
19 Norway	17.8	19 Greece	41.4	19 Netherlands	36.0
20 Sweden	17.3	20 Netherlands	41.1	20 Spain	35.7
21 Hungary	16.6	21 New Zealand	40.3	<b>21 OECD – Average</b>	<b>35.7</b>
22 Austria	15.5	22 Korea	40	22 France	34.6
23 Germany	13.5	23 Norway	39.2	23 Latvia	33.4
24 Israel	13.2	24 Belgium	37.6	24 Austria	31.4
25 Korea	13.1	25 Iceland	37.5	25 Slovenia	30.7
26 Slovenia	12.7	26 Israel	36.9	26 Greece	30.2
27 Switzerland	12.6	27 Australia	36.2	27 Poland	28.7
28 Finland	12.1	28 Luxembourg	36	28 Germany	28.3
29 Latvia	11.3	<b>29 United Kingdom</b>	<b>34.8</b>	29 Portugal	23.8
30 Estonia	11.1	30 Canada	34.3	30 Hungary	23.7
31 United States	9.9	31 Colombia	30.2	31 Costa Rica	23.0
32 Canada	9.4	32 Portugal	23.1	32 Czech Republic	23.0
33 Poland	8.7	33 Spain	22.6	33 Colombia	22.2
34 Slovak Republic	8.3	34 Mexico	19.8	34 Slovak Republic	22.0
35 Lithuania	7.5	35 Turkey	19.2	35 Turkey	19.4
36 Czech Republic	6.6	36 Costa Rica	16.9	36 Italy	17.7
				Mexico	16.8

Tables above are showing % of 25-64 year-olds, 2016, skill levels, comparing by countries for low, intermediate and high skills. UK is in the top quarter of high skills, and in the lower quarter of middle range skills, which is consistent with the research.

Source: <https://data.oecd.org/eduatt/adult-education-level.htm>  
Accessed: 24.08.2018

Figure 7 full table

**International Comparisons of Productivity - Final Estimates, 2016**

**Current price GDP per hour worked**

UK = 100

	Canada	France	Germany	Italy	Japan	UK	USA	G7	G7 exc. UK
1995	108.1	124.1	130.4	126.2	90.3	100	123.4	114.5	115.8
1996	104	120.7	128.3	121.8	88.9	100	121.7	112.5	113.6
1997	104.1	121.6	127.6	121.3	88.1	100	121.3	112.2	113.3
1998	104.8	124.6	127.5	122.4	88	100	123.8	113.8	115
1999	106.2	125.4	130.8	120.8	88.9	100	126.4	115.6	116.9
2000	101.8	124.7	126.6	117	86.7	100	121.3	112	113.1
2001	101.4	126.1	128.1	115.3	86.8	100	122.1	112.5	113.6
2002	97.5	126.4	126.6	110.7	85.6	100	119.7	110.6	111.5
2003	97.8	121.9	127.5	109.1	85.5	100	121.3	110.9	111.9
2004	96	117.9	127.1	104.6	85.7	100	121.3	110.3	111.3
2005	101.3	122.1	126.1	105.3	88	100	125.2	113.1	114.3
2006	99.5	123.6	122.9	105.2	85.7	100	122.1	111.1	112.1
2007	100.3	125.1	125.6	108.1	87.2	100	124	112.8	114
2008	99.2	124.2	125.4	109.5	86.1	100	123.1	112.2	113.3
2009	101.5	128	127.7	112.4	87.3	100	128.8	115.7	117.2
2010	100.1	127.3	127.1	110.7	87.6	100	128.2	115.2	116.6
2011	100.6	128.2	131.4	111.6	87.2	100	127.8	115.6	117
2012	99.5	127.4	132.8	112.3	88.4	100	128.2	116.1	117.6
2013	100.9	131.3	133.8	112.5	89.6	100	127.2	116.3	117.8
2014	103.7	129.5	136.5	111.9	88.6	100	129	117.2	118.9
2015	100.1	128.5	136.7	110.6	90.9	100	130	117.9	119.6
2016	99.4	129.6	135.5	111.7	92	100	129.2	117.8	119.5

**Note: This table should be read horizontally**

Sources: OECD, Office for National Statistics

Accessed: 30.08.2018

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Figure 8 full table

<b>Gross Value Added (Income Approach) per head of population at current basic prices</b>	
<b>Region name</b>	<b>2016</b>
United Kingdom	26,584
North East	19,542
North West	22,899
Yorkshire and The Humber	21,285
East Midlands	21,502
West Midlands	22,144
East of England	24,488
London	45,046
South East	28,506
South West	23,548
Wales	19,200
Scotland	24,876
Northern Ireland	20,435
Extra Regio	-
United Kingdom less Extra-Regio and Statistical Discrepancy	26,320

Source: <https://www.ons.gov.uk/economy/grossvalueaddedgva>  
Accessed: 31.08.2018

## Appendix E

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