



Department  
for Business  
Innovation & Skills



Department  
for Education

# **Technical education reform: the case for change**

**July 2016**

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## Introduction

This paper presents evidence that underpins the main technical education reforms laid out in the Post-16 Skills Plan. The analysis shows that skills are vital to addressing the United Kingdom's productivity problem, but that the current technical education system is unresponsive, suffers from a lack of engagement with employers, and is complex and difficult for employers, learners, and parents and carers to understand.

The first section of the paper provides a range of data on what the current education system in England is delivering, in terms of participation, transitions and attainment, with a particular focus on technical education.

The second section explains why the current technical education system is still not doing enough for learners, employers and the economy as a whole. In particular, it sets out the productivity problem facing the UK economy and the contribution skills can make to productivity. It provides evidence on existing skills deficits and current employer demand for skills. It then shows that the complex and opaque nature of the current system is associated with problematic levels of 'churn' – switching between course types, dropping back to lower-level learning, or repeating study at the same level. Finally, it shows that the expected future changes in demand for skills and labour, as a result of technological change and other trends, only add to the case for improving the technical education system.

The annexes to this paper provide statistics on the level of churn within the system and on the participation and attainment between ages 16 and 18 of those with low attainment at age 15.

# The current technical education system is delivering steady improvements

## Participation is increasing for 16–18 year olds, but is falling for adults aged 19+

### Participation at 16-18

The following statistics show that, in recent years, participation by 16–18 year-olds in education and training has been rising. This has been driven predominantly by increased participation in full-time education, with growth in particular in the proportion studying vocational qualifications at level 3.

At the same time, the proportion of 16–18 year-olds in jobs without training and not in education, employment or training has been falling. At the end of 2015, around three-quarters of 16–18 year-olds in England were participating in full- or part-time education, while nearly one in five were in apprenticeships, other training, or employment (see figure 1).

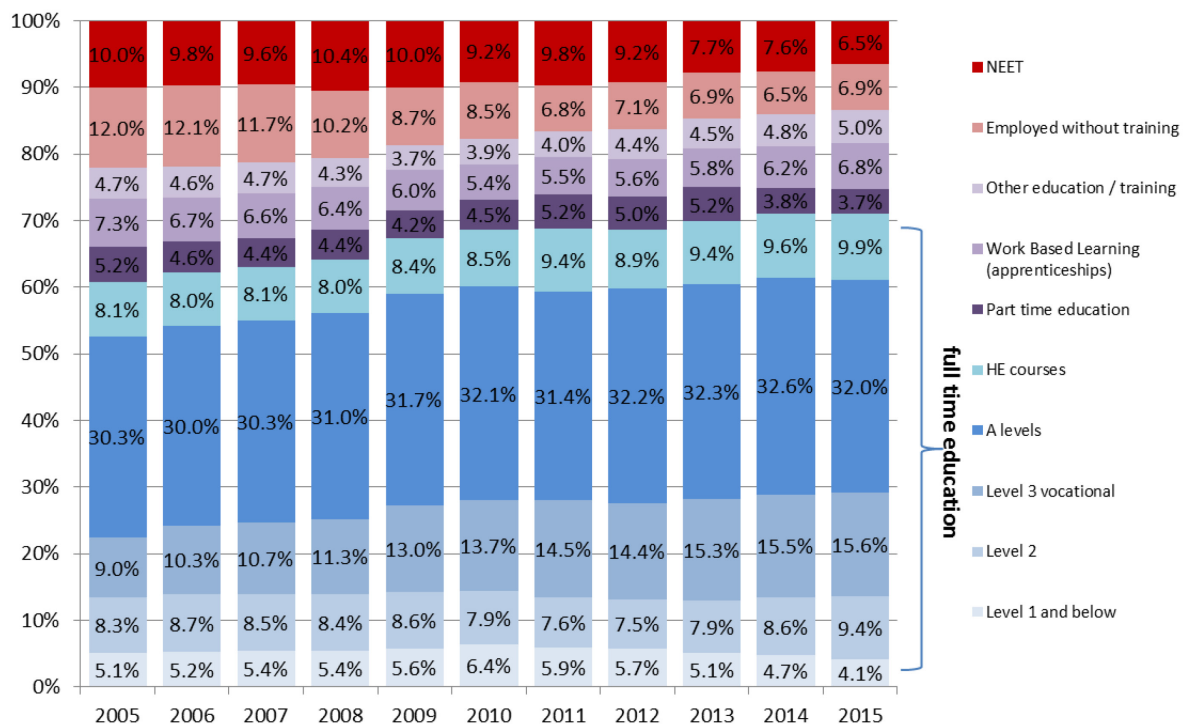


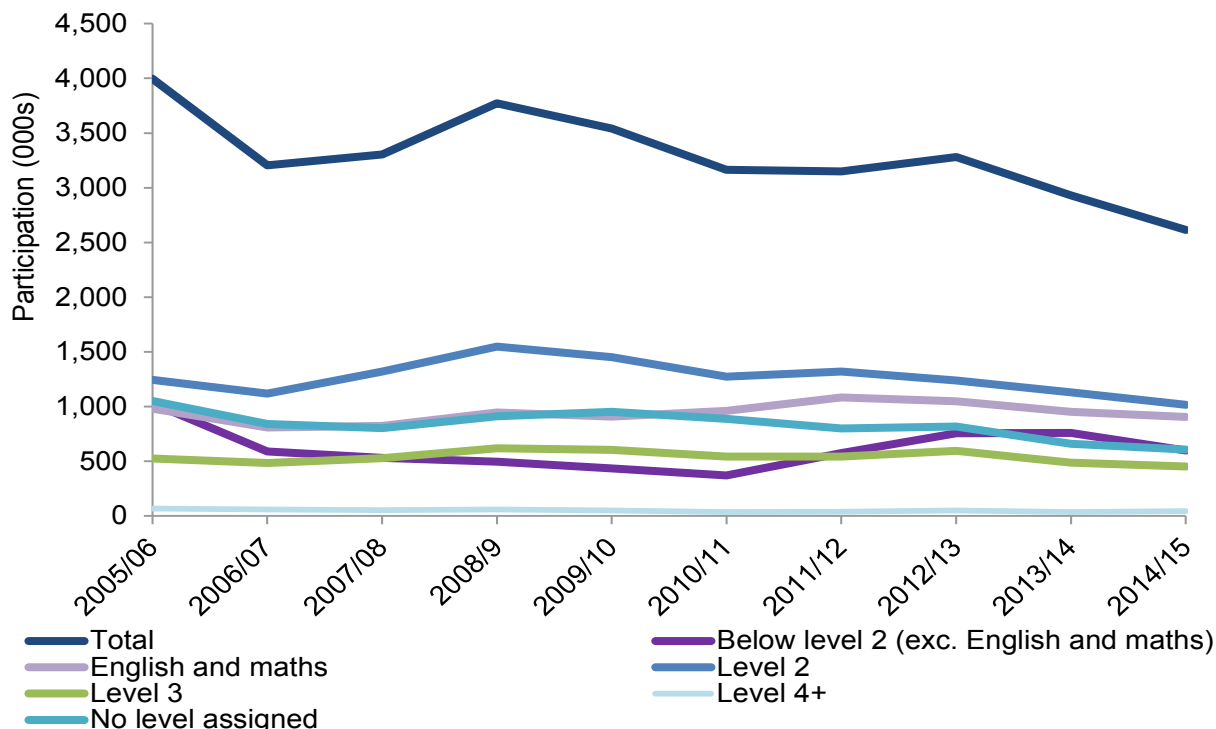
Figure 1 – 16–18 participation in education, training and employment, 2005–2015

Source: DfE (2016) Participation in Education, Training and Employment: 2015

### Participation at 19+

Figure 2 shows that participation in further education amongst those aged 19+ has been declining over time. Within this, there have been changes in the types of learning undertaken. Most of the reduction has been in workplace learning (since the abolition of

‘Train-to-Gain’) and in co-funded level 2 and level 3 classroom-based learning. However, there has been a significant increase in the number of apprenticeships undertaken by those aged 19+ – rising from around 300,000 (160,000 starts) in 2009/10 to around 678,000 (374,000 starts) in 2014/15. This is part of a major reform programme to improve quality – in light of the high returns to apprenticeships.



**Figure 2 – Adults participating in funded further education, 2005/06 – 2014/15**

Source: Skills Funding Agency (2016) Further Education and Skills: statistical first release – Learner Participation, Outcomes and Level of Highest Qualification Held; and Skills Funding Agency (2016) FE data library: further education and skills

## Learners are generally successful in reaching sustained destinations

### *Destinations measures for 16–18*

The latest destinations measures indicate that young people aged 16–18 are generally successful in reaching sustained education, employment or training destinations after qualifications.

Almost all young people aged 16–18 reach sustained education, employment and/or training destinations in the year after taking key stage 4 – 92% of young people from state-funded mainstream schools in the 2013/14 key statistics.

Currently data on destinations after key stage 5 only covers those who take A levels or other level 3 qualifications. Using this measure, sustained positive destinations were lower at key stage 5 than at key stage 4. In 2013/14, 73% of young people aged 16–18

were recorded in a sustained education, employment or training destination the year after taking A level or other level 3 qualifications at key stage 5.<sup>1</sup> This is up from 69% in 2010/11 but down from the 74% observed in 2011/12.

However, the current data is of limited use because whilst it includes the percentage of those going on to sustained education and training, it does not contain information to allow assessment of the knowledge and skills developed by, or the economic relevance of, the qualifications that people have attained. Also, currently many young people's activity is not captured in existing key stage 5 data. Future publications will draw on linked databases from the Department for Education (DfE), the Department for Work and Pensions (DWP) and Her Majesty's Revenue and Customs (HMRC) and will provide a more accurate measurement.

#### *Destination measures for 19+*

Sustained destination measures were lower still for adults aged 19+. Using experimental data matching, analysis found that of the nearly 1.8 million post-19 learners that completed an eligible qualification in 2012/13, 68% had a sustained positive destination (into either employment or learning) – 49% in sustained employment, 9% in sustained learning and 10% in both sustained employment and learning.<sup>2</sup> For those with an apprenticeship as their highest qualification, the sustained positive destination rate is 87%, with 85% in sustained employment.

## **Educational attainment is steadily increasing**

#### *Educational attainment at 16–18*

There has been a steady increase in recent years in the proportion of young people who achieve level 2 qualifications (five GCSEs at A\*–C or a vocational qualification of equivalent value) by the age of 18, from around 81% in 2010 to 87% in 2015. This has been driven by increases in attainment at age 15.

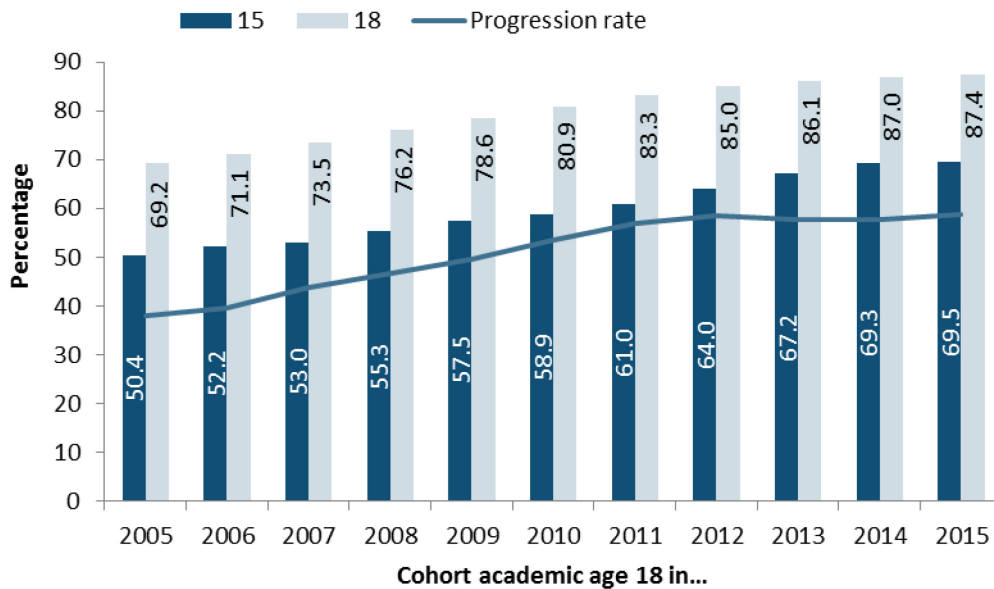
Those who attain a level 2 qualification between the ages of 16 and 18 years old predominantly do so through vocational qualifications. Overall, the proportion of the cohort who reach level 2 between the ages of 16 and 18, through any route, fell from 22% in 2010 to 18% in 2015. However, this is a consequence of more people having already attained level 2 by age 15. The progression rate – that is the proportion without

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<sup>1</sup> At a state-funded mainstream school or college

<sup>2</sup> BIS (2015a) *Adult further education. Outcome based success measures: Experimental Data 2010/11 – 2012/13*. Includes apprenticeships but excludes higher education.

level 2 at age 15 who go on to attain level 2 by age 18 – has remained relatively flat (see figure 3).<sup>3</sup>

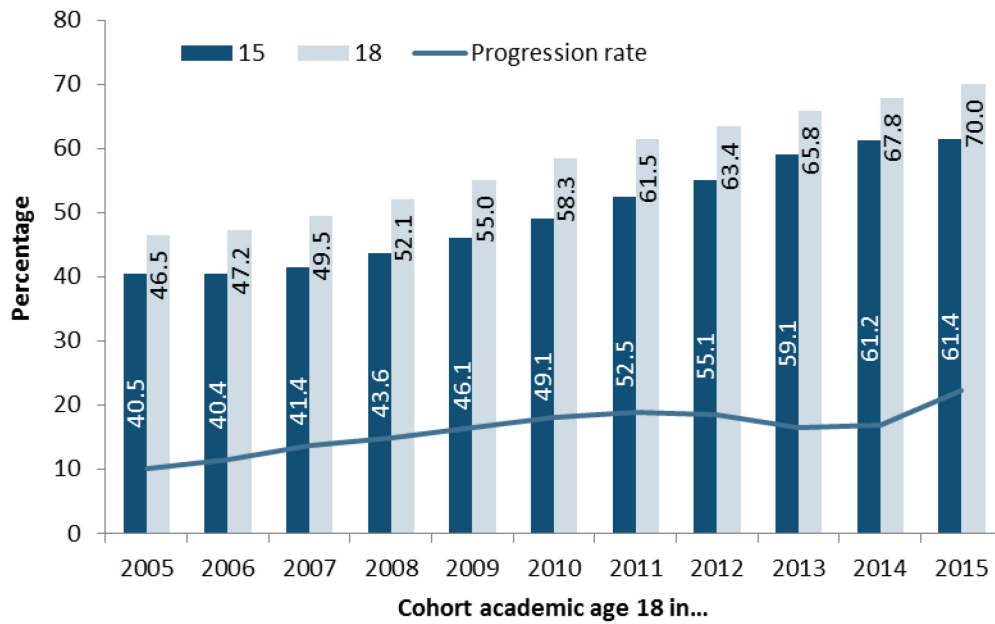


**Figure 3 – Attainment of level 2 at ages 15 and 18, 2005–2015**

Source: DfE (2016) Level 2 and 3 attainment by young people aged 19 in 2015

The proportion of young people attaining level 2 qualifications in English and maths specifically, by age 18, has been increasing each year, from 46.5% in 2005 to 70.0% in 2015. This has predominantly been driven by increases at age 16, but between 2005 and 2011 the progression rate, that is, the proportion of those without level 2 English and maths at 15 who attain both by age 18, was also increasing. Between 2011 and 2013 the progression rate declined slightly, from 18.9% to 16.4%, but has since risen to its highest ever level of 22.3% in 2015 (see figure 4).

<sup>3</sup> DfE (2016) *Level 2 and 3 attainment by young people aged 19 in 2015*, SFR 12/2016; Note that for consistency, references to age in this document are based on academic age. In the published attainment statistics, calendar age is used – so ‘age 19’ is equivalent to academic age 18.



**Figure 4 – Attainment of level 2 English and maths at 15 and 18, 2005–2015**

Source: DfE (2016) Level 2 and 3 attainment by young people aged 19 in 2015

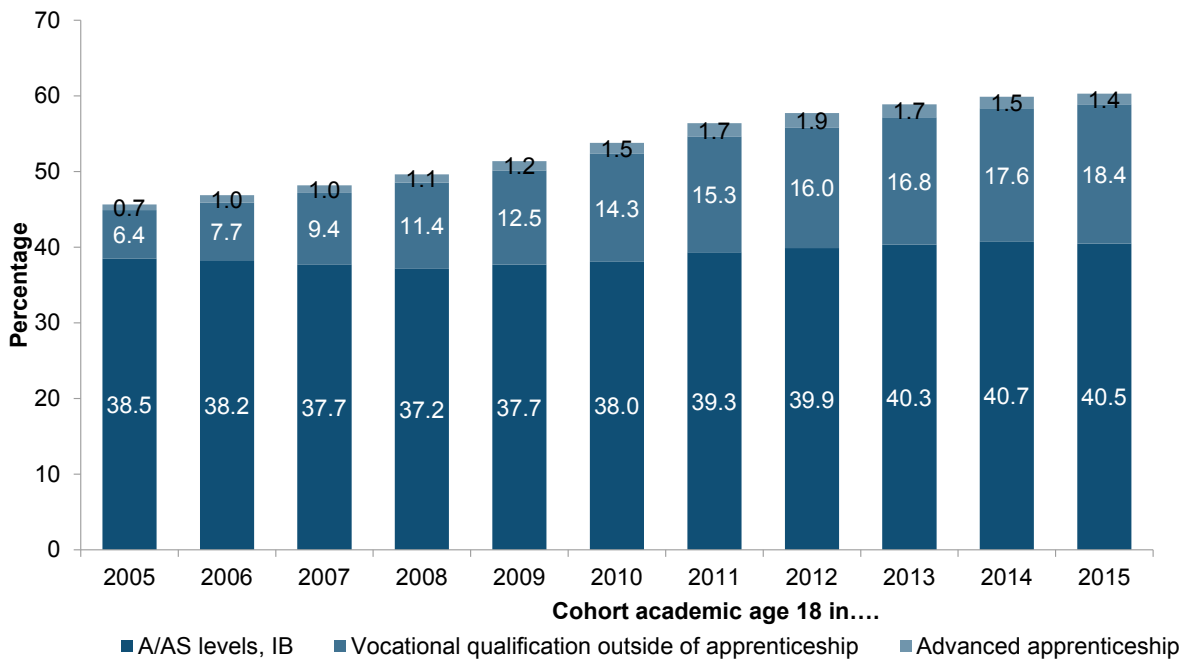
### *Educational attainment at 18*

The proportion of 18 year-olds who have achieved level 3 qualifications (two A levels or equivalent) has been rising, from 53.9% in 2010 to 60.3% in 2015, driven by an increase of 2.4 percentage points in the proportion gaining A/AS levels or International Baccalaureates (IBs), and a 4.1 percentage point rise in the proportion gaining level 3 through vocational qualifications or advanced apprenticeships.

Over a longer period, growth has been driven much more by vocational qualifications – since 2005 the proportion of 18 year-olds gaining level 3 through vocational qualifications or apprenticeships rose from 7.2% to 19.8%, whilst those gaining A/AS levels or IBs only saw modest growth from 38.5% to 40.5% (see figure 5).<sup>4</sup>

<sup>4</sup> DfE (2016) *Level 2 and 3 attainment by young people aged 19 in 2015*, SFR 12/2016



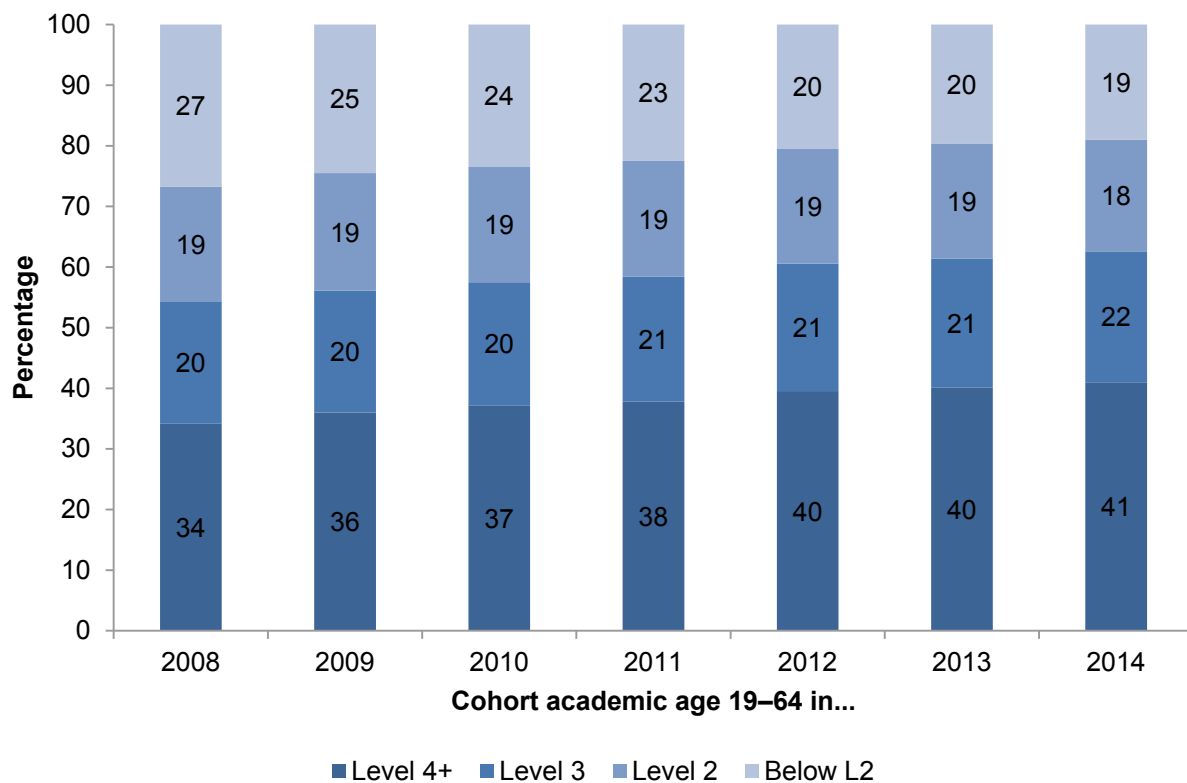


**Figure 5 – Attainment of level 3 at 18 by qualification type, 2005–2015**

Source: DfE (2016) Level 2 and 3 attainment by young people aged 19 in 2015

### *Educational attainment for 19+*

Educational attainment for adults is also steadily increasing. The proportion of 19–64 year-olds qualified to level 4 and above was 41% in 2014, up from 34.2% in 2008. In addition, the proportion of 19–64 with a level 3 as their highest qualification was 21.6% in 2014, up from 20.2% in 2008 (see figure 6).



**Figure 6 – Level of highest qualification held by individuals aged 19–64 in England, 2008–2014**

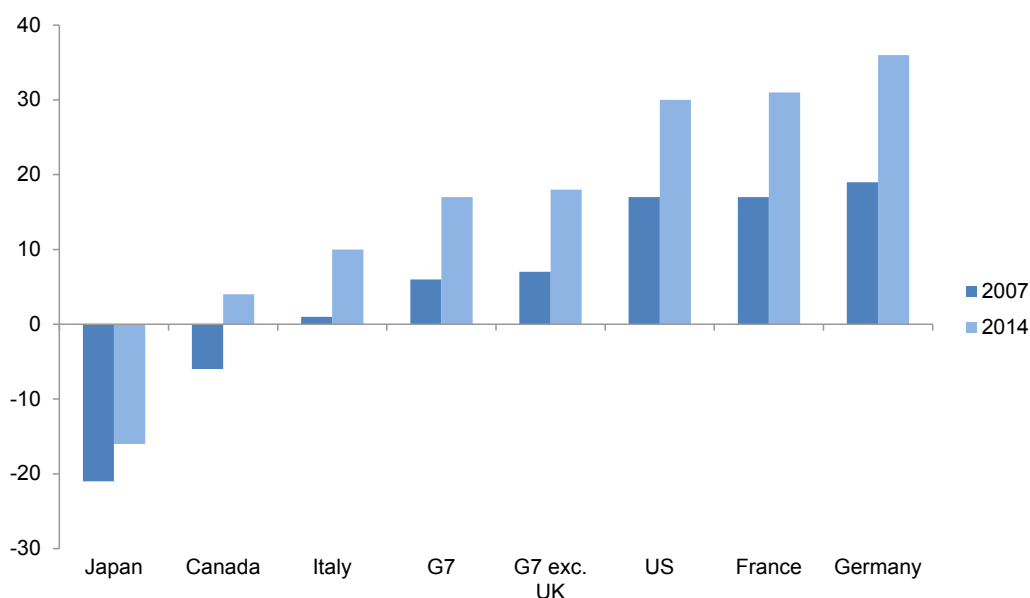
Source: Skills Funding Agency (2016) Further Education and Skills: statistical first release – Learner Participation, Outcomes and Level of Highest Qualification Held; and Skills Funding Agency (2016) FE data library: further education and skills

Despite some positive participation, destinations and attainment trends, in particular for young people studying vocation qualifications, there is still more to be done. The evidence on productivity, skills shortages and employer perceptions outlined in the following sections shows that the education and training system is still failing to deliver the right mix of skilled workers into the UK labour market to drive economic growth.

## Despite the recent positive trends, the technical education system still needs to do more

### Productivity and skills continue to lag behind international standards

Economic growth emerges either from higher employment or higher productivity. Although the United Kingdom (UK) has done well on employment in recent times, there is a pressing need to do more to increase productivity.<sup>5</sup> While UK productivity was growing prior to the financial crisis, it has since stalled.<sup>6</sup> Productivity rates in other major economies were also hit by the financial crisis, but to a smaller extent than in the UK, and this has led to a further deterioration in the UK's relative position (see figure 7).<sup>7</sup>



**Figure 7 – Output per hour worked, G7 compared to UK (percentage point difference, UK=0)**

Source: ONS (2014) International Comparisons of Productivity – Final Estimates: 2014

Addressing this productivity problem will require further development of the UK's skills base. Had it not been for improvements in skills over the last ten years, growth would have been significantly lower and the productivity gap with G7 competitors even more substantial.<sup>8</sup> Improvements in workforce skills are estimated to have directly contributed around one-fifth to the UK's annual labour productivity growth in the late 1990s and early

<sup>5</sup> HMT (2015) *Fixing the Foundations: Creating a more prosperous nation*

<sup>6</sup> HMT (2015) *Fixing the Foundations: Creating a more prosperous nation*

<sup>7</sup> BIS (2015c) *UK skills and productivity in an international context*, BIS Research Paper Number 262

<sup>8</sup> BIS (2015c) *UK skills and productivity in an international context*

2000s and continued to play an important role in productivity up to, during and after the financial crisis.<sup>9</sup>

However, the UK's skills base continues to face challenges, with the country performing poorly in international comparisons and employers reporting difficulties in finding appropriately skilled workers.<sup>10</sup> Failure to address these challenges will inhibit growth and productivity, particularly in a world where structural and technological influences will change future demand for skills.<sup>11</sup>

## Skills are a key contributor to UK productivity growth

The potential economic benefits of increasing the skills base of the UK economy are huge. The OECD estimates that almost 20% of young people in the UK lacked basic skills in 2012. If all young people in the UK acquired basic skills by 2030, then by 2095 the UK economy would be 13% larger than would be expected with the current labour force. In monetary terms, this equates to 3.65 trillion US dollars (143% of current UK Gross Domestic Product (GDP)).<sup>12</sup>

There are also large returns to the economy from investment in qualifications. For example, the latest research, published in June 2015, indicates that adult apprenticeships at level 2 and level 3 deliver a net present value of £26 and £28 respectively for each pound of government investment.<sup>13</sup>

Furthermore, a study of individuals attending further education institutions published by BIS<sup>14</sup> found positive and statistically significant earnings premiums across all vocational qualification categories, with returns particularly high for full-level qualifications (see table 1).<sup>15</sup> For example, a learner who achieves a full level 2 qualification will earn 11% more on average than a similar person who has the same learning aim, but who did not achieve. Full level 2 achievers are also two percentage points more likely to be in employment, and two percentage points less likely to be observed on benefits between three and five years after training.

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<sup>9</sup> BIS (2015c) *UK skills and productivity in an international context*

<sup>10</sup> UKCES (2016) *Employer Skills Survey 2015: UK Results*

<sup>11</sup> Vivian et al. (2016) *Employer Skills Survey 2015*

<sup>12</sup> OECD (2015) *Universal Basic Skills: What Countries Stand to Gain*. The OECD defined basic skills as 'the acquisition of at least level 1 skills (420 points) on the OECD Programme for International Student Assessment (PISA)'.

<sup>13</sup> BIS (2015b) *Measuring the Net Present Value of Further Education in England*, BIS Research Paper 228

<sup>14</sup> Bibby, Buscha, Cerqua, Thomson, and Urwin (2014) *Further education: comparing labour market economic benefits from qualifications gained*

<sup>15</sup> A full level 2 qualification is equivalent to 5 GCSEs at A\*-C; full level 3 is equivalent to 2 A levels; below level 2 (often called foundation level) includes English/maths at entry level and level 1, plus many other qualifications.

Qualification level	Wage premium	Employment premium	Benefit probability gaps
Below level 2	2%	0%	-0pp
Full level 2	11%	2%	-1pp
Full level 3	9%	4%	-1pp
Level 2 apprenticeship	11%	0%	-3pp
Level 3 apprenticeship	16%	0%	-2pp

**Table 1 – Wage and employment premiums for qualifications gained in English FE, three- to five-year averages<sup>16</sup>**

Source: Bibby, Buscha, Cerqua, Thomson, and Urwin (2014) Further education: comparing labour market economic benefits from qualifications gained

More generally, we know that increasing employee skill levels will result in higher productivity, benefiting employers, individuals and the broader economy. Analysis of data from the Labour Force Survey and industry-level data from the Annual Census of Production<sup>17</sup> shows that training has around twice as much of an effect on productivity as on wages – an increase in training by one percentage point at industry level is associated with an increase in productivity of around 0.6% and in wages of about 0.3%.<sup>18</sup>

## The UK is suffering from a skills deficit

It is increasingly evident from international surveys that our current skills system is failing to fully meet the country's needs across a range of skills. The OECD has found that the UK performs poorly on intermediate professional and technical skills, and is forecast to fall to 28th out of 33 OECD countries for intermediate skills by 2020.<sup>19</sup> England and was also found to be in the bottom seven countries for literacy skills, and in the bottom eight countries for numeracy skills among 16–24 year olds.<sup>20</sup>

<sup>16</sup> The three- to five- year average is chosen because it balances a trade-off between requiring estimated premiums that (i) persist sufficiently far into the future, but (ii) are not over-reliant on a small number of cohorts that completed training many years ago. Bibby et al. (2014) assesses the extent to which the premia will be persistent beyond the five-year cut off (a cut off necessitated by the data available) and presents a strong argument that they will persist.

<sup>17</sup> The Annual Census of Production is the predecessor of the Annual Business Inquiry and the Annual Business Survey.

<sup>18</sup> Dearden, Reed & Van Reenen (2005) *The Impact of Training on Productivity and Wages: Evidence from British Panel Data*, Institute for Fiscal Studies Working Papers, W05/16

<sup>19</sup> Bosworth and Leach (2015) *UK Skill Levels and International Competitiveness, 2014*

<sup>20</sup> OECD (2016) *Skills Matter: Further Results from the Survey of Adult Skills – table A2.5 (L) and table A2.5 (N)*

England is one of the few countries where young adults perform no better than older ones in literacy and numeracy. Although the skill levels of England's older people compare favourably with their international peers, younger people are lagging behind.<sup>21</sup> If nothing changes, the basic skills level of the labour force in England will fall further behind those of other countries. Weaknesses in basic skills have been identified by the Confederation of British Industry as damaging to employees' ability to perform everyday tasks – in particular, their 'ability to draw out information effectively from written texts and instructions; compose written communications; or work through calculations and make sense of numerical data'.<sup>22</sup> Without these abilities, it is unlikely that an employee is working productively.

The picture is different for higher-level skills (tertiary education), where the UK is a relatively high performer. The OECD projects that, based on existing trends, there will be a substantial increase in the proportion of the UK's adult population qualified at a higher level (tertiary) by 2020 – rising from 39% to 49% and improving the UK's international ranking from 11th to seventh.<sup>23</sup>

This imbalance in the skills produced by our education and training system – a long tail of people with low or basic skills, insufficient numbers with intermediate-level qualifications and technical skills, but a substantial pool of adults qualified at tertiary level – highlights the importance of technical education reform. It is an urgent priority to help low-skilled workers to progress and develop their skills, and minimise the number of people entering the labour market without skills and qualifications after compulsory education.<sup>24</sup> The planned reforms will redress the balance by increasing the number of young people with advanced intermediate technical and specialist skills, helping meet the needs of employers and improving the quality of the country's skills base.

## Skills shortages present challenges to employers

Skills shortages are already posing challenges to employers, particularly in the skilled trades, which have faced a much higher than average density<sup>25</sup> of skill-shortage vacancies for several years.<sup>26</sup> Employers have also reported concerns about their current and future ability to recruit high-skilled employees, and many fear the impact of a continued shortage, particularly in engineering and manufacturing.<sup>27</sup>

While only one-third of vacancies were reported to be difficult to fill by employers in the most recent UKCES Employer Skills Survey, the majority of these (69%) were deemed

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<sup>21</sup> BIS (2012) *The 2011 Skills for Life Survey: A Survey of Literacy, Numeracy and ICT Levels in England*

<sup>22</sup> CBI/Pearson (2015) *Education and Skills Survey 2015*

<sup>23</sup> Bosworth and Leach (2015) *UK Skill Levels and International Competitiveness 2014*

<sup>24</sup> UKCES (2014b) *The Labour Market Story*, London: UKCES

<sup>25</sup> Number of skill-shortage vacancies divided by total number of vacancies

<sup>26</sup> Vivian et al., (2016) *Employer Skills Survey 2015*

<sup>27</sup> CBI/Pearson (2015) *Education and Skills Survey 2015*

difficult to fill due to a lack of skills, qualifications or experience amongst applicants.<sup>28</sup> The proportion of establishments holding at least one skill-shortage vacancy rose from four per cent to six per cent between 2013 and 2015.<sup>29</sup>

In particular, employers reported a lack of 'specialist skills or knowledge needed to perform the job role' – the cause, at least in part, of almost two-thirds of all skill-shortage vacancies (64%).<sup>30</sup> Other substantial deficiencies were in complex problem solving (39% of skill-shortage vacancies) and complex numerical/statistical skills (29%). These skills underpin innovation and adaptation, both of which are of great importance to success in a flexible, globally-competitive economy and are major contributors to productivity.

## **There is a lack of employer engagement and investment in education and training**

Employer investment and engagement in technical education is important to improving the skills of the workforce and consequently raising productivity,<sup>31</sup> but it is clear that employers are currently not involved enough in the education and training of young people. Ofsted has found that schools are not working well enough with employers to provide direct experience of the world of work,<sup>32</sup> while a large-scale survey of Year 11 pupils found that fewer than half had undertaken work experience as part of their careers education.<sup>33</sup>

The UKCES Employer Perspectives Survey of 18,000 employers found that, across England, the proportion of employers offering work experience was 44% overall, and that 38% offered placements and 18% offered work inspiration activities (such as mock interviews, delivering talks and holding site visits for students).<sup>34</sup> Only 20% engaged with schools and 12% with FE colleges, and involvement is heavily weighted towards larger companies (see figure 8 below).

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<sup>28</sup> Vivian et al. (2016) *Employer Skills Survey 2015*

<sup>29</sup> Vivian et al. (2016) *Employer Skills Survey 2015*

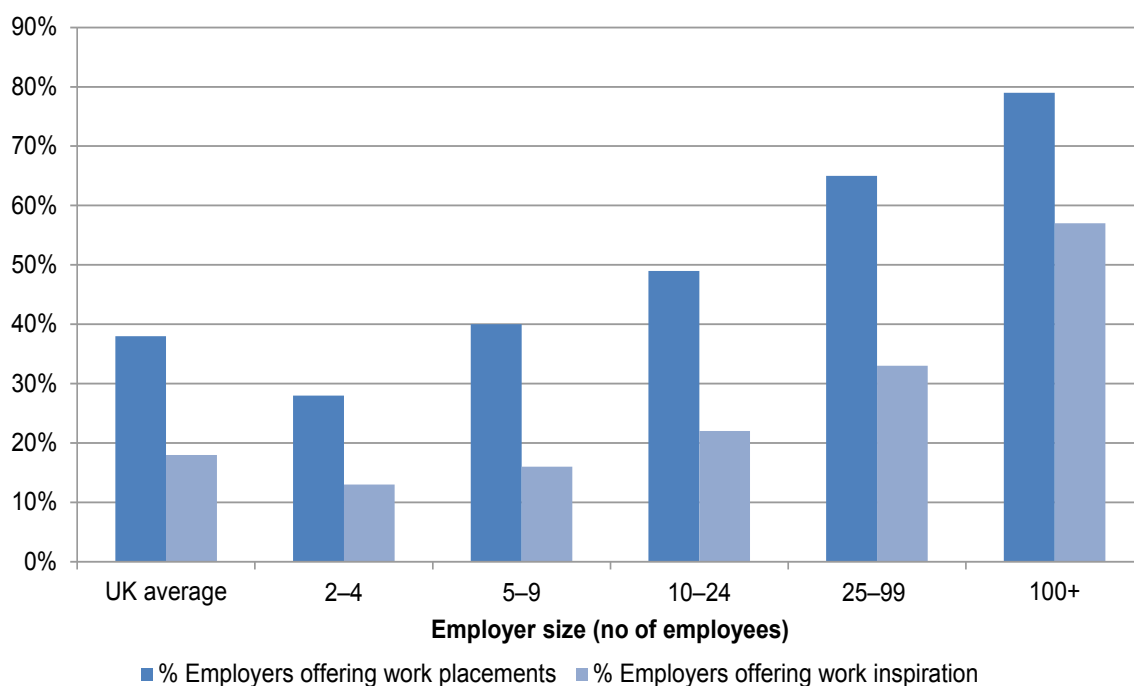
<sup>30</sup> Vivian et al. (2016) *Employer Skills Survey 2015*

<sup>31</sup> BIS (2014) *Understanding the link between employers and schools and the role of the National Careers Service*

<sup>32</sup> Ofsted (2013) *Going in the right direction? Careers guidance in schools from September 2012*

<sup>33</sup> Archer and Moote (2016) *ASPIRES 2 Project Spotlight: Year 11 Students' Views of Careers Education and Work Experience*

<sup>34</sup> Shury et al. (2014) *UKCES Employer Perspectives Survey*



**Figure 8 – Employers offering work experience activities by size of employer**

Source: Shury et al., 2014, UKCES Employer Perspectives Survey

There is also evidence to show that employer investment in training is low. Although, according to UKCES estimates, total employer expenditure on training in England increased by seven per cent between 2013 and 2015 – rising from £36.4 billion to £39 billion – spend per employee has stagnated and spend per person trained is still below that in 2011.<sup>35</sup> Similarly, although the overall number of training days has increased, the number of days of training provided per employee remained broadly the same and the number of days of training per person trained has declined.<sup>36</sup>

These disparities are a result of a parallel increase in the numbers in employment and the number trained.<sup>37</sup> This is supported by the high proportion of employers who stated that they offer training in health and safety (75%) and basic induction (66%).<sup>38</sup> In fact, on a UK-wide level, induction or health and safety training comprised at least half of training for almost a third of employers (32%), while more than one in ten employers reported that they *only* provided health and safety or induction training (11%).<sup>39</sup>

For those employers who already provide training to their employees, the main reasons they gave for not doing more training are related to resources, for example insufficient funds or staff time. This suggests that for some businesses, there is a ‘ceiling’ to the

<sup>35</sup> UKCES (2016b) *Investment in Training Survey 2015: Technical Report* – table 2.1

<sup>36</sup> UKCES (2016a) *Employer Skills Survey 2015: England Slide Pack*

<sup>37</sup> Vivian et al. (2016) *Employer Skills Survey 2015*

<sup>38</sup> UKCES (2016a) *Employer Skills Survey 2015: England Slide Pack*

<sup>39</sup> Vivian et al. (2016) *Employer Skills Survey 2015*



value they place on training, beyond which training does not provide an adequate return on their investment, or at least is not perceived to. Some employers had chosen not to provide any training or development for their staff in the previous 12 months, with the main reason for not providing training being that staff are fully proficient or do not need training.<sup>40</sup>

Increasing the level of employer engagement with training and development is a central plank of the reform process. By getting employers more involved in both the design and delivery of training, the reforms will reinforce the value of training to employers, while also ensuring that the education system delivers the skills employers need.

Another important focus of the technical education reforms relates to apprenticeships. Employer engagement in apprenticeships has until recently been very low, with research showing that only 15% of employers offered formal apprenticeships.<sup>41</sup> Yet for those involved with apprenticeships, employer satisfaction was high – 64% of 4,030 employers stated that they were very satisfied with the programme and a further 14% said they were satisfied. Seventy per cent of employers stated that apprenticeships improved the quality of their product or service.<sup>42</sup> There are now around 1,300 employers involved in developing new apprenticeship standards. Our reforms to technical education can be expected to increase employer engagement further by ensuring that standards and curricula are much more responsive to the needs of both employers and the general labour market.

## **The current technical education system is complex and opaque**

For those young people trying to navigate the current technical education system in England, it is extraordinarily complex and opaque by European and international standards.<sup>43</sup> It covers a diverse group of learners, with a wide range of attitudes towards and expectations of training. These learners are faced with a choice from hundreds of providers and thousands of qualifications. Following the Wolf Report,<sup>44</sup> the government removed thousands of low-quality qualifications which were not valued by employers from accountability measures, but there is more to be done to drive change.

There is still a confusing array of qualifications available to learners and employers, who struggle to identify which are appropriate for their skills needs. Learners are also faced with variation within programmes and training methods vary widely. They may be classroom-, workplace- or community-based learning and could be either full- or part-time. While Ofsted suggests schools are largely failing to promote all the available post-

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<sup>40</sup> Vivian et al. (2016) *UKCES Employer Skills Survey 2015*

<sup>41</sup> Shury et al. (2014) *UKCES Employer Perspectives Survey*

<sup>42</sup> Colahan and Johnson (2014), *Apprenticeship Evaluation: Employers*

<sup>43</sup> Wolf, A. (2011) *Review of Vocational Education – The Wolf Report*

<sup>44</sup> Wolf, A. (2011) *Review of Vocational Education – The Wolf Report*

16 routes and while the overall provision of careers education and guidance remains patchy and of variable quality, young people and learners may struggle to identify the training or courses they need to undertake to move towards their preferred employment.<sup>45</sup>

By comparison, Norway and Germany both have high-quality and easy-to-understand education systems. Young people choose to pursue either a technical or academic route at the end of compulsory education and these routes follow a clearly laid-out pathway. The German system is characterised by strong employer engagement and involvement in training, something which these reforms seek to replicate in England, although it is important to recognise that the German economy differs from that of England.<sup>46</sup>

The complexity and lack of clarity in England's technical education system could be a driver of the substantial 'churn' in the system – switching between course types, dropping back to lower-level learning, or repeating study at the same level. Analysis of learning records for young people between the ages of 16 and 18 shows that nearly a quarter of learners entering further education at age 16, around 125,000 within a single cohort, have subsequent patterns of study that are indicative of some form of churn.<sup>47</sup> This has the potential to disadvantage learners by delaying their entry to the labour market and raising the risk of failing to complete any recognised qualification. If these learners would have had the same outcomes without undertaking any post-16 education, then churn also results in substantial and unnecessary additional costs to the public purse, which could have been avoided had learners been in a position to make an informed choice at the outset.

The lack of clear progression is most acute for learners with low attainment at age 15. In the cohort with an academic age of 18 in 2013/14, around one in seven – over 80,000 – failed to achieve any GCSE A\*–Cs or a level 2 vocational qualification at academic age 15. Although over four-fifths of these went on to participate in further education or apprenticeships at age 16, only just over one-third (35%) went on to attain a level 2 qualification by age 18. Of those studying below level 2 at age 16, over three-quarters (77%) did not achieve a level 2 qualification by age 18 and a quarter (24%) were still in education but had not progressed beyond study at level 1 or below.<sup>48</sup>

## **There is little incentive for providers to do better**

As well as performing poorly for learners, the current funding and accountability system generates poor incentives for providers. In the technical education system, government

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<sup>45</sup> Ofsted (2013) *Going in the right direction? Careers guidance in schools from September 2012*

<sup>46</sup> CEDEFOP (2012) *Germany. VET in Europe – Country report*

<sup>47</sup> Annex A, Based on DfE analysis of the Young Person's Matched Administrative Dataset (YPMAD). The cohort considered includes all those of academic age 16 in the state sector who participate in further education (not including those on apprenticeships at 16.)

<sup>48</sup> Annex B. DfE analysis of YPMAD

has typically paid providers directly to deliver training at little or no cost to learners and employers. Learners have had limited ways to hold providers accountable for the provision received, other than finding another training provider (which may be difficult partway through a course), official complaints procedures, course feedback or satisfaction surveys. There were no direct funding relationships and limited accountability relationships between providers and their customers, meaning there has been little incentive for providers to respond to the needs of learners or employers.

Despite encouragement to diversify, further education colleges are still heavily dependent on government funding with very little income from other sources: 86% of colleges rely on government funding for more than 70% of their income,<sup>49</sup> which has led to declining financial health as public funding has declined. There is also a strong autocorrelation of annual college funding, that is, allocations for the next year are largely based on previous years' allocations. This relationship, along with funding being granted on a yearly basis, creates poor incentives – colleges are rewarded for doing the same thing they have always been doing, but also assume that they will never be forced to close as this has never been done before.

## **Young people need the right skills to serve the changing labour market**

The technical education system also needs to respond to future changes in the labour market and in the demand for skills. Technological changes will alter the demand for skills, although there is much uncertainty around what the precise impact of these changes will be. One study conducted by Frey and Osborne has estimated that 35% of current jobs in the UK are at high risk from automation over the next ten to twenty years.<sup>50</sup> These include jobs in office and admin support, and construction. At the same time, technology will create new jobs and change the nature of existing ones. For example, digitisation of production processes will change the skills required of those who remain on the shop floor, giving them more responsibilities that require control, maintenance and problem-solving skills.<sup>51</sup>

Other changes will influence the make-up of the labour market and the demand for skills, such as the ageing population and changing labour market mobility. The ageing population will continue to drive demand for formal care in occupations that look after the sick and elderly. It will also increase informal caring responsibilities on younger generations who will have to balance these responsibilities alongside their own careers. Reduced labour mobility makes it harder to match the supply of skills with demand

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<sup>49</sup> BIS analysis of college accounts data. College accounts data can be found at:

<https://www.gov.uk/government/publications/sfa-financial-management-college-accounts>

<sup>50</sup> Deloitte (2014) *Agiletown: the relentless march of technology and London's response*

<sup>51</sup> UKCES (2014a) *The Future of Work: jobs and skills in 2030 – Trends and Disruptions report*

geographically. House price rises make it harder for owner-occupiers to move between regions and the rise in transport costs above rises in income also limits mobility.

Forecasts suggest that expansion demand (newly created jobs that constitute a net increase to the number of jobs in the economy) is expected to be focused in high-skilled occupations such as managerial positions; professional and associate professional roles; and most technical occupations; as well as some lower-skilled occupations including caring, leisure and other service occupations – particularly those that are difficult to automate.<sup>52</sup>

Some intermediate jobs, as defined by mid-1980s and early 1990s wages, have disappeared as a result of task-based technological change. This represents a form of ‘job polarisation’ – where the share of total employment in high- and low-ranked jobs expands relative to middle-ranked jobs. Technical education needs to equip young people who may have previously entered the labour market through routine low- or intermediate-skilled jobs to enter through higher-skilled, non-routine jobs that are more resilient to the potential effects of automation.<sup>53</sup> Job polarisation can also make progression from low- to high-skilled employment more challenging, and the technical education system needs to prepare young people to make this step up.

However, intermediate-ranked jobs will still emerge – either through the creation of entirely new jobs or as other jobs move up or down the wage distribution.<sup>54</sup> And the retirement of older workers will open up job opportunities in many occupations, particularly those in STEM professions, which will need to be filled by the new and existing workforce.<sup>55</sup> This is part of replacement demand – as well as the expansion demand from newly created jobs, gaps need to be filled when existing employees retire or leave the workforce, for example to have children. Replacement demand is forecast to be more balanced across the economy and is expected to be up to seven times larger than expansion demand. Consequently, there are expected to be many new job openings in low-, medium- and high-skilled jobs, even in economic sectors where overall employment is expected to decline.<sup>56</sup>

Young people need to be prepared to retrain throughout their working lives as they change careers and demand for skills changes. Changes in employment patterns are placing greater responsibility for training onto individuals rather than employers. For example, record numbers of people are self-employed – 4.6 million (15% of workers) in 2014<sup>57</sup> – and will need to take responsibility for their own training.

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<sup>52</sup> UKCES (2016c) *Working Futures 2014–2024*

<sup>53</sup> BIS (2013) *Hollowing out and the future of the labour market*

<sup>54</sup> BIS (2013) *Hollowing out and the future of the labour market*

<sup>55</sup> UKCES (2014a) *The Future of Work: jobs and skills in 2030 – Trends and Disruptions report*

<sup>56</sup> UKCES (2016c) *Working Futures 2014–2024*

<sup>57</sup> ONS (2014) *Self-employed workers in the UK – 2014*

As the challenges currently being faced by employers in recruiting skilled staff show, the current skills supply system is not sufficiently responsive to changes in labour demand. The education and training system will need to develop workers with suitable skills to meet the demand from new and changing jobs. A more skilled workforce is less expendable, more adaptable to change, and better able to transfer between economic sectors.<sup>58</sup> The proposed reforms will help create a dynamic and flexible workforce, well placed to adapt rapidly to the structural and technological changes in the economy.

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<sup>58</sup> OECD (2014) *Job Creation and Local Economic Development*

## Conclusion

The evidence shows that the technical education system could deliver more for the economy. There has been some progress towards this, such as increases in participation rates for 16–18 year-olds, and the removal of thousands of low-quality qualifications from performance tables and government funding eligibility following the Wolf Report, but the system still remains complex, with large numbers of young people churning through the system. High proportions of young people are moving into sustained education, employment or training, but too many of these destinations are not delivering for the economy, employers or the individuals involved.

The system is not yet sufficiently responsive to changes in demand for skills in the economy and the needs of employers. The resulting skills imbalances, particularly the long tail of low-skilled employees, are a substantial drag on economic productivity, limiting economic growth and hindering the country's international competitiveness. This also has a social impact, as not giving young people the right opportunities to gain the skills, knowledge and behaviours needed for the world of work is a waste of potential and life chances.

Our proposed reforms will simplify the system, offering post-16 students the choice between a technical and an academic option. The technical option will be made up of 15 clear routes leading to skilled employment which requires technical knowledge and practical skills valued by industry. Panels of professionals will take the lead in setting the standards for each route to ensure that they deliver the skills needed by the economy, helping low-skilled workers to progress to the intermediate- and higher- level skilled positions that drive productivity, and minimising the number of people entering the labour market without useful skills and qualifications.

## Annex A: Analysis of levels of churn and/or repeat learning

Total cohort in state sector at academic age 15, 2010/11	569,000
Studying in education at academic age 16	511,000
Of whom show subsequent patterns of study indicative of churn/repeat learning	125,000
% of those in education at 16 showing churn/repeat learning	25%

**Table A1: Estimate of churn/repeat learning using matched administrative data**

Notes:

This analysis was based on the DfE Young Person's Matched Administrative Dataset (YPMAD), which records information on the highest level of qualification studied each academic year, and its type. The cohort was defined as those in the state sector at academic age 15 in 2010/11, and their highest study aims in each of the years 2011/12 to 2013/14 were analysed to determine where combinations of aims over three years of post-compulsory study were indicative of some degree of churn or repeat learning at the same level.

Given the large number of potential combinations, and the fact that the analysis is only based on highest study aim without consideration of detailed subjects studied and attainment at each age, it is necessarily based on simplistic rules and is only intended to provide an indication of the scale of possible churn and repeat learning within the system, rather than an accurate estimate that would stand up to a case-by-case analysis.

Those included in the churn/repeat learning figure are the following groups (ages refer to academic age, i.e. age at the start of the academic year):

- those studying A/AS levels at age 16 but switching to vocational education or apprenticeships at age 17
- those studying a level 3 vocational qualification<sup>59</sup> at 16 who switch to A/AS levels at 17 or 18
- those studying a vocational qualification at 16 who move to a lower level of study at 17 or 18, other than those switching to an apprenticeship at 17

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<sup>59</sup> Note that for the purposes of this analysis vocational study/qualifications are treated separately from apprenticeships. Study of GCSE is included with vocational study at level 2, because the majority of learners with a GCSE qualification as their highest study aim also study a level 2 vocational qualification alongside the GCSE.

- those studying A/AS level for two years then switching to full-time vocational study at 18, or to a level 2 apprenticeship
- those studying a level 3 vocational qualification at 16 and 17 who remain in full-time education studying a level 3 vocational qualification at 18
- those studying a vocational qualification at level 2 or below at 16 who study the same level of qualification for 3 consecutive years



## Annex B: Low attainers analysis

The YPMAD dataset and cohort described in Annex A also provides the basis for the analysis of numbers of low attainers<sup>60</sup> at age 15 and their subsequent participation and attainment, shown in the tables below. Ages refer to academic age.

	Number	Percentage
Total low attainers at 15	81,600	100%
Of whom participate in education at 16	64,600	79%
Of whom participate in apprenticeships at 16	5,900	7%
Total participating at age 16	70,500	86%
Total attaining level 2 by age 18	28,900	35%

**Table B1: Progression of low attainers at 15**

	Number	Percentage
Total low attainers at 15	81,600	100%
Of whom have SEN, School Action/School Action Plus	38,600	47%
Of whom have SEN with statement	15,300	19%
Any identified SEN	53,900	66%

**Table B2: Special educational needs (SEN) status at age 15 of low attainers**

	Number	Percentage
Total low attainers at 15 who studied below level 2 at 16	36,700	100%
Of whom attained level 2 by age 18	8,400	23%
Of whom participate below level 2 at age 17 and 18	8,900	24%

**Table B3: Progression of low attainers at 15 who studied below level 2 at 16**

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<sup>60</sup> Note that for this analysis, low attainers are those who failed to achieve any GCSE A\*–Cs or a level 2 vocational qualification at academic age 15.

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