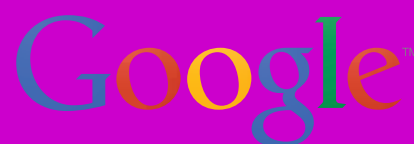


# POWER TO CREATE

The new digital  
learning age:  
how we can enable  
social mobility  
through technology



# The new digital learning age: how we can enable social mobility through technology

Anthony Painter  
and Louise Bamfield

**POWER  
TO CREATE**

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The normal caveats about errors, omissions, etc being our responsibility apply. However, we are grateful for the huge help we received. It has helped make this a much better report than it could otherwise have been.

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## Foreword – Matthew Taylor

Since we presented an argument for the ‘power to create’ last year, Fellows and colleagues have expressed the need to better understand what this world view means in practice.

How can it be fleshed out to provide a stronger definition of what RSA stands for and provide some guidance to policy, organisations and even individuals? Through the Power to Create series, of which *The new digital learning age* is the first, we set ourselves the task of considering the practicalities of this question.

This first paper argues that we need to adapt our institutions to ensure that far more people have greater access to the skills needed if we are not only to reap the benefits of pervasive technology but also ensure that some of the downsides are mitigated. Only through radical change in the way we learn throughout our lives will we deliver the inclusive and socially mobile society that lies at the heart of the ‘power to create’ worldview.

There are important ideas in this paper. We rapidly need to develop a clearer and shared understanding of not only the potential of digital technology to narrow the achievement and creativity gap in schools but also how this can be practically achieved. There has also been considerable consensus about the need to create better connections between employers and schools. This is an issue that the RSA has championed in its research and through its Academies. The rapid pace of technological innovation, of the tools with which we work, create, connect and learn, makes this ever more pressing.

However these issues are by no means confined to the classroom; as has long been acknowledged there remains a chasm between employers and wider learning systems. The RSA’s ‘Cities of Learning’ recommendation sets out one way of creating a bridge between a rapidly growing spontaneous learning economy and real economic opportunity.

As an organisation, the RSA is in the unique position of having a network of 27,000 change initiators – our Fellows – supporting our work. Already Fellows and specialists in the field have contributed to the ideas and knowledge-base on which the report relies. We ask them now what they could do

in their professional setting or through civic activism to make some of these important ideas a reality.

Responding to this challenge would help make this publication a milestone and not a destination. Our Fellowship team will be in touch to suggest how this could work in practice. If you are not a Fellow and want to get involved, what better time to join us than now as we try to turn the ‘power to create’ vision into a society-changing cause.

Finally, I would like to express sincere thanks to Google UK Ltd for its support.

**Matthew Taylor, Chief Executive**



## Executive summary

Digital technology is already having an enormous impact on the economy and society. These impacts are not uniform. For some, a new vista of creative opportunity has opened. For others, they see the possibilities but have yet to fully realise the full potential that digital and other new technologies might offer. New technology is not a force of nature. Its impacts and who gets to share in its potential benefits are grounded in the choices we make as a society. The question is what are the right policy choices to enhance life opportunities for the greatest number as we experience widespread technological change?

There are three main groups that we have identified through a survey conducted by Populus who experience technological change in different ways:

- The **'confident creators'** who are adept at using new technology to develop their knowledge, creativity and social capital. They are confident in a rapidly changing technology environment.
- The **'held back'** not only see the benefits of new technology but they are using it to learn. They are ambitious and seek the chance to turn their ideas and hopes into reality and they are trying to work out how. However, they feel that they need more support, a greater level of learning and more confidence to make their hopes a reality. With some support they might just get there but as it stands they feel a sense of frustrated ambition.
- Finally, there are the **'safety firsters'**. This group is least engaged with new technology and the internet. It's not that they aren't connected; it's just that they see it less a part of their lives than the other two groups. They are not particularly satisfied with things but they do not see the world as particularly stacked against them in the way the 'held back' do. Without realising it, they may be missing out on opportunities to learn, progress and connect and, consequently, this may pose greater risks as the economy changes – risks they may not have acknowledged.

Currently there is a great deal of support for the role of technology in our society as evidenced in the survey. However, these groups face different opportunities and outcomes from the non-neutral (ie biased by the skills levels of individuals) spread of new technology. Whilst there are considerable benefits for many, there are also losses and risks for others – whether they see them or not. These risks include changes to the labour market that can make certain roles and work obsolete whilst downgrading the remuneration and status of others. How these opportunities and risks are spread, history shows, is significantly determined by how we respond collectively to technological change and how people are able to adapt as a consequence.

So public policy needs to widen its lens to focus on the interventions that will predominantly help the ‘held back’ realise their creative ambitions and help to ensure that ‘safety firsters’ are supported as technology spreads. These interventions begin early-on in life but must be continued throughout an individual’s working life.

The policy toolkit of narrowing the digital divide, introducing new technology into education, and promoting a rapidly growing technology sector have been critical. However, this report calls for leaders at national and local level to go much further if we are to ensure that the real benefits of new technology are to be democratically distributed. This is what we term *inclusive social mobility*.

There are three main strategic policy interventions that we propose:

- 1. A new approach to learning through and with new technology in schools.** We advocate new ways for teachers to work together in applying knowledge of what is effective in the use of digital technology in schools and being supported in that endeavor.
- 2. Greater frequency, quality and range of contact with employers for students.** This will be supported throughout the education system through improving careers networks developed in schools and beyond.
- 3. A new ‘city of learning’ initiative to expand formal skills and learning.** This approach is led by local leaders, employers, informal learning networks and institutions and increases skills-acquisition through

peer-to-peer as well as institutional accreditation. It is based on ‘open badges’ technology where an individual is able to demonstrate new learning and skills as they progress. Cities of Learning are already spreading across the US.

Inclusive social mobility seeks to improve the life chances of all from a young age in education, in work and in life; narrowing the gap in pupil attainment and broader life outcomes between those from disadvantaged backgrounds and their more affluent peers. This inclusive social mobility is not satisfied simply with greater mobility but nor is it about levelling down. It is about all enjoying access to power, resources and opportunity.

These recommendations constitute a relentless ambition to ensure a more inclusive form of social mobility – towards a goal of enhancing the Power to Create. That is a major challenge in an economy that is technologically biased towards particular skills. The inclusivity targeted here is a means of spreading the gains of technological change. It is a way of the UK taking full advantage of the opportunities that technological change offers without leaving people behind.

### **A note on the structure of this paper**

The core of this paper is an argument for significant system change in education, work, and wider learning. Underpinning these system-level recommendations are a number of insights and perspectives of how change can happen in a way that is distinctive from traditional policy making, which tends to be centre-led and hierarchical in form. This focus, termed ‘open policy-making’, ‘complexity policy’ or ‘collective impact’ concentrates on people’s motivations, the way they behave, current institutional structures, and how to cultivate impactful systems based on these starting points. We thought it necessary to be explicit about some of this underpinning approach.

For this reason, after laying out the technological changes that are influencing the social and economic environment, there is an analysis of the new survey data and then an outline of the policy-making approach that we have adopted. This should provide context for the interventions that are recommended in the final sections of the paper.

Finally, it is important to be clear about what this paper does not cover. We are not arguing that enhanced inclusive social mobility is simply a function of supply-side factors. The ability of the economy to develop sufficient jobs at higher levels of productivity, while impacted significantly by supply side changes, also rests on comparative advantage, science, technology, innovation and economic institutions. Moreover, the way in which individuals are able to resource and access formal learning is a very significant consideration. This latter question will be addressed in a forthcoming paper on changing the relationship between the citizen and the state, the background to which can be previewed in a recent blog post by Adam Lent and Anthony Painter entitled *Let citizens spend tax revenues rather than technocrats at the top*.<sup>1</sup> The means of building the economic asset base of individuals and households will be reviewed in a further paper to be written by Ben Dellot. Together, these papers are termed ‘Power to Create papers’ and they are aimed at collectively demonstrating how the RSA’s worldview – the Power to Create – has practical application. This paper should be seen in that broader context.

<sup>1</sup> [www.rsablogs.org.uk/2014/adam-lent/citizens-spend-tax-revenues-technocrats-top](http://www.rsablogs.org.uk/2014/adam-lent/citizens-spend-tax-revenues-technocrats-top)

# Introduction – on inclusive social mobility

New technologies can be great disruptors.<sup>2</sup> Disruption is non-neutral in its impacts: it re-distributes market, social and political power. This in turn shifts social values and interactions. Yet the risk is that technology and the change it induces is simply seen as an exogenous force which can't be shaped.

The argument of this report takes a different approach: the degree to which benefits of change are distributed and costs mitigated depends on collective institution building and adaptive public policy. If the infrastructure and the institutional environment is right then an inclusive and social mobility-rich form of technological change could be available to us. If we fail to adapt adequately, then there is a risk of a socially divisive and inequality-laden trajectory.

In other words, if the benefits of new technology are to be distributed more widely, we have to act smartly through the public sector centrally and locally, communities, and the commercial world. The goal should be an *inclusive social mobility* where all have the ability to pursue and accomplish their personal and creative goals.

The RSA is interested in exploring our individual and collective Power to Create. In philosophical terms, this approach rests on a notion of each being the 'author of their own lives'.<sup>3</sup> In essence, this means each and all possessing the ability to turn their ideas into a reality that has wider societal value. It is conceivable that new technologies could both stimulate greater supply of, and demand for, creativity – and help to develop the

<sup>2</sup> For the purposes of this paper we are interested in new technologies that have an impact on productivity, work, and learning. This includes any technology that connects people through their devices, automation of tasks, new emergent products that disrupt existing market relations, and new ways of aggregating, utilising and sharing data, services, knowledge, and assets.

<sup>3</sup> [www.matthewtaylorsblog.com/thersa/the-power-to-create-in-about-5-minutes](http://www.matthewtaylorsblog.com/thersa/the-power-to-create-in-about-5-minutes)

creative capacities that allow people to generate ideas that are new and valuable.

These ideas further enhance the ability of people to turn their ideas into practical reality. That practical reality is one in which people have the freedom and power to develop and improve their lives. In this regard, the Power to Create has a close alignment with inclusive mobility. Power to Create is a means, and inclusive social mobility is one of the outcomes.

To secure a society that epitomises the Power to Create, it is critical that the opportunity to pursue one's creativity is spread democratically across society (rather than simply at 'elite' levels). Digital technology creates abundant new opportunities but contains risks as well. This report acknowledges the potential risks but considers how, through the education system, through the interface between education and the world of work, and through supporting those in work, the chance to fulfil one's creative goals can be dispersed.

This paper's conclusion is that a significant change to the whole system of education, learning and career progression – enhanced by new opportunities afforded by digital technologies – is possible and necessary to develop greater inclusive social mobility. That is if the right policy interventions are made.

## Inclusive social mobility

A sustained focus on social mobility began in the Blair/Brown administrations but has been taken up by the Coalition with gusto. It was a core ambition of many of the senior members of the Government from 2010–15, not least David Cameron and Nick Clegg, and the agenda has been driven by the Social Mobility and Child Poverty (SMCP) Commission, chaired by Alan Milburn MP.<sup>4</sup> These debates have focused upon: (i) a notion of (selective) openness with career opportunities distributed in accordance with merit; (ii) the desire for a generalised upward trend

<sup>4</sup> There have been other accounts of 'fairness' within the Coalition. For example, Iain Duncan-Smith as Secretary of State for Work and Pensions was far more concerned in the 2010–15 parliament with stable family relationships and averting 'breakdown' than notions of mobility per se. These are nuances but notable ones.

of mobility, in a colloquial sense ‘each generation feeling better off than the last’.

**Overall, the UK has a mediocre level of mobility when compared with other similarly economically advanced nations**

In this regard, political advocates of social mobility appear to focus on what the academic literature would term *absolute inter-generational social mobility*. Essentially, this measures the degree to which incomes *and/or* social class in one generation compares with their parents across the population in aggregate terms. The social mobility public policy agenda is aimed at seeing greater numbers in higher occupational classes or income intervals over time. This is why fair access to university and the professions are such hot topics within the social mobility policy debate.

Academics in the field tend to take a different measure of social mobility, *relative intergenerational mobility* (Goldthorpe 2012). This measures the probability of an individual from one class ending up in a different class (or a different income interval) to their parents. Overall structural change in the workforce is then factored out to understand net relative inter-generational mobility. This measure captures underlying social forces of upward and downward social mobility (as it cuts both ways). This notion of social mobility lies at the heart of Michael Young’s famous satirical book, *The Rise of the Meritocracy* (1994). In this, a perfectly mobile society results in a disconnected elite legitimised by their own individual success. Losers, through what we would now term ‘loss aversion’, are highly discontented whilst winners are self-satisfied.

The debate has become even more complex as there is a ferocious academic debate about the direction of change of social mobility in the UK. Economists, in focusing on net inter-generational mobility measured by income, contend that social mobility is in decline (Blanden, Gregg and Machin 2005). Sociologists meanwhile paint a static picture in net inter-generational mobility for men and a slightly improving picture for women (Goldthorpe and Mills 2008). This analysis essentially concludes that the chances of an individual finding themselves in a different occupational class to their father, net of changes to the overall occupational structures, remains at best unchanged for men and slightly improved for women across the last half a century.

Overall, the UK has a mediocre level of mobility when compared with other similarly economically advanced nations (OECD). Recent data from Goldthorpe (2012) suggest why this might be the case. In the 1970 cohort of men of middle class origin (lower white-collar occupations), there is pretty much the expected 20 percent chance of ending up in each of five class destinations. However, 62 percent of men born in the top class end up in the top two classes. This compares to 23 percent of those born in the bottom classes (routine non-manual, lower and non-skilled manual). It should be noted, however, that 66 percent of men from the lowest class in the 1970 cohort moved to a different class position in total.

There is some movement, therefore, but it is unspectacular. These findings mirror the data assembled by Gregory Clark in *The Son Also Rises* (2014). Using a range of historical records based on surnames, Clark observed a great deal of immobility over generations. Slow change in this regard is nothing new.

Taken together, much of the evidence does suggest that the UK is unimpressive by international comparisons, has a mobility profile that is far from open, and, at the very least, is failing to improve mobility to any great extent over time. The conclusion is that for all the focus on mobility in public policy, it has, as yet, had little incontrovertible effect. It could well be that we will observe change over time as interventions over the last decade and a half to improve childcare, narrow the attainment gap between different socio-economic groups in schools, and greater access to university have an impact. This would not yet be apparent.

The SMCP Commission, working with the Resolution Foundation, has looked at intra-generational mobility as well as mobility between generations (D'Arcy and Hurrell 2014). This concern naturally suggests that we must take an interest in learning, access to market opportunities, wage and career progression.

If economic, educational and class privilege and disadvantage perpetuate across generations whilst people – those who are disadvantaged – are held back occupationally across the life-cycle, we have to question very seriously whether we are really a society that has the Power to Create. An uneven spread of opportunity and outcomes reflect an uneven spread of social capital and meaningful connectedness as well as individual talent (Allen 2013).



The levels of inequality that have persisted since the 1980s between the top and the bottom are an accompanying source of concern. Recent OECD (2014) data points to the gap between the top decile of income earners and the bottom to be higher in the UK than other comparable nations other than the US and Japan. Even if it were the case (a case that we don't accept) that nothing could be done to improve levels of social mobility, the consequences of failing to improve your income or social class – especially if you are born into a less affluent family – are even more severe in an unequal society.

That is why we propose a goal of *inclusive social mobility* which comprises four core elements:

1. A greater level of upward inter-generational absolute social mobility to align the UK more closely with the best international performers.
2. Within generations, progression is needed within classes and income intervals – especially at the lower end and middle of the class/income distribution.
3. Wide status and class distinctions undermine inclusive social mobility. This implies the need for a more democratic distribution of power, income and wider resources (including assets).
4. Greater access to beneficial networks, institutions, and opportunities to learn and acquire formal skills is important as a means to greater upward mobility and individual advancement.

Greater mobility is not enough alone. Inclusive social mobility means that the individual (in a community context) has constant access to the social, educational, and economic resources that enable them to pursue their creative potential. It also means that status and class distinctions in society are diminished as these ultimately hinder the open realisation of creative capabilities.

Social mobility and inequality are knotty problems but they shouldn't be put in the 'too difficult' box – despite disappointing levels of change over the last few decades. Fragmented learning settings, from school and beyond, to online learning communities and workplaces, could be brought together in a way that better meets the frustrated ambitions of many. The ultimate goal is to replace the *desire to create* we have

identified with a Power to Create. New technology blended with adaptive public policy is one of the means – albeit complex and uncertain and by no means the only set of changes that will be necessary – of securing the type of social change that a socially inclusive and upwardly mobile nation would expect to see.

The next sections establish how perspectives on new technology intersect and frame the discussion about social change. We then explore how this affects three key segments of society based on a new survey commissioned by the RSA. A series of systemic policy responses in school and beyond are suggested based on new understanding of how adaptive public policy can sustain positive change. We conclude by outlining a way that individuals, employers and education institutions can be mobilised to translate informal learning observed in a *spontaneous learning economy* into formal and marketable skills. Based on successful innovations in the US, through the spread of ‘open badges’ and Cities of Learning, we suggest a phased change to the system of learning throughout the lifecycle in the UK context.

All these interventions are designed to significantly improve inclusive social mobility through new technology interfacing with individual motivations and institutions. They are also a means of changing institutions to help individuals adapt to some of the threats posed by new technologies of different types. To achieve this will require a concerted and imaginative set of policy responses to which this report aims to make some contribution.

# Fast technology, slow institutions

Lying behind discussion about the economic impact of new technology is a deeper social story. It is important that this story becomes foregrounded. Technological and economic changes must ultimately be anchored in beneficial social change.

Technological and economic change rely on evolutionary public policy and institution building if greater social inclusion, engagement and mobility are to be secured. The public debate has been dominated by the macro economic benefits of new technology rather than the distribution of those benefits. In reality, the economic and social are related in a series of complex feedback loops.

There is now, in our view, a need to add a stronger social dimension to the public policy as it responds to and harnesses new technology. This aligns with broader government objectives around enhancing social mobility (though rarely in clear-cut or non-contested ways). The RSA Power to Create survey finds that, at present, there is a positive set of attitudes towards the impacts of the internet and new technology.<sup>5</sup>

**Figure 1**

## Attitudes to technology and the internet are generally positive ...

Respondents agree that technology can help to solve societal problems



Respondents agree that the benefits of the internet outweigh its risks



## ... But there are concerns about the distribution of those benefits

Respondents agree that society is increasingly divided according to those who can and cannot use technology

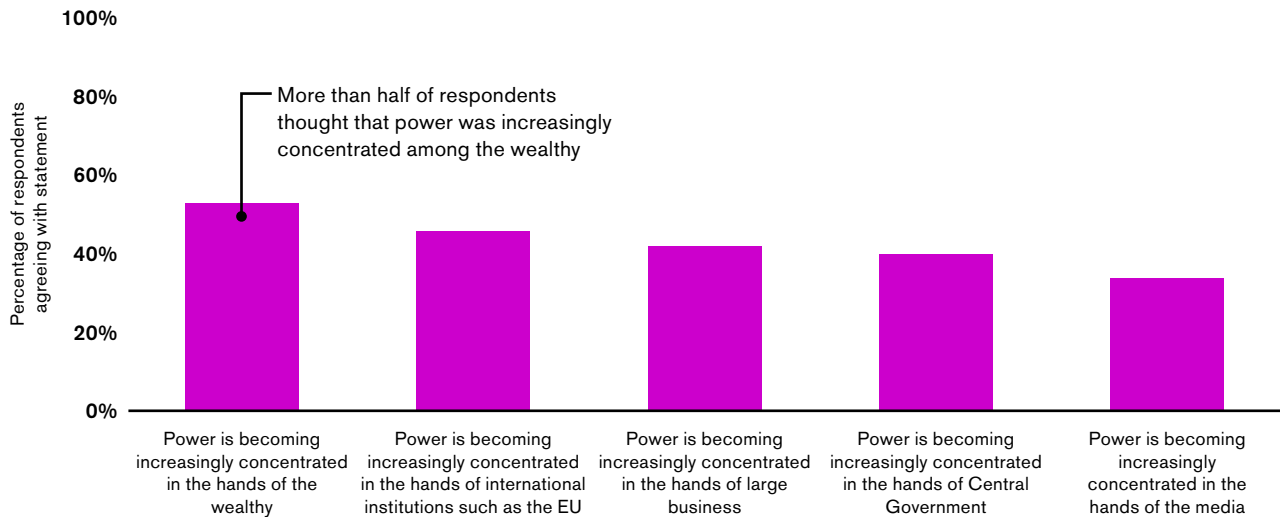


<sup>5</sup> Triangle on gauge indicates average of five-point scale ranging from 'Strongly disagree' to 'Strongly agree' with the statements above the gauge.

However, in line with the analysis of the benefits of change being increasingly unevenly distributed the following responses are instructive:<sup>6</sup>

Figure 2

Where respondents think power is becoming increasingly concentrated



There is an optimistic set of attitudes towards the internet and new technology in the main but very serious concerns about the distribution of the benefits both in general and as a consequence of new technology. It would be highly risky for these concerns to be left unaddressed.

Much of the public debate around new technology has focused on economic impacts. The tech sector is often viewed as a series of high productivity, high growth sectors and core skills such as coding, finance and clustering policy, for example, through Tech City, are seen in the context of the economic gains through a high potential productivity growth sector (Koss et al 2012).

More widely, Michael Porter (2014), the leading business strategist, sees a coming 'third wave' technological revolution as a consequence of smart, connected products (which has become colloquially known as the 'internet of things'). Jeremy Rifkin (2014) goes one step further in seeing these

6 The chart shows the top five (of ten) groups that respondents thought were holding increasing power. Less than 15 percent thought that power was either not changing or decreasing in concentration.

developments as a potential ‘eclipse of capitalism’ due to distributed production power, linked devices, and the sharing economy. He calls this the ‘zero-marginal cost society’. The economic frame is a powerful and important one. These views are examples of **tech-optimism**.

**We see surges of innovation and creative destruction but the benefits are not evenly spread**

There is also a broader debate about the historical, economic and social impacts of new technology. The economist Carlota Perez (2014) identified major technological leaps through the last two decades and their impact on society. Technological discovery is non-linear; it appears in surges. Each leap is followed by asset bubbles and concentrations of wealth and ownership. Eventually, leaders find ways of changing institutions to more evenly distribute wealth and opportunity.

It is a **tech-pragmatic** view and chimes with the outlook of John Maynard Keynes (1963): the short-term costs of technological change become long-term benefits as the economic problem (scarcity) is solved. The problem though is, whether Keynes’ long-term prophecy is realised or not, we are, as the pragmatists contend, in the midst of a period of friction and could well be for some considerable time. Keynes saw his era as one such period of friction. Ours could be too.

Two important concepts emerge from these analyses: non-linearity and skills-biased change. We see surges of innovation and creative destruction but the benefits are not evenly spread. **Economic and technological change is fast, public policy and institutional reform is slow.**

Erik Brynjolfsson and Andrew McAfee (2011), and others such as John Van Reenen (in Michaels, Natraj and Reenen 2010), describe a process of skills and talent-biased technological change. These are distributed in favour of those who have higher level non-routine information processing, creative, and analytical skills. In the words of Tyler Cowen (2013), the productive worker and the smarter machine are ‘stronger complements’ than before.

The key determining factor on the impact of new technology is the task content of a given job. Non-routine workers are more shielded from technological change than those who primarily undertake routine tasks (Autor, Levy and Murnane 2003). Data for the US jobs market has found a gradual hollowing out of routine work whether cognitive or manual.

Structural declines in non-routine, manual work have been reversed whilst non-routine, cognitive employment has considerably expanded (Autor, Katz and Kearney 2006). Brynjolsson and McAfee (2011, p165) reflect:

“Today’s information technologies favour more-skilled over less-skilled workers, increase the returns to capital owners over labour, and increase the advantages that superstars have over everyone else.”

This is a more pessimistic outlook (although there is a great deal of disagreement within the literature on the impact of new technologies on productivity). These effects have meant a ‘de-coupling’ of employment and wages from productivity growth. Andrew Keen in his *The internet is not the answer* argues that concentrations of digital ownership, the online mob mentality and a negative jobs impact have made the internet a ‘destructive’ rather than ‘disruptive’ force. Evgeny Morozov sees data, surveillance and new tools of social regulation and even control coming with the internet. It is important to be aware of both potential upsides and downsides if new technology is to retain its wider political legitimacy. The degree to which it is seen to have beneficial social outcomes is critical to this legitimacy.

The OECD (2013) has found there is a positive association of proficiency in literacy, numeracy *and* problem solving in technology-rich environments and the probability of participating in the labour market and with higher wages. The demand for information-processing and other higher level cognitive and interpersonal skills is growing. There is a need for 745,000 additional workers with digital skills to meet rising demand from employers (Development Economics and O2 2013). Someone with web skills is 25 percent more likely to find work and, once they are in work, they are likely to earn ten percent more than those without (Magowan and McDonald 2013).

UKCES (2013) forecasts that people with hybrid skill-sets, such as technology and project management skills, are likely to be in demand and workers will need to continue training to develop new skills throughout their careers. Already, different groups are responding to the different opportunities and challenges afforded by technological change in different ways. The following section outlines how.

# Social divides and new technology – the RSA Power to Create survey

In recent years, the survey data available on use of the internet has grown considerably. The most impressive of the available datasets is the Oxford Internet Survey (Dutton, Blank and Groselj 2013). This has shown a consistent deepening of internet penetration, growth of skills, and ever more sophisticated use of new technology. According to the most recent survey, 74 percent of internet users rate their internet use skills as good or excellent (including 92 percent of students). All teenage respondents to the survey now use the internet with the numbers of adult users ranging from 94 percent to 85 percent of those aged 18 to 54 years old. The public policy objective of closing the ‘digital divide’ (ie access to the internet) is becoming less relevant than an objective of narrowing the utility divide (ie how people use new technology). This is a mark of success.

For the RSA Power to Create survey, we were aiming to supplement these insights with some wider comparisons of attitudes to, and use of, new technology related to other life goals, motivations, and attitudes. The data is a randomly selected sample of 2,000 UK adults and was taken in summer 2014. Respondents were drawn from Populus’s online panel and answered circa 150 questions covering demographics, attitudes towards having ideas, ability to put them into practice, power, technology and the internet, design and enterprise, public services and community, education and creativity. The questions were based on current RSA thinking and discussion about the Power to Create, RSA change programme plans, Populus’ question bank, and external studies on applied creativity (eg Adobe State of Create report, 2012). In addition to basic survey data analysis, segmentation analysis was undertaken by Logit Research. The segmentation was based on a selection of key questions within the total question set.

We are interested in predominantly working age segments for the purposes of this report given a social mobility focus (as opposed to, say, a well-being or social activism focus). There are two further segments making up the remaining 39 percent of the survey sample but they mainly comprised of those in the late stages of their working lives and in retirement. Our focus, for the purposes of this analysis, is on those groups who are in the early and middle stages of their careers. And they are:

- **‘Safety firsters’.** Thirty percent of the population as a whole. These are moderately ideas-oriented. They don’t generally believe power is becoming more concentrated and disagree that there are technology haves and have nots. They are more dissatisfied about their lives than the average. They have relatively low usage of the internet, particularly for accessing interesting information, information about local/national issues, or for accessing knowledge/expertise they can put to practical use. ‘Safety firsters’ are more likely to be *consumers*.

**[‘The held back’] are more ideas-motivated than ‘safety firsters’ and, on average, are more likely to believe that more can be done to turn their ideas into reality**

- **‘The held back’.** Twenty percent of the population. They are more ideas-motivated than ‘safety firsters’ and, on average, are more likely to believe that more can be done to turn their ideas into reality. They are more likely to believe power is becoming too concentrated, particularly in hands of big business, the wealthy and the media. They are the least satisfied with their lives as a whole. Very entrepreneurially minded, they often think about starting a business and look for opportunities to do this. This group is more likely to have high use of the internet, particularly for educating themselves about an area of expertise. They feel constrained but aspire to have a greater degree of control on their ability to create.
- **‘Confident creators’.** Eleven percent of the population. The most ideas orientated group. They are more likely to believe people like them are likely to make a difference. They are the most pro-technology group, and confident of their ability to turn a business idea into reality. This group is more likely to use the



internet, particularly for developing new contacts for opportunities, blogging/posting, selling a service, engaging in campaigns/politics. They are the most likely group to live in London.

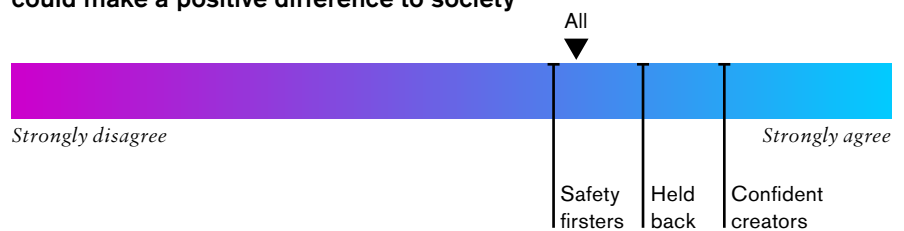
Essentially, a well-targeted public policy strategy would tend to focus its economic growth support strategy on the ‘confident creators’ (as indeed it is doing). Economic *and* social gains are best achieved through targeting the ‘held back’. And targeting support on the ‘safety firsters’ would create more social than economic gains – initially at least.

As will be explored further below, these are not either-or choices. They are part of a comprehensive set of policy and institutional interventions designed to maximise the beneficial economic and social impact of new technology. Given our interest in spreading *social* as well as *economic* benefits of new technology, it is natural to concentrate on the ‘safety firsters’ and the ‘held back’ in this analysis.

First, we see that in terms of ideas generation, the ‘held back’ are pretty much at the mid-point between the ‘confident creators’ and the ‘safety firsters’ (scale is one to five, where five is strongly agree and one is strongly disagree) but ahead of the average by some margin:

**Figure 3**

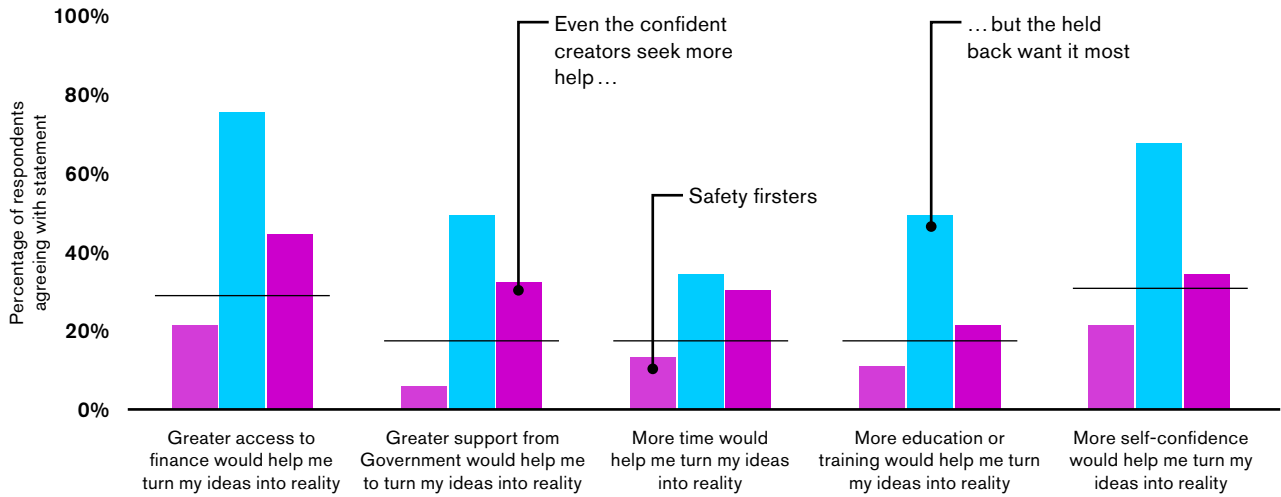
**I consider myself to be someone who has new and workable ideas that could make a positive difference to society**



But these ‘held back’ are seeking more support that they don’t feel they are getting:<sup>7</sup>

<sup>7</sup> Horizontal lines indicate percentage of \*all\* respondents.

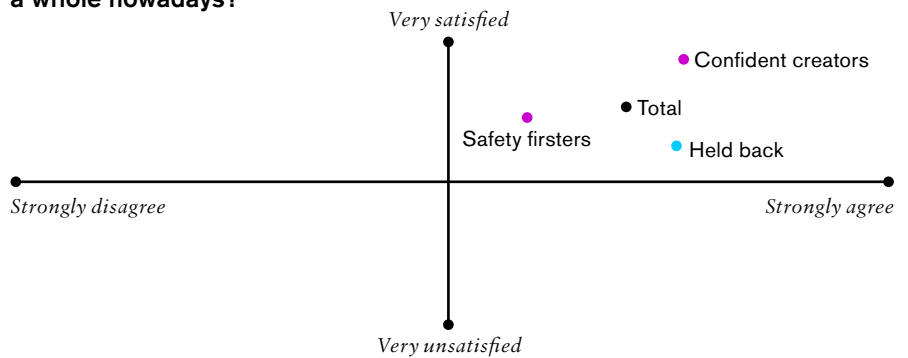
Figure 4



As a result of these frustrations they are very likely to see unequal concentrations of power and wealth in society. Seventy-nine percent of the ‘held back’ see power and wealth becoming more concentrated in the wealthy (compared to 53 percent in total and 22 percent of ‘safety firsters’). Sixty-six percent of ‘held back’ see the same process with regards big business (compared to 42 percent overall and 13 percent of ‘safety firsters’). This is underlined by a view of society in which people are increasingly divided by their technological capability but this attitude relates differently to the life satisfaction of the ‘confident creators’ and the ‘held back’:

Figure 5

All things considered, how satisfied or unsatisfied are you with your life as a whole nowadays?



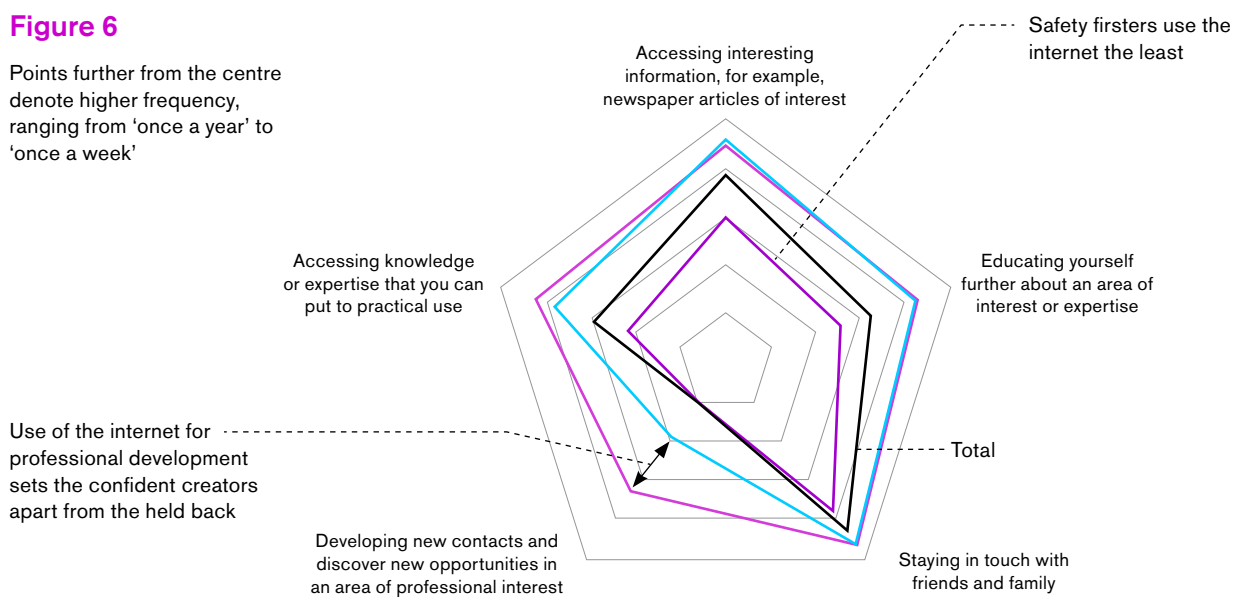
Society is increasingly divided into those who can use new technology and those who cannot

This is a picture of a group or a ‘segment’ of society that has creative ideas but needs greater support from government, banks, the learning system, and their support networks to have the confidence to make these ideas a practical reality. Inadequacy of support is sapping their enthusiasm and potential. But are these ‘held back’ just dreamers without the drive or capability of following through? The evidence does not suggest this is the case. They are actively seeking to improve their lives and, what is more, they are turning to new technology, in which they have some faith, in order to do it. The table below is on a ten-point scale (one is never; nine is at least once a day) on use of the internet:

**Figure 6**

Points further from the centre denote higher frequency, ranging from ‘once a year’ to ‘once a week’

**POWER TO CREATE**

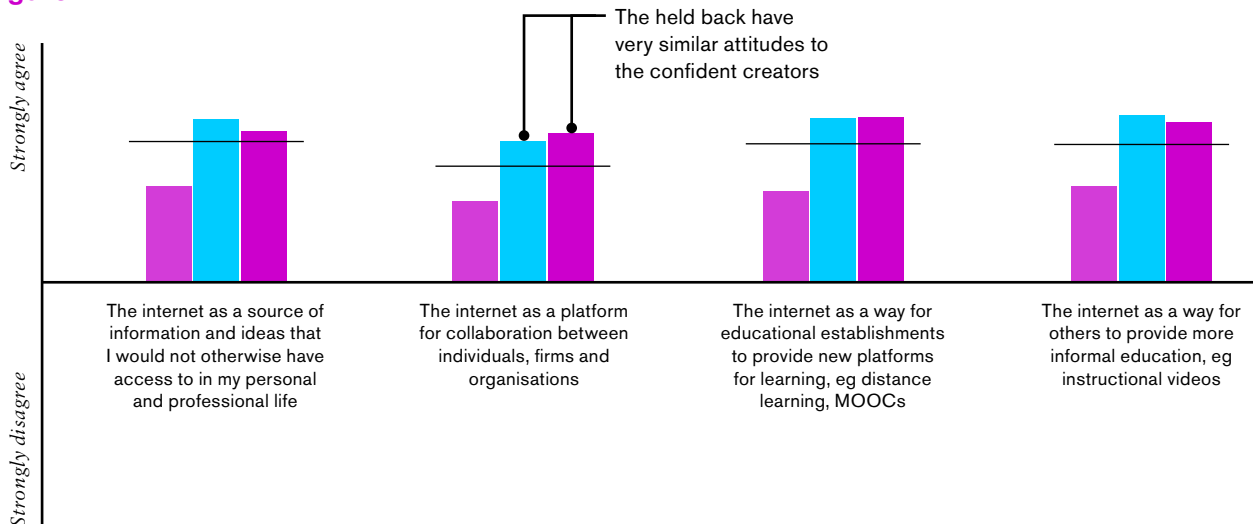


The ‘safety firsters’ are much less regular users of the internet. The ‘held back’ tend to be looking for information and accessing knowledge and expertise but less likely than the ‘confident creators’ to use it for professional networking.

However, the ‘held back’ are very likely to see the internet in very positive terms as a means of advancing knowledge and learning, including on an informal basis. The table below is on the five point scale. (A note of caution is necessary. These were prompted by perceived benefits so the table is most useful for assessing relative positivity between groups rather than absolute levels per se.)<sup>8</sup>

<sup>8</sup> Horizontal lines indicate level of agreement for \*all\* respondents.

Figure 7



When we take into account behaviours (ie frequency and type of use) and views of positive impacts, there is an opportunity here to engage many who are ‘held back’ in new forms of learning, connection, and skill development. The ‘held back’ have very similar attitudes and behaviours towards new technology to ‘confident creators’. At least, they are more similar to ‘confident creators’ than to the ‘safety firsters’. They are willing to learn and try out new things but are looking for greater support. However, positive attitudes towards new technology are visible across the board. There is undoubtedly an opportunity. It would appear that the opportunities are realised mainly by a relatively small segment – the ‘confident creators’.

This is the fundamental public policy challenge in the context of social mobility: how can these benefits be spread? Isolated policy initiatives are inadequate to the task. What is needed is a whole system change in education, in the transition to the working world, and within the working world itself. That requires a different approach to public policy itself.

# Adaptive public policy

The attitudes to life, work, technology, and wider social issues revealed in our survey reflect deeper challenges on the social mobility front. Given formidable challenges, there will need to be deep and adaptive changes to public policy. This mirrors some of the emerging approaches to deep change – in terms of impact, openness, and mobilisation – that are becoming recurrent themes in public policy discussions.

The concept of the state as rational hierarchy is increasingly challenged by three overlapping policy-making approaches:

- **Openness.** This operates through a range of approaches. There are open data and information which allow wider involvement in institution design. And open policy making deliberately seeks out stakeholder voices in policy design so that implementation considerations are moved upstream in the policy process, mitigating risk of failure further down the line.
- **Devolution.** Policy formation has, to a limited degree, become increasingly located at a more local level. This is visible in the ‘metro’ discussion and within the post-NHS Act 2012 strategy of NHS England. In the NHS *Forward View* (2014), NHS England lays out a suite of models for local NHS systems to adopt and adapt. The centre provides a steer and suite of options, but local preferences and circumstances evolve the response. The major national political parties are all committed to devolution in some form. The devolution impetus can also be observed in the approaches of public bodies such as the Big Lottery fund, which has focused on community and place-based capacity development.
- **Human-centred design.** In this approach, institutional clusters are designed around people; not just as bundles of ‘need’ but as active contributors to wider well-being. Pioneering in this regard are agencies or units focused on design thinking such as Policy Lab in the UK, Sitra in Finland, and Mindlab in Denmark. It

is seen within the Troubled Family programme and, in the voluntary sector, in Participle’s ‘relational’ welfare approach. Human-centred design focuses on people as social actors with behavioural biases instead of purely rational actors in alliance with the ideal-types drawn from classical economics. The RSA itself has focused on ‘social productivity’ (Kippin and Lucas 2011). All these concepts forcefully argue that value is co-created between ‘users’, ‘customers’ and ‘recipients,’ and ‘services’, ‘entitlements’, and ‘structures’. These relationships all require trust and generosity.

Achieving system change relies on a different form of leadership. Peter Senge, Hal Hamilton and John Kania (2014) see the core of new leadership as being centred on enabling others within the system to adapt. They quote Ronald Heifetz on adaptive leadership:

“As Ronald Heifetz has shown in his work on adaptive leadership, these leaders shift the conditions through which others – especially those who have a problem – can learn collectively to make progress against it.”<sup>9</sup>

Systemic change and leadership require the ability to see the whole system rather than isolated elements of it. It requires the ability to develop trust over time through deep and empathetic learning. It requires a shift from reactive problem solving to a collaboratively created different future. Such leadership is capable of operating with the long view in mind (closing the gap between rapid technological change and slow institutional development).

There are clearly broad opportunities to expand mobility and social welfare through such sustained policy responses – and our proposals are grounded in this adaptive thinking. It is a complex policy environment (Colander and Kupers 2014). A complex policy approach focused on the role of institutions, sees technology as fluid and changing, takes an evolutionary stand-point, and understands that needs and capabilities are highly variable. Colander and Kupers (2014, p24–5) describe government’s role in such an environment as follows:

<sup>9</sup> [www.ssireview.org/articles/entry/the\\_dawn\\_of\\_system\\_leadership](http://www.ssireview.org/articles/entry/the_dawn_of_system_leadership)

“Opening up new institutional space allows agents to develop new coordination institutions to better use the evolving technology. Government’s role here is to create an eco-structure of freedom that encourages the exploration of that new institutional space, and by doing so enlarging the solution space to make way for innovation.”

Such an approach is intrinsically evaluative. There is also scope and even some requirement for failure within the system. The role of both central and local governing institutions, such as NHS England has done in the case of the *Forward View*, is to help the process of evidence evaluation and build knowledge of successful approaches. It also may, without creeping into

heavy output management, help to define failure and intervene where it is manifested and not corrected.

**The state becomes about coordinating, resourcing, knowledge development, supporting innovation and engaging**

These themes are central to Sir John Elvidge’s concept of the ‘enabling state’: empowering citizens, co-production, trusting people to find solutions, adapting to particular circumstances, integrated, and sharing

of responsibilities (Carnegie UK 2014). Elvidge’s instinct is for the state to be hands off: to get out of the way whilst providing resource support. There are some similarities with the socially productive state (RSA) and the ‘relational state’ (Cottam IPPR). Whilst the language revolves around the ‘state’, in fact it is about seeing the state as one player amongst many. The state becomes about coordinating, resourcing, knowledge development, supporting innovation and engaging. However, it also gets out of the way when it needs to.

One approach to this new policy making is *collective impact*. It is defined as follows:

“The commitment of a group of important actors from different sectors to a common agenda for solving a specific social problem.”

This agenda is developed as follows (Kania and Kramer 2011):

“Collective impact initiatives involve a centralised infrastructure, a dedicated staff, and a structured process

that leads to a common agenda, shared measurement, continuous communication, and mutually reinforcing activities among all participants.”

The description ‘common’ seems a better fit than ‘centralised’ in the above quote. Nonetheless, the basic concept is that new collective spaces are developed between multiple agencies. These collective spaces have an outcome-focused strategic and operational purpose that is far deeper than the thinner notion of multi-agency partnership. An example of collective impact is the Strive network in Cincinnati and Northern Kentucky.<sup>10</sup> Over 300 local leaders came together to develop a systemic response from ‘cradle to career’ by pooling the strengths and resources of all their organisations. Participants that join Strive develop a common agenda, measurements, co-learning, alignment of activity, and accountability. Educational outcomes have rapidly improved as a result even in a time of financial stress.

Applied to the social mobility context, these new policy approaches provide a guide to the types of systemic policy that may work. In the field of education, it involves considering the range of influences on a child’s development and increasing the capacity of the education system to improve and evolve as a self-learning system. As the child moves into further education, higher education and employment, new sets of players such as employers, colleges and universities become important: what should be done to smooth this pathway? As the individual enters the world of work how do their networks, the welfare system, employers and their own skills and motivations interplay to continue their development so that they are able to continue to progress and match their aspirations and capabilities to new opportunities? And how is this achieved without the state trying replace or replicate much of the spontaneous learning, community formation, and new networks that are already out there and growing? We explore all these areas in the coming sections and suggest interventions which, taken together, align with this new approach to adaptive policy.

<sup>10</sup> [www.strivetogether.org](http://www.strivetogether.org)



# The role of education and technology in social mobility

Education is widely seen as a key driver of upward social mobility, as the education system promises a route out of poverty and disadvantage for those children who are able to demonstrate success in exams and high status qualifications (HM Government 2009; 2011). And yet, despite this promise, studies show that the overall effect of the UK education system as it currently stands is to reproduce, or even exacerbate, existing inequalities in society (Francis and Wong 2013). Research reveals a wide gap in children's learning and development, which emerges early in life and then widens during primary and secondary schooling, resulting in stubborn attainment gaps by the end of compulsory schooling (Hills and Stewart 2005; DCSF 2009). These inequalities have lasting repercussions, as young people who leave school with low or no qualifications have a much higher risk of suffering from unemployment, ill-health and poverty in later life (Hills et al 2010), while the more affluent and privileged young people tend to be well positioned to enjoy the 'bright side of a crafted future' (Gratton 2011).

The key question for this report is whether the use of digital technologies and the development of digital capabilities can help to break intergenerational cycles of poverty and disadvantage and achieve a more *inclusive* form of social mobility – which focuses on improving the relative life chances of all children and young people, rather than just lifting the most talented and 'deserving' individuals into top positions. Alongside narrowing the gap in formal attainment, we argue that it is also vital to enhance young people's personal and social development as well as promoting a broad set of creative capacities, if both the 'safety firsters' and the 'held back' discussed in chapter three are to flourish. To rebalance the system in favour of both greater mobility and greater inclusion, we consider below how to raise the system-wide capacity

of learning institutions, applying notions of public policy as evolving eco-systems.

In particular, we focus on two main ways that enhanced digital capability can promote greater mobility and a more inclusive society: first, by contributing to improved teaching and learning, to help narrow the social class gap in formal attainment which shapes and constrains future pathways and outcomes; and second, by closing what we call the ‘creativity gap’ between those who have access to a creative life – who are empowered to make the most of opportunities, tools and resources to turn their ideas and aspirations into reality – and those who are locked out due to inequalities in wealth, status and education.

In the next section below we begin by reviewing the evidence from the most recent studies examining the use and impact of digital technology to improve learning outcomes, before going on to identify six main priorities for action.

## The potential contribution of digital technology

Tech enthusiasts and tech sceptics take rather different views of the contribution that digital technology can make to inclusive social mobility: while the latter are sceptical about the cost-effectiveness and transformational power of new technologies, enthusiasts lament the slow pace of change, calling for a more radical overhaul of schooling and education, with some even warning that schools may become irrelevant without urgent action to close the technology gap between young people’s digital engagement at school and in the rest of their lives (Attwell 2007). In between these opposing positions, we adopt a more cautious but open perspective, recognising that technology can be used to complement and enhance forms of teaching and learning, rather than replace traditional models entirely, not least because the evidence base is not yet strong enough to warrant a wholesale transformation of teaching and learning (Higgins et al 2013, p4).

Drawing together findings from multiple studies, meta-analysis shows a small positive effect of digital technology on pupil outcomes (Higgins et al 2012). According to the Sutton

**Studies show that technology-based interventions can be especially powerful when used in focused and time-limited ways**

Trust-EEF Toolkit,<sup>11</sup> the use of digital technology is associated with moderate learning gains for pupils, amounting to an additional four months of learning on average. To date, evidence shows considerable variation in impact across different studies and interventions, highlighting the importance of ongoing evaluation to monitor how well technology is being applied in the school and classroom (Sutton Trust-EEF 2014, p13).

Promisingly, targeted use of technology to provide intensive learning support has been shown to be particularly beneficial in supporting lower-attaining pupils, those with special educational needs and those from disadvantaged backgrounds to catch up with their peers (Higgins et al 2012, p4). Studies show that technology-based interventions can be especially powerful when used in focused and time-limited ways (eg over a course of five to ten weeks), whereas longer-term use appears to be less effective in boosting attainment (ibid).

In principle, therefore, digital technology has a potentially powerful role to play in contributing to social mobility by narrowing the attainment gap between disadvantaged pupils and their peers. As things stand, however, there are no guarantees that the use of information and communications technology (ICT) will automatically lead to more equal life chances. In practice, more effective teachers tend to use more innovative approaches and use ICT resources more appropriately (Higgins et al 2012). Given the unequal distribution of resources and high quality teaching staff across the system (Ofsted 2013), there is a risk that the uneven use of technologies under current arrangements could actually widen rather than narrow gaps in pupil attainment. It follows that efforts to build digital capability and promote the use of digital technology need to go alongside a sustained focus on improving the quality of teaching across the board and ensuring effective models of professional learning and development in all parts of the country, with a particular focus on coastal and rural areas which currently perform less well than the main urban areas.

Our analysis points to six main priorities for action to ensure that digital technology has a sustained, positive impact

<sup>11</sup> The Sutton Trust and Education Endowment Foundation (EEF) Teaching and Learning Toolkit is an accessible summary of educational research which provides guidance for teachers and schools on how to use their resources to improve the attainment of disadvantaged pupils.

on teaching and learning *across the system* to achieve both greater social mobility and inclusion:

1. Taking a learning-centred and developmental approach to technology.
2. Developing a broader set of creative capacities for learners.
3. Building capability and engagement amongst educators.
4. Setting strategic direction and ensuring value for money.
5. Building systemic capacity to innovate.
6. Connecting with communities and the world of work.

### 1. Taking a learning-centred and developmental approach to technology

As a first priority, making the best use of digital technologies in schools and colleges to promote inclusive social mobility needs to start by putting the horse before the cart – that is, **by taking a learning-centred and developmental approach to technology**, instead of taking a *technology-centred* approach to learning. This means focusing first and foremost on desired learning outcomes and the appropriate teaching methods to meet them, and only then on how technology can enable and accelerate learning. A learning-centred approach is both developmental and contextual: that is, it is informed and inspired by a rich understanding of how people learn (rather than simply knowing what technology can do) and the support needed to meet the developmental needs of different learners. Taking account of wider social, cultural and environmental factors means recognising that some groups of children and young people are more vulnerable to poor social and emotional development and online risk, due to poor attachment in early childhood or because of exposure to difficult or abusive relationships (Livingston and Helsper 2007). More vulnerable and disadvantaged children need targeted support to help strengthen their social and emotional foundations of learning and to enable them to engage with technology in a beneficial and enriching way.

Putting learning first and technology second means focusing on the types of learning approaches that will help students develop all the elements of digital capability; not just the technical and operational skills needed to access and use

technology, but also the broader cognitive, social, emotional and creative capacities that allow them to make discerning judgements and engage in more powerful ways.

## 2. Developing a broader set of creative capacities for learners

Recent research identifies four main types of internet skills and digital capability (Van Deursen et al 2014):

1. **Operational or technical** skills, such as connecting to a network, downloading and installing apps.
2. **Informational** skills, such as knowing how to search for information and assess the appropriateness and reliability of results.
3. **Communication** skills, such as feeling confident in posting comments or contributing to a forum, knowing how to protect one's privacy and share appropriate personal details online.
4. **Content creation** skills, ranging from basic skills such as putting video content online to advanced skills such as designing a website.

It follows that digital capability encompasses much more than purely technical or operational skills. As well as the ability to log on to a network, search for information and make connections with other users, being a competent and confident digital learner requires the cognitive and emotional maturity to make judgements about whether information is reliable and comes from a trustworthy source, and to decide whether specific content or online behaviours are morally and socially appropriate.

Thus, rather than treating digital skills in isolation, schools and colleges are advised to take a developmental approach, which explicitly recognises that individuals at different ages and developmental stages, growing up in different material conditions and family circumstances, have varying levels of capability, maturity and motivation to engage with digital technology for learning and other purposes. From a developmental perspective, the neurological systems for controlling physical movement (such as fine motor skills), social and emotional behaviour and making mature judgements are not yet in place during early childhood and develop over time into early

adulthood. Just as younger children need help in crossing the road safely in the non-digital world, they need guidance and support in using the internet in a safe and appropriate way, with gradually increasing opportunities to exercise autonomy and independence as they get older (Byron 2008).

**Developing this broader set of capacities requires a more sophisticated, design-led approach to education and innovation**

What is more, in a rapidly changing social and economic landscape, the ability to convert digital skills into tangible outcomes calls for a broader set of creative and enterprising capacities, which are needed to generate original ideas, generate new ideas, design new content or software, sell or market products and services, and convert ‘soft’ social media communication skills into human capital (OECD 2010). While important, **the new computer sciences curriculum**

**tends to focus on technical skills such as coding, but there is also the need for a much wider lens, which encompasses this broader set of creative capacities.** Such capacities are important both for achieving conventional outcome measures of social mobility (income, occupation and social status), and also contributing to a greater sense of fulfilment and emotional well-being by giving people the Power to Create – by which we mean the resources, motivation and capability to generate original and valuable ideas and make them happen.

Developing this broader set of capacities requires a more sophisticated, design-led approach to education and innovation beginning in primary school (Livingstone 2012). Such an approach recognises that multi-modular, digital literacies are ‘in a deep and profound sense new literacies, not merely the traditional concept of literacy – reading and writing – carried on in new media’ (Kress, cited in Gillen and Barton 2010, p6). This calls for more practical and experiential approaches, including learning by doing, making and designing (Luckin et al 2012). Of note here is the CREATE skills framework developed by the Studio Schools network, under which students work on enterprise projects commissioned by external partners, such as a health report for a local hospital or business brief for a local employer, with the aim of creating learning that is authentic and integrated into the local community. While these programmes are still in their infancy, established models such as High Tech High in San Diego, a partner of the Studio Schools Network, have demonstrated considerable success in using hybrid learning

models to stimulate creative approaches amongst students and staff. What is striking about such examples is how much broader and richer the curriculum can be for students when they are given the chance to take on real-world challenges and come up with innovative solutions to problems, rather than focusing on a narrow set of learning outcomes.

**Recommendation:** We recommend that teaching school alliances, in partnership with pedagogical experts and tech specialists, lead the way in developing a model of learning through digital technologies to inform schools, parents and other educators. This model should guide approaches to learning in the classroom and beyond, drawing on robust evidence from established and emerging models and programmes to highlight the specific learning experiences needed to develop digital literacy, as distinct from literacy and numeracy.

### 3. Building professional capability and engagement

Studies show that students have high expectations about the use of technology, which only a very few teachers manage to meet (IfL 2010). Higher education students report concerns about the ICT competence of teachers and lecturers, with one-fifth of students calling for additional staff training and two-fifths requesting more and better use of ICT in their lectures and tutorials (NUS 2010). Various reasons are suggested for the limited take-up and variable use of digital technologies, from lack of confidence and ability, unfavourable dispositions and resistance by teachers, to practical and organisational barriers such as time pressures and lack of training and support.

Although much of this appears to be anecdotal, there is evidence to suggest that teachers' attitudes are changing (Haydn and Barton 2008), and the majority are now confident and positive about the potential of ICT to improve teaching and learning outcomes (IfL 2010). The biggest needs reported by teachers are for more training in how to make best use of technology and finding time to really explore its potential (IfL 2010). Although digital tools may help to ease workload pressures over the longer term, the perceived or hoped-for benefits may still not be enough to overcome the initial costs of time and energy (Luckin et al 2012, p56).

At present, in budgeting for the costs of technology, schools rarely make allowance for the ‘additional training and support costs which are likely to make the difference to how well the technology is used’ (Sutton Trust-EEF 2014, p13). Ultimately, training activities will only be effective if education leaders protect the time that educators need, not just for a one-off training session on how to use a particular technology, but through a structured programme of professional development activities, providing on-going support on how technology can best be used to improve teaching and learning outcomes (Sutton Trust-EEF 2014).

Research highlights the benefits of professional collaboration, for example when groups of teachers participate together in a cycle of joint lesson planning and observations (Timperley et al 2007; BERA-RSA 2014). Digital networks create new possibilities for peer learning, with virtual learning environments (VLEs) identified by teachers as the most used tool for sharing good practice and connecting with new ideas and insights from other settings (IfL 2010). There is also strong evidence about the value of inquiry, to give teachers structured opportunities to generate, test and trial new ideas and so develop new paradigms for learning which engage and motivate all students (Timperley et al 2007; Cordingley and Bell 2007; Cordingley et al 2007; Robinson et al 2008).

**In our view, the best way for schools and colleges to leverage the technology base is through a culture of creative, collaborative inquiry through which teachers are able to make evidence-informed decisions and consider what tools and strategies are most appropriate to meet particular learning needs.** In particular, we believe that there are significant mutual benefits to be gained from combining the three principles of collaboration, creativity and evidence-informed inquiry: purposeful partnerships provide the chance to connect with valuable new ideas and robust evidence; having a culture of inquiry stops both collaboration and creativity being weak or woolly; while developing creative capacities and organisational conditions ensures engagement and motivation in learning for both students and teachers, and helps generate the valuable new insights that can drive progress and improvement over time.

Above all, successful use of technology for learning depends on professional *engagement*, conceived as ‘motivation – enthusiasm, interest and ongoing commitment’ on the part



of teachers and lecturers to explore the potential of technologies in their practice (Vogel cited in Atwell and Hughes 2010, p44). As we argue further below, professional engagement and motivation are most likely to be sustained when institutions create the conditions for disciplined innovation, recognising that people are more likely to be motivated and engaged if have the chance to explore ideas and issues that are important to them, rather than following a rigid set of instructions.

Achieving such a culture depends on sustained focus and investment in teachers' professional development, both at the school and system level. Both school governing bodies and Ofsted have a role here in the way they assess leadership and management in the context of how well they develop teachers' capacities in this field.

#### 4. Setting strategic direction and ensuring value for money

The education sector has invested heavily in new technologies, with schools and colleges spending hundreds of millions of pounds each year on ICT provision.<sup>12</sup> Commentators worry that equipment may be languishing as 'kit in the cupboard' rather than being actively used to enhance learning (Luckin et al 2012). The 2011 Review of Education Capital highlighted significant problems with the 'cumbersome' approach to capital investment in schools, describing the capital allocation process for school buildings and ICT provision as 'complex, time-consuming, expensive and opaque' (James 2011, p5).<sup>13</sup>

<sup>12</sup> According to the Department for Education's *Review of Education Capital* (James 2011), maintained schools spent £487m on ICT equipment and services in 2009–2010.

<sup>13</sup> In particular, it drew attention to the bureaucracy and confusion created by multiple funding streams, resulting in 'serious inequity between different areas ... because those best at winning bids will often receive the most funding, rather than those with the greatest genuine need' (James 2011, p31). To reduce inefficiency and inequity in the provision of ICT, it called upon central government to 'develop a clear market strategy for the provision of internet services to schools, taking into account value for money and internet service standards', including a 'clear menu of core and additional Regional Broadband Services for schools [to] allow them to select and pay only for the services they need'. In addition, it recommended that the support model for ICT procurement be reviewed, 'to reduce external consultancy costs and provide direct central advice, supplemented by tools and guidance for individual institutions and education providers' (ibid. p62).

Whilst recent reforms have reduced some of the complexity and opacity in the funding system (DfE 2013), there is still more to be done to ensure that the full potential of educational technologies is realised. With ICT expenditure by schools set to reach an all-time high in 2014–15<sup>14</sup> (following falls in investment after the previous high in 2008/9),<sup>15</sup> there is even greater need to ensure value for money and demonstrate that new technologies are having a significant and sustained impact on student outcomes. Agencies such as the Education Endowment Foundation (EEF) could help filter out poor value technologies and promote better value interventions.

School leaders and governing bodies have a vital role to play in ensuring effective use of capital expenditure on ICT and Pupil Premium funding to support teaching and learning strategies for disadvantaged pupils.

**Recommendation:** Before any new investment is made, we recommend that schools and colleges conduct an audit of existing ICT provision to review its impact and cost-effectiveness. To assist governing bodies in this task, we recommend that an audit tool and guidance be produced for school governors, to allow them to monitor impact and make judgements about ICT requirements in a more robust and strategic way – including deciding what not to continue doing. This assessment must be embedded in teaching and learning.

## 5. Building systemic capacity to innovate

Research highlights the difficulties of scaling up innovation in all parts of the education system without diluting the impact (Raudenbush 2003, 2008). Studies suggest a pattern of impact and behaviour over the lifecycle of an innovation, where

- 14 The survey of 1,238 UK schools (731 primary, 507 secondary) which was conducted in July 2013 found that in the school year 2014/15 schools forecast their ICT expenditure will be higher in cash terms than at any other time on record. Investment in hardware replacement, peripherals, software and technical support will reach £14,220 per primary school and £65,570 in each secondary school.
- 15 The previous highest estimate of technology expenditure was in 2008/9 when allocations averaged around £14,000 in primary schools and £65,400 in secondary schools. This totalled an expenditure on ICT across all UK maintained schools of approximately £320m. From 2009/10, average ICT budgets across all schools fell year on year until 2012/13 when secondary maintained schools indicated a 1.8 percent rise in technology expenditure.

**The long-term priority is to develop a culture of disciplined innovation based on the principles of creative collaboration and evidence-informed inquiry**

the early stages are characterised by high enthusiasm and a strong pedagogical focus, whereas later adopters may not bring the same energy or focus, resulting in reduced efficacy (Rogers 2003; Higgins et al 2012). The goal of scaling up and embedding innovation throughout the education system is particularly challenging in the case of digital technology, given the time lag between the rapid development of new ICT products and services and the much longer periods of time needed to conduct robust trials and establish evidence of significant and sustained impact.

Changing educational practice to achieve a significant and sustained impact on student outcomes is by no means easy. A common scenario is one where, ‘educators end up trying to implement innovations they do not fully understand, in organisations that do not fully support their efforts’ (Guskey, cited in Timperley et al 2007, p12). Against a backdrop of changing social needs and economic demands, all schools, colleges and learning institutions must be ready to respond and adapt more quickly through processes of disciplined innovation. Whereas ‘islands of innovation’ may emerge within the existing system, the education system of the future will need to meet the challenge of scaling up by **developing systemic capacity to innovate**. As Michael Barber expresses it: ‘In essence, education systems need to think like ‘lean start ups’, becoming ‘more adept at generating, identifying and scaling innovation internally’ (Barber, Donnelly and Rizvi 2012).

Successfully developing new approaches and sharing effective practice within and across organisations depends on achieving the right balance between innovation and consolidation. At a policy and managerial level, staying power is needed so that priorities do not continually shift to the ‘next big thing’, undermining the sustainability of changes already under way. For schools, colleges and other learning communities, the long-term priority is to develop a culture of disciplined innovation based on the principles of creative collaboration and evidence-informed inquiry, to allow for experimentation, testing and trialling of new ideas, as well as the sharing of effective practice and embedding well-evidenced techniques.

**Recommendation:** To build systemic capacity to innovate, system leaders need to ensure that educators have the chance to innovate and test new ideas, giving them space and confidence to try things that may not work without fear of failure. Once the model of digital learning and the mechanisms for raising digital technology teaching capacities are in place, then the system should be left to evolve without any abrupt changes for a period of five years. The system is designed to learn, evolve and scale without major top-down intervention.

## 6. Connecting with communities and the world of work

Finally, schools need to find ways of harnessing technology to open up the world of learning and enable pupils and teachers to tap into the wealth of expertise that exists beyond the school gates. Education, community and business leaders all have a role to play in helping to make connections between learners in different settings and allowing more fluid boundaries between formal institutions and other spaces, such as businesses, workshops, laboratories and design studios. Online platforms and networking sites can help promote earlier, richer and more meaningful engagement with the world of work, beginning in primary schools, so that children and young people have broader horizons and are better equipped to make successful transitions into adulthood (Bamfield, Hallgarten and Taylor 2013). For example, in Nesta's recent review of digital education (Luckin et al 2012),<sup>16</sup> the most highly ranked innovation was an online portal linking learners to real-world challenges set by companies. As this and other innovations illustrate, industry, businesses, NGOs, cultural organisations and the wider community can all enhance

<sup>16</sup> Nesta's review of digital innovations consisted of a tailored systematic review of academic sources, which collected over 1,000 publications reporting research-led innovations, from which 124 were identified as being based on sound evidence. In addition, the research team reviewed a pool of over 300 teacher-led innovations, drawing from a wide range of informal literature, including personal blogs and teacher networks, from which a further 86 example cases were selected. A representative sample of 150 innovations were then selected from the total pool of 210, which were scrutinised by a group of experts comprising teachers, researchers, company representatives and policymakers to provide a collective view of which offer the greatest potential to advance teaching and learning (Luckin et al 2012, p11).

teaching and learning by providing resources and expertise which are not generally available in schools and colleges.

In the next section, we explore this interface between education institutions and the workplace further, as well as widening focus to considering continuing development through adulthood. The relatively disappointing impact of education on inclusive social mobility should not turn our gaze away from the importance of education institutions in addressing persistent gaps in achievement and progress. However, it should serve as a reminder that a single golf club approach to improving inclusive social mobility will be insufficient. There needs to be a comprehensive approach to these challenges that continues into adulthood. We map out what this approach might constitute.

# Into work: digitally enhanced social mobility

This paper has been at pains to avoid techno-utopianism. Amidst a series of claims about the putative benefits of digital technologies to enhance learning and mobility throughout life, evidence has often been rather scarcer. However, we are starting to see real change and to understand some of the potential for digital technologies to enhance the capacities of existing institutions to facilitate greater progression and mobility. Inevitably, the tech sector itself is a pioneer in this regard. Online learning platforms such as Udacity bring together industry specialists with learners to develop accredited competences. Github brings coders together to co-work, network and develop skills further. Inevitably, the target for these initiatives are the ‘confident creators’ that we identified in our survey. The challenge is how to widen the beneficial impact of digital technologies to provide better support and access to learning networks for the ‘held back’ and ‘safety firsters’.

The previous section analysed how the capacity of the education system could be enhanced to better develop a range of digital skills – not least for the least advantaged and the professionals and institutions who educate them. This section looks at how these skills can be deployed in a practical setting to enhance mobility. We continue to take a whole-system approach, ie considering the linkages across a range of institutions. It is increasingly the case that new institutional spaces are being opened up through digital innovations. Udacity, Github, and Khan Academy are some of the more notable examples. However, although often unseen, people are increasingly learning through digital technologies in very simple ways. YouTube and advice boards, for example, have become enormous platforms of learning. Learning is shared peer-to-peer through the language learning platform italki and the general skills learning exchange platform, Udemy (which claims four million students and

20,000 courses). This is the appearance of a *spontaneous shared learning economy*.

The question is how this learning could develop from personal interest into the demonstration of competence that leads to career opportunity and progression.

At a theoretical level, digital technologies could be powerful facilitators of mobility. Social capital is a critical component of mobility. The open, peer-to-peer aspects of the internet create spaces for relationship building, knowledge dissemination, and practical learning. However, these benefits may only accrue to those who already have privileged access to these assets. Unless there is a serious attempt to extend these assets to others, it is conceivable that new technologies could exacerbate rather than dampen inequalities. In this sense, the beneficial potential of new technologies is dependent on the institutional environment in which they sit. This in turn relies on a thicket of public policy choices and wider social initiatives. As Rebecca Eynon and Ellen Helsper (2011) point out:

“Non-participation in adult and lifelong learning is deeply entrenched with ‘trajectories’ based on class, gender, generation, ethnicity and geography and are established at an early age.”

These are significant headwinds. These institutional innovations in and of themselves do not unpick such deeply embedded structural inequalities. However, starting with the transition from school to the workplace, and then furthering learning for those in work and looking to enter or re-enter the world of work, these institutional innovations open up new networks of support, learning and career development. In other words, they have the strong potential to enhance the system-wide support for mobility, with a caveat that that there are limits to the extent these changes can reach those who have become completely disengaged. The changes in the previous section, and in the transition from school to work recommended below, are designed to help prevent that disengagement in the first place.

## 1. Bridging education and work

Research shows that frequent contact of different types between students and employers can have a powerfully beneficial

impact on the future earnings of the student. One study shows an extra 4.5 percent of median annual earnings associated with each ‘additional school-mediated employer contact’ (Mann and Percy 2013, p19). The same study considers that the key feature of employer contact for students is the social capital that is developed rather than the technical skills per se (there isn’t often time to develop such skills in any context such as work experience). Moreover, those with the most frequent contacts obtain the highest benefit. Mann and Percy conclude:

“Those young adults earning a full-time annual salary who experienced four or more employer contacts whilst in education could expect to earn, on average in their early 20s, 18 percent or £3,600 more per year than their peers, qualified to similar levels, who undertook no activities during their schooling.”

This ‘frequent contact’ hypothesis underlines the importance of employer and educational establishment relationships as a means of underpinning mobility. It also underlines the importance of fairly weak but frequent ties. These ties can be facilitated through work experience, employer talks, mentoring, employer-led projects and prizes. There is an important potential role for linking in employers with students on a voluntary advice and support basis (this could take place within a school, youth centre, further education or higher education setting). The innovative use of new technology could and should facilitate these engagements beyond the local and the available.

Ofsted (2013) has criticised careers guidance in schools for being patchy. There is a severe disconnect between young people and the labour market. There is poor knowledge of the range of careers that exist and what is required of students. The signals from the labour market are muffled. Youth transitioning has become more disorganised, polarised, and more precarious. There needs to be a system wide intervention rather than leaving it to individual schools or individual careers advisers.

A funnel of careers advice and support has been recommended by the Gatsby Foundation (2013). This involves each school developing and publishing a careers policy for which they would be inspected (by Ofsted with support for the



National Careers Service or NCS). Beyond this, the linkages that can provide valuable access to networks, knowledge, and support need deepening. The Gatsby Foundation calls for the NCS to be expanded to extend access to ‘Labour Market Information for All’,<sup>17</sup> broaden its direct involvement with schools, and create further linkages between employers and schools through industry associations. The online platform would be key for fostering frequent but potentially shallow linkages that still help to develop social capital amongst those disconnected from high-value networks. The Association of Colleges has proposed careers hubs led by Local Enterprise Partnerships in each area.<sup>18</sup> These hubs would be schools, colleges and university partnerships. They could supplement any expansion of the NCS and be a key gateway to its resources.

The CIPD emphasises the benefits to be accrued for both learners and employers in these relationships (cited in Oxenbridge and Evesson 2012):

“It’s not only young people needing to learn about the world of work, how to fit in and fulfil employers’ expectations. It’s also about employers and HR professionals, more specifically, learning about today’s digitally skilled youth.”

Late in 2014, the Government announced funding for a new company to link employers and educational institutions.<sup>19</sup> This company will have a network of advisers and would aim to improve the standard of careers advice in schools. This intervention is a start but will be insufficient in itself to increase the system-wide capacity. In addition, the NCS should be tasked with learning from the best interfaces between employers and potential recruits from the commercial sector in order to develop direct interactions between employers and students. This is particularly important in industries where there is no local base or organisational experience to rely on, so students who may have an interest are not given an opportunity to engage without access to these broader networks.

<sup>17</sup> See [www.lmiforall.org.uk/about-lmi-for-all/](http://www.lmiforall.org.uk/about-lmi-for-all/)

<sup>18</sup> See [www.feweek.co.uk/2014/09/15/education-secretary-under-pressure-to-establish-careers-hubs/](http://www.feweek.co.uk/2014/09/15/education-secretary-under-pressure-to-establish-careers-hubs/)

<sup>19</sup> [www.academiesweek.co.uk/morgan-announces-employer-led-careers-advice-company/](http://www.academiesweek.co.uk/morgan-announces-employer-led-careers-advice-company/)

**It is a formidable task to open up the same career pathways for all that are enjoyed by a few**

UKCES has noted the potential benefits from supplementing careers advice with online provision: the provision of information and resources; the provision of automated interactions which use artificial intelligence to do some of the jobs that were previously done by careers advisers; and the provision of tools for communication which could facilitate engagement with careers advisers, employers, peers and wider kinds of personal and professional networks (Bimrose and Barnes 2010). It is the last of these benefits that requires significant development in accordance with the ‘social capital’ model of careers progression.

And in a later paper – *Enhancing Choice* – the advice was that this should be pursued through stimulating and regulating the careers market whilst correcting market failure in accordance with policy goals (Hooley, Hutchinson, and Watts 2010). One of these goals is social mobility. Tristram Hooley (2014) recently wrote:

“If it is going to support social mobility, it is important that those from lower socio-economic backgrounds have access to at least as much career support as those from higher socio-economic backgrounds and that there is a concerted effort to support everyone to develop the skills that they need to pursue their careers online.”

The *Enhancing Choice* (2010) report counselled against a ‘single website’ or ‘online solution’. There is sense in this but the NCS could support development of a range of solutions and link them together for ease of navigation and verification of quality. It is a formidable task to open up the same career pathways for all that are enjoyed by a few. However, further enhancing and developing employer-education links to widen potential access to professional networks is one contribution that institutions such as NCS, with best use of available networks of knowledge, could make. It builds on the development of digital skills throughout the education system that was outlined in the previous chapter. It helps to link education outcomes to adult outcomes.

**Recommendation:** Given the positive impact on career progression of additional employer contact, the NCS should be tasked

with working with industry bodies to ensure web platforms are created to link learners directly to employers, beyond relationships brokered by education institutions themselves. LEP-led local hubs could supplement such online platforms.

**Recommendation:** Utilisation of additional employer linkages must form part of careers development policy in a series of education settings. This could be promoted and monitored by Ofsted, the NCS and the new employer-education careers company.

## 2. The spontaneous shared learning economy

Adult participation in learning has followed a remarkably consistent pattern over many years. NIACE (2014) tracks engagement in adult learning each year. It shows that the portion of the adult population who have engaged in some form of learning in the past three years was 38 percent in 2014. In 1996, it was 40 percent. The picture is static and learning tends to be skewed towards professional occupations, of whom 68 percent have engaged in recent learning as compared to 28 percent in elementary occupations. Despite the fact that the acquisition of new skills and competences can have such an impact on market position, it is clear that learning becomes even more unequally distributed through the life-cycle. Inclusive social mobility as a policy would seek smart ways of addressing this inequality. David Hughes (2014), chief executive of NIACE, identifies four key challenges:

“Four big issues shout out at me from our work with people of all ages: there is low demand from people in work for skills; a lack of investment in low-paid workers by employers; Government investment is too rigidly focused on big qualifications rather than skills attainment; and, people have too little say and control about what, where and how they learn.”<sup>20</sup>

<sup>20</sup> <https://news.tes.co.uk/further-education/b/opinion/2014/12/05/the-39-perfect-storm-39-in-the-skills-system-is-damaging-hopes-of-economic-recovery.aspx>

This call for more sensitive and flexible forms of learning is key to the need to focus public policy on particular groups. As has already been demonstrated, the ‘held back’ are a key target group given their desire to learn and their concern regarding the barriers preventing them from doing so. It is not a matter of only targeting this group but, given their behaviours towards learning (including in an online setting) and their motivation, there is a key opportunity that is likely to secure both economic and social gains. The question is how to link those who are motivated to learn (and many ‘safety firsters’ are similarly inclined to learn) perhaps informally initially to more formal systems of accredited skills development that are so important for career and wage progression. Eynon and Helsper (2011, p2) hint at where the initial connection may occur:

“Policies designed to support individuals’ everyday interests as opposed to more formal kinds of learning are likely to be more effective in increasing people’s productive engagement with online learning opportunities.”

They go on to argue:

“Technology does not in itself make people more likely to participate. Yet we argue it can facilitate existing predispositions to finding out new things even amongst those who do not wish to engage with traditional formal learning environments.” (p5)

We have seen how there are very significant groups motivated to seek out knowledge, skills and learning in an online setting. There has been a flowering of the informal learning economy. In order to further develop interests, millions are taking to YouTube, which must be the most extensive online learning platform currently in use. The Labour Party commissioned independent policy document, *Making Digital Government Work for Everyone* (2014), explains how local networks are spontaneously proliferating:

“Citizens can of course just get on with things themselves and use the power of consumer-facing digital services to create their own local information

infrastructures that talk about local public services and public policy challenges. This can be seen in thousands of local websites, twitter feeds, Facebook pages, and Tumblrs where people talk about the good and not so good aspects of the places in which they live or work.”

The point here is that people use this infrastructure to learn from their peers also. Just take the Sheffield Forum website.<sup>21</sup> It has 177,000 or so registered users. Its business and employment forums are a lively exchange of advice and guidance on setting up a business, acquiring new skills and qualifications, offers of expertise and support, and sign-posting to organisations and agencies that can help with careers advice and skills development. Sheffield Forum hosts discussions for a whole series of local groups, such as the Sheffield Crafts Group, which offers free classes and peer-to-peer support.

More widely, interest-focused websites provide information, guidance and support on a wide range of areas, many of which have commercial application as well as hobby development. The point is that people are engaging in the informal learning economy *en masse*.

Professionals use these global information learning networks to continue their learning and development. Coders display their latest work, collaborate with others, and further develop their skills through Github. Much of this learning may take place within companies. The *Shift* network<sup>22</sup> – a global social information, learning, innovation and problem-solving intranet – run by Cemex is often quoted. Interestingly, Cemex now awards badges for employees who use and contribute to the network extensively.

There is a mass proliferation of learning networks locally, by interest, and within companies. The concept of rewards is a key one to encourage learners through a pathway. The recently founded Tech City initiative, Digital Business Academy, has partnered with world leading education institutions, major brands, gazelle-like digital firms and many others to provide courses that, upon completion, open up rewards (such as invitations to free master-classes, mentorship and the opportunity

<sup>21</sup> [www.sheffieldforum.co.uk](http://www.sheffieldforum.co.uk)

<sup>22</sup> [www.theshiftnetwork.com](http://www.theshiftnetwork.com)

to be fast-tracked on an internship). What some of these initiatives have the potential to do is open out some of the closed circles of the meet-up culture. Opening out closed circles is critical to extending social mobility.

By engaging interest, creating pathways and catalysing motivation through rewards and opportunity, individuals can be supported in their development in new and effective ways. The challenge in a public policy setting is to support the spontaneous learning economy and consider ways to widen its impact in

**The public policy challenge is to support the development of spontaneous learning rather than seek to replace it**

order to ensure that what may simply start off as an interest might lead to the acquisition of demonstrable skills and, beyond that, formal learning that has wider value. When we consider both individual motivation and the plethora of easily accessible learning opportunities there is scope for thinking of

the informal learning economy as the starting point for more inclusive social mobility. The public policy challenge is to support the development of spontaneous learning rather than seek to replace it.

We cover how this might be achieved with an ambitious re-design of adult learning systems – institutions, employers, accreditation and the desire to learn and create – in the next section. However, given the proliferation of the spontaneous learning economy, the success measurement of any systemic public policy intervention must be the degree to which it widens and deepens engagement in learning on a continuous basis. The RSA survey (as detailed in previous sections) did demonstrate a degree of interest and motivation amongst all three groups – ‘safety firsters’, the ‘held back’ and ‘confident creators’ (albeit more strongly in the latter two groups). So the policy aim should be to realise this potential. This should not be a target as such. It is simply a way of measuring the outcomes of a policy over time and its impact on the capacity of the system.

**Recommendation:** The spontaneous learning economy should be supported and nurtured to widen and deepen its impact on participation in adult learning of all types.

### 3. A nation of learning

In the summer of 2013 Chicago's Mayor, Rahm Emmanuel, launched a City of Learning initiative. The basic idea was to persuade those aged up to 24 to use the summer months to continue learning rather than slipping back. Up to this point it sounds like pretty much any other public campaign. But this one was rather different.

In fact, it contained several of the elements of new public policy approaches we have identified: a framework-setting style of public leadership, an open approach, devolved provision, and a focus on the service users themselves. One hundred thousand learners engaged in the initiative. It is too early to evaluate the impact on learning but there is little doubt that it worked in its primary goal of increasing learning activity. The initiative has now become year-round and it has been replicated in several other US cities: Columbus, Dallas, Los Angeles, Pittsburgh and Washington DC. There are many distinctive elements to Cities of Learning.<sup>23</sup> The programme overview is as follows:

“Each City of Learning creates a citywide network of free or low-cost learning opportunities at parks, museums, libraries, and other local institutions, as well as opportunities to learn online. Participants earn digital badges for the new knowledge and skills they acquire.

Cities of Learning are anchored in the principles of Connected Learning, an interest-driven approach designed to make learning relevant for our times. Youth from all backgrounds can explore new interests, develop creative and intellectual competencies, and begin to see how they can apply their talents in the real world.”

Underpinning Cities of Learning and the related ‘connected learning’<sup>24</sup> concept is precisely the type of adaptive, institutional eco-system centred on individual needs which must underpin the Power to Create. Connected learning encompasses three learning principles and three design principles. The learning principles are ‘(personal) interest powered’,

<sup>23</sup> [www.citiesoflearning.org/](http://www.citiesoflearning.org/)

<sup>24</sup> [www.citiesoflearning.org/why-connected-learning/](http://www.citiesoflearning.org/why-connected-learning/)

‘academically oriented’, and ‘peer supported’. The design principles are ‘openly networked’, ‘production centred’ (it is about creating, designing, experimenting and producing), and a ‘shared purpose’ (people coming together to share skills in order to confront common challenges). A relationship in terms of ethos can be observed here between connected learning and the spontaneous sharing and learning economy. The difference is that connected learning goes one step further and reaches from interest-based learning into formal accreditation and then to value creation in a wider economic sense.

One of the most significant components of this approach is the technological core – badges. Badges are an open standard, carrying meta-data about the skill, the level, and the awarder. The open-source software organisation, Mozilla, has led the development of open badges with partners such as the MacArthur Foundation, Hastac, NASA, and Intel. They are an open standard to recognise, accredit and verify learning. They can be used in any learning setting where a competence has to be demonstrated and accredited: schools, colleges, in the work-place, online, in community organisations and so on. Essentially, they are a verifiable digital learning currency. Collections of badges are accumulated in a shareable online ‘backpack’.

The question is how widely badges are accepted by individuals, employers and education institutions. The growth of the movement is very significant. Mozilla estimates that the number of badge issuers has grown from 98 in 2013 to 14,000 independent issuers, as of summer 2014. It estimates that open badges will be carried by about four million people by the end of this year and Mozilla has made a commitment to reach ten million users by the end of 2016.<sup>25</sup>

Both the technology and its use are advancing continuously. In the UK, City&Guilds is integrating open badges with its Techbac qualification framework.<sup>26</sup> A number of higher and further education institutions are looking at integrating badges into their study environments. A study into attitudes towards badges at Sheffield Hallam University had generally positive

<sup>25</sup> [www.skilledup.com/insights/do-open-badges-matter-to-employers-or-admissions-officers/](http://www.skilledup.com/insights/do-open-badges-matter-to-employers-or-admissions-officers/); [www.badgealliance.org/blog/10-million-better-futures-through-open-badges-commitment-made-at-cgi-america-2014/](http://www.badgealliance.org/blog/10-million-better-futures-through-open-badges-commitment-made-at-cgi-america-2014/)

<sup>26</sup> [www.cityandguilds.com/~/\\_/media/Documents/what-we-offer/techbac/TechBac%20customer%20presentation\\_June%20pdf.ashx](http://www.cityandguilds.com/~/_/media/Documents/what-we-offer/techbac/TechBac%20customer%20presentation_June%20pdf.ashx)



responses (Glover and Latif 2013). The Nominet Trust backed DigitalMe project has adopted badges, as have employers such as NASA and Disney-Pixar. DigitalMe, which promotes badge-accredited skills, would be a key partner in any wider roll out of badges in the UK.

Badges are used in both strategic policy settings such as the Cities of Learning and in workplaces and other educational settings. The point is that they supplement existing learning environments. Structured and immersive learning in an institutional setting would be enhanced rather than diminished through their adoption. The package of skills that nests within existing qualifications could be drawn out and evidenced. There is no limit to the level of skill that badges can be applied to – they are completely flexible. Issuers can be accredited by a range of bodies and other accredited peers, making the system, once widespread, self-regulating (the value of the qualification rests on the reputation of the accreditor).

Employer-led demand and the willingness of existing learning providers to engage with badges would be critical to a successful connected learning initiative. This is a wider aim than the US initiatives that have focused more on public institutions and young people. Employer demand will be an important signaling device for learners too. Firstly, it indicates market value. Secondly, it could be a means of tracking employer demand and transparently communicating that to individuals and institutions as any Cities of Learning programme develops. Data about badge demand could help drive learning as a consequence. Firms would be included in the initiative and encouraged to help their employees acquire badges.

The Cities of Learning policy design comprises the following key elements:

- **Leadership.** The Mayor establishes the framework, acts as coalition builder and communicator-in-chief. It is about energising and co-ordinating a system linking public, private and civic networks, institutions and organisations.
- **Persuasion.** This is characteristic of this new type of leadership. Rather than co-opting a system, instead political leadership galvanises an eco-system. Persuasive leadership percolates throughout the

system as businesses, networks and institutions become active and outward facing.

- **Infrastructure.** However, this is not just a smart campaign; it relies on smart infrastructure too. At the core is a skills and competence accreditation system that takes interest to formal demonstration of capability that could have market value. The infrastructure is founded upon open badges which are awarded by peer-verified individuals and institutions.<sup>27</sup>
- **Openness.** Anyone within the age-group can participate. A simple website helps individuals navigate the range of learning opportunities on offer and the badge awards that are open to them. The initiative also utilises public spaces, such as libraries and the city's parks, as well as an online platform. Access is absolutely critical. This initiative reaches beyond traditional in or out institutional barriers.
- **Institutional pluralism.** The Cities of Learning approach pulls together the city's array of educational, civic, commercial and social networks to focus on the learners' progression. This acknowledges the pluralism of learning settings. The learner is able to navigate the city as an eco-system of learning in a way that meets their needs and interests rather than as a set of pre-determined, funding or bureaucracy defined pathways.
- **Developmental.** The shift from interest to accredited skills and learning is crucial. However, there is more than this on offer. As badges are accumulated further learning and skills are suggested (through the web platform or through advice within learning networks and institutions). This encourages the learner to view skills development as continuous and developmental. As we saw in the case of the Digital Business Academy, rewards (special, bespoke, privileged learning and networking opportunities) are opened up as further incentive and encouragement.

So the architecture of this approach is social, institutional and technological. It is difficult to map across from younger groups to the 'safety firster', 'held back' and 'confident creators'

<sup>27</sup> [www.openbadges.org](http://www.openbadges.org)

segments in our survey, but given the intrinsic motivation to learn amongst the latter two groups especially, this open architecture approach could offer benefits in terms of inclusion, progression and then mobility. It rests on the insights gained from new leadership and new approaches to public policy.

The question becomes whether these developments are simply best left to organically gather pace, alongside the new shared learning economy, or whether there is a role for public policy in extending their impact. An important first principle of public policy is ‘do no harm’. Therefore, any approach must support rather than co-opt initiatives such as DigitalMe and the shared learning economy. With this in mind, there are a number of recommendations that should be considered to evolve the adult learning environment. There is no reason why the focus should be under 24 years old alone. In fact, there is a strong argument for these initiatives to be more widely available. The approach would be as follows:

- a. A series of Cities of Learning pilots should be established with a web platform created (which could be facilitated by the Government digital service (GDS)) but led by local leaders to promote engagement with a range of local learning communities, employers and institutions. This platform should be built around open badges. There will need to be a coordinating body, perhaps deploying an independent organisational model such as Start-up Britain.
- b. Job Centre Plus and Work Programme primes should be encouraged to involve their ‘clients’ in these initiatives. Where digital skills are weak, digital skills support should be offered (to be completed after the ‘client’ is in-work if necessary).
- c. Careers advice, support courses and badges should receive some priority in these pilots as they do in the US Cities of Learning.
- d. Once these pilots have been established and evaluated the movement should then be extended locality by locality. An important aim in every case is linking up what is there and connecting it to the open badge infrastructure.
- e. Finally, the network could have a national online presence in order to aid navigation. This should not

become an agency in its own right – it is about helping individuals, employers, learning providers and networks navigate the eco-system. This final step would be at the end of a five-year developmental period.

In essence, these proposals re-design the learning and skills system in a way that makes it coherent, based on simple standards, linked with what currently works, and fosters innovation. It supports initiative in the voluntary, public and private sectors. In a future Power to Create paper, we will also be outlining a significant movement of public learning financial resources to individuals. The supply side changes advocated here aligned with strong local and national leadership are targeted at meeting the aspirations of the ‘held back’ who are seeking greater support. For the ‘safety firsters’, it provides some basic and flexible first steps to improving knowledge and skills. By transferring resources to the individual, our aim will be to support the demand side further.

These recommendations constitute a relentless ambition to ensure a more inclusive form a social mobility. That is a major challenge in an economy that is technologically biased towards particular skills. The inclusivity targeted here is a means of spreading the gains of technological change. It is about providing a legitimate form of democratic technological change.

# Concluding comments

Technology is a pervasive force. It has very rapidly moved from the economic sphere into the social and personal sphere. This change is opening up new opportunities and creating new risks. Despite this pervasive change, the public policy discussion has been rather contained and, in many ways, stubbornly situated in isolated discussions. There is now a need to see technological change – the digital revolution, biotech, data and processing technologies, and advanced robotics – as a fundamental force of social change.

This paper has touched on a number of institutional adaptations necessary to disperse the gains and diminish the risks of rapid technological change. It has centred on learning from childhood to retirement. At its core is an observation and conviction that people will have to adapt in ways we can't currently imagine and they need smart, personalised, and relevant institutional supports in order to do so. We know that 'confident creators' will have a head-start. The challenge is to ensure that the 'held back' and the 'safety firsters' can also thrive whilst acknowledging their somewhat different needs and, to a certain extent, expectations.

Essentially, whether it is the changes we have advocated in schools, to the connection between employers and learners, or through the recommended Cities of Learning programme, this is about using digital technology itself as a means of adapting to technological change. It requires the right social, institutional and personal resources for this promise to be realised.

Technological change is not the only force impacting on the future ability of society to develop and democratise the Power to Create. Economic changes, structural inequalities, the way in which public institutions provide a foundation for the creative life are accompanying challenges. In each of these arenas, complex institutional evolution will be equally necessary. This will be explored in future Power to Create policy papers to be published throughout 2015. With any complex web of policy challenges, the analysis has to start somewhere.

Inclusive social mobility will inevitably, though not solely, be bound up with changes to learning and educational institutional systems and that has been the focus here.

Our hope is that the ideas contained within this paper can be taken forward and adapted as necessary. As a society, there is a great deal of work that lies before us – and policy-led change is one response to a complex and changing environment. It is just one response, but an important one if we are to steer change towards the type of society we wish to see.

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# Annex 1

## Power to Create survey summary

In the summer of 2014, the RSA commissioned Populus to carry out a representative sample of 2,000 adults across the UK to explore the RSA's Power to Create concept. The data represents a single snapshot as of summer 2014.

Respondents were drawn from Populus' online panel and answered circa 150 questions covering demographics, attitudes towards having ideas, ability to put them into practice, power, technology and the internet, design and enterprise, public services and community, education and creativity. The questions were based on current RSA thinking and discussion about the Power to Create, RSA change programme plans, Populus' question bank, and external studies on applied creativity (eg Adobe State of Create report).

In addition to basic survey data analysis, segmentation analysis was undertaken by Logit Research. The segmentation was based on a selection of key questions within the total question set. A number of segmentations were proposed, and after discussion a five segment solution was selected as being the best fit to the data and allowing for the clearest description.

### Segment 1 – 'Safety firsters' (30 percent)

- averagely ideas orientated
- least likely to think that the UK is an innovative country whose people have many great ideas to make the world a better place
- slightly more likely to feel they do not face any particular barrier to turning an idea into reality
- don't generally believe that power is becoming concentrated
- disagree that there are technology 'haves' and 'have nots'
- more dissatisfied with their lives than average
- have relatively low usage of the internet, particularly for accessing interesting information, information about local/national issues, or for accessing knowledge/expertise they can put to practical use

- the segment that reports the lowest score on the importance of future products being designed so they can be re-used, shared, or recycled rather than becoming waste (this segment has the only ‘below average’ score); and are less likely to knowingly spend more for a product that is environmentally friendly

They are more likely to be:

- single or co-habiting
- aged 18–54 (not retired)
- in social class C2 (and DE)

### **Segment 2 – ‘Held back’ (20 percent) are ...**

- above average ideas orientated
- more likely to believe that more can be done to turn their ideas into reality (in particular by getting more access to finance, support from Government, support from society in general, education, self-confidence, and motivation)
- more likely not to always follow the rules
- more likely to believe power is becoming too concentrated, particularly in the hands of big business, the wealthy, the media
- the least satisfied with their lives as a whole
- very entrepreneurial minded: they often think about starting a business and look for opportunities to do this
- more likely to be involved in informal business activities or in the process of trying to start a business
- more likely to have high use of the internet, particularly for educating themselves about an area of expertise

They are more likely to be:

- single or co-habiting
- in rented accommodation
- reporting having a mental condition (the only segment to report a higher than average incidence of mental health problems)
- aged 18–34
- in social class DE (and C1)

### Segment 3 – ‘Confident creators’ (11 percent) are ...

- the most ideas orientated group (28 percent agree strongly that they are someone who has new and workable ideas that could make a positive difference to society, with three percent to nine percent agreeing strongly across other segments; 51 percent of ‘confident creators’ agree slightly that they are someone who has new and workable ideas that could make a positive difference to society)
- most likely to think that the UK is an innovative country whose people have many great ideas to make the world a better place
- by far the most likely to think that the people that live in their area have a great many ideas that make things better for people locally and/or beyond (26 percent agree strongly, with two percent to six percent agreeing strongly across other segments; overall, 83 percent of confident creators agree compared to 23 percent to 33 percent across other segments)
- looking for greater support, finance, and help from government
- more likely to feel empowered to create change in their local area/feel they would be supported by local authority figures
- more likely to disagree that power is concentrated in the hands of smaller groups – they are more likely to believe people like them are more likely to make a difference
- more likely to say that power is being increasingly concentrated in the hands of trade unions
- the most pro-technology group, and most likely to agree they are using technology to make a positive difference to the lives of others
- confident of their ability to turn a business idea into reality
- more likely to have greater confidence in the ability of ‘people in their area’ and to know people in their area who can help them change the neighbourhood for the better

- the most satisfied with their lives as a whole
- most likely to capitalise on business opportunities
- more likely to feel trust and have confidence in public services (NHS, police, schools/colleges, local authorities, welfare agencies)
- have the highest belief in their knowledge/skills
- more likely to buy an environmentally friendly product
- more likely to use the internet, particularly for developing new contacts for opportunities, blogging/posting, selling a service, engaging in campaigns/politics

They are more likely to be:

- married / cohabiting with children under 16
- looking after a disabled relative / friend / partner
- Labour voters
- Asian/Black
- urban
- in full time work
- London
- aged 25–35
- in social class AB

#### **Segment 4 – Comfortable retired (22 percent)**

- the least ideas orientated group (only one percent agree strongly that they are someone who has new and workable ideas that could make a positive difference to society; overall 51 percent of mature and disengaged disagree)
- not interested in turning ideas into reality, and not looking for support with this
- more likely to always follow the rules
- more likely to feel power is increasingly concentrated in hands of international bodies eg the EU
- least likely to be using technology to make a contribution to lives of others, and least likely to use the internet
- least confident in their ability to turn a business idea into reality



- more likely to report a high level of satisfaction with their life as a whole
- least likely to be looking for business opportunities
- have the lowest belief in their knowledge/skills
- more likely to believe men and women have equal power in UK

They are more likely to be:

- aged 65+
- married, with no dependent children
- Conservative voters
- people who own their house outright
- people who left school at secondary level
- Christian
- retired on private pension

### **Segment 5 – Connected retired (17 percent)**

- above average ideas orientated
- people who tend to look for new ways of doing things rather than following the rules
- most likely to believe power is becoming concentrated in the hands of a few small groups (particularly the wealthy, big business, Government, people in the South East, and the EU)
- more likely to be satisfied with their life as a whole
- more likely to question how the world works
- more likely to believe men have more power in the UK but that the balance is shifting towards women
- more likely to have high belief that they have the knowledge/skills to help someone starting up a project or enterprise
- more likely to use the internet for accessing information about local/national issues, interesting information, educating themselves, and engaging in campaigns

They are more likely to be:

- male
- aged 65+
- UKIP voters

- people who own their house outright
- people with higher education qualifications
- retired on a private pension
- outside of London
- in social class AB

## Annex 2

### List of recommendations

#### Education and new technology

- Teaching school alliances, in partnership with pedagogical experts and tech specialists, should lead the way in developing a model of learning through digital technologies to inform schools, parents and other educators. This model should guide approaches to learning in the classroom and beyond, drawing on robust evidence from established and emerging models and programmes to highlight the specific learning experiences needed to develop digital literacy, as distinct from literacy and numeracy.
- In our view, the best way for schools and colleges to leverage the technology base is through a culture of creative, collaborative inquiry through which teachers are able to make evidence-informed decisions and consider what tools and strategies are most appropriate to meet particular learning needs. There are significant mutual benefits to be gained from combining all three principles together: purposeful partnerships provide the chance to connect with valuable new ideas and robust evidence; having a culture of inquiry stops both collaboration and creativity being weak or woolly; developing creative capacities and organisational conditions ensures engagement and motivation in learning for both students and teachers, and helps generate the valuable new insights that can drive progress and improvement over time.
- Schools and colleges should conduct an audit of existing ICT provision to review its impact and cost-effectiveness. To assist governing bodies in this task, we recommend that an audit tool and guidance be produced for school governors, to allow them to monitor impact and make judgements about ICT requirements in a more robust and strategic

way – including deciding what *not* to continue doing. This assessment must be embedded in teaching and learning.

- Once the model of digital learning and the mechanisms for raising digital technology teaching capacities are in place, then the system should be left to evolve without any abrupt changes for a period of five years. The system is designed to learn, evolve and scale without major top-down intervention.

## Connecting education and work

- Given the positive impact on career progression of additional employer contact, the NCS should be tasked with working with industry bodies to ensure web platforms are created to link learners directly to employers, beyond relationships brokered by education institutions themselves. LEP-led local hubs could supplement such online platforms.
- Utilisation of additional employer linkages must form part of careers development policy in a series of education settings. This could be promoted and monitored by Ofsted, the NCS and the new employer-education careers company.

## A new Cities of Learning approach

The spontaneous learning economy should be supported and nurtured to widen and deepen its impact on participation in adult learning of all types:

- a. A series of Cities of Learning pilots should be established (with a web platform created, which could be facilitated by the Government digital service (GDS)) but led by local leaders to promote engagement with a range of local learning communities, employers and institutions. This platform should be built around open badges. There will need to be a coordinating body, perhaps deploying an independent organisational model such as Start-up Britain.
- b. Jobcentre Plus and Work Programme primes should be encouraged to involve their ‘clients’ in these initiatives.

Where digital skills are weak, digital skills support should be offered (to be completed after the ‘client’ is in-work if necessary).

- c. Career advice, support courses and badges should receive some priority in these pilots as they do in the US Cities of Learning.
- d. Once these pilots have been established and evaluated the movement should then be extended locality by locality. An important aim in every case is linking up what is there and connecting it to the open badge infrastructure.
- e. Finally, the network could have a national online presence in order to aid navigation. This should not become an agency in its own right – it is about helping individuals, employers, learning providers and networks navigate the eco-system. This final step would be at the end of a five-year developmental period.

The RSA: an enlightenment organisation committed to finding innovative practical solutions to today's social challenges. Through its ideas, research and 27,000-strong Fellowship it seeks to understand and enhance human capability so we can close the gap between today's reality and people's hopes for a better world.

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