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Labour Digital is a grassroots network of over 300 digital professionals, launched in March 2014. It was created at the request of Shadow Business Secretary Chuka Umunna MP, and is chaired by Lord Mitchell, a former technology entrepreneur.

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## *Contents*

|  |    |
|--|----|
| Foreword by Jon Cruddas .....                      | 3  |
| 1. Introduction .....                              | 5  |
| 2. Connectivity and Inclusion .....                | 8  |
| 3. Driving Economic Growth.....                    | 13 |
| 4. Digital Skills For All.....                     | 21 |
| 5. Government and Public Services .....            | 27 |
| 6. Digital Citizenship: Privacy and Politics ..... | 36 |
| Afterword by Parry Mitchell.....                   | 41 |
| Appendix: Summary of Recommendations.....          | 43 |



## Foreword

### One Nation Digital

We are in the middle of a post-industrial revolution that is being driven by the internet. New information and communication technologies are unseating whole industries and workforces. People have been subjected to changes they have had no control over. But a future of invention and wealth creation is taking shape. We are just at the start of the internet revolution. As coordinator of Labour's Policy Review I believe our priority is to make the UK the number one country in the digital revolution.

The internet is breaking down barriers. Digital technology has transformed start-up costs and it has never been easier to start and run your own business. New creative cultures will generate economic wealth and deepen and enrich our experience of everyday life.

We will tackle concentrations of power, and make sure people have the skills and the abilities to take advantage of the internet. Labour in partnerships with business and workers, will build the new economy of the coming decade. But we will not do so with the old politics of command and control. As in the age of steam and the age of the railways, our new digital age is radically changing society.

The new economy will function best by being pro-worker and pro-business and by using teamwork. It will mean creating meaningful connections with consumers to co-invent new products and ideas.

And the digital economy demands a new approach to government. Reform needs to be about human-scale communities in control of their own services, continually able to make small, focused improvements. Government will be about giving people more control over their lives. We will use the internet to distribute control and to push power out to the people who know best how to use it.

Labour will be the party of the digital future, just as we were the party of technology in the 1960s. Grassroots organisations like Labour Digital (<http://labourdigital.org>) are crowdsourcing new ideas and pioneering new approaches to policy making. They are pointing the way to our future.

**Jon Cruddas, September 2014**



## 1. Introduction

**The scale of national transformation driven by digital in the near future can hardly be overstated. This report explains how to exploit and enhance that transformation to make Britain the leading digital nation of the 21<sup>st</sup> Century.**

Technology is driving an epochal shift in how we live, work, shop and socialise. All areas of human activity are being disrupted. Spotify and Youtube have revolutionised how we consume music, forcing a shift in business model from CD sales to ticket revenue. The Huffington Post proved that a large, influential media organ could be created inexpensively without salaried journalists. Kickstarter has transformed the ability of entrepreneurs to launch creative projects, demonstrating that unconnected individuals will happily fund initiatives in which they have no part and no certainty. Ushahidi saves lives by empowering citizens to crowdsource disaster response at zero cost.

The changes in the next 10 years may well be more dramatic than those of the past 10. Driverless cars may render car ownership redundant, reduce accidents dramatically, improve fuel efficiency and eliminate traffic congestion. Wearable technology may transform health monitoring and diagnosis, leading to entirely new patterns of cheaper, more effective healthcare. Drone technology has potential to both win wars without risking soldiers and to deliver shopping to your home within minutes of placing an online order.

Much of the excitement in this revolution derives from its unpredictability: seemingly tiny projects become world-changing in just a few years. AirBnB only launched in 2008 but already lists more rooms than any hotel chain in the world. Its improbable idea – that individuals would willingly share their homes with strangers – exemplifies the way that digital is democratising trust at just the moment when trust in governments is in decline.

Sadly, government has been the sector least changed by digital and tends to use it only to increase efficiency rather than to achieve the previously unimaginable. That needs to change.

Times of upheaval are the best moments to achieve transformational outcomes. Just as Britain was at the vanguard of the industrial revolution, positioning ourselves for centuries of disproportionate economic power, so we can position ourselves to be the World's digital leader for the remainder of this century.

This will not happen by accident, just as Japan and Korea's 20<sup>th</sup> century technological outperformance did not happen by accident. Government cannot simply outsource its leadership role to a "Big Society" of technical entrepreneurs. Neither can it ignore legitimate public concerns about some uses of technology. Britain needs a plan.

## The challenge

Britain currently lies 14<sup>th</sup> on the Booz & Co index of “digitisation”<sup>1</sup>. We have a growing culture of digital entrepreneurship and a promising Government Digital Service. But nobody believes that these are sufficient to get us to the top of the index. We are on track to achieve only second division status among digital nations.

Booz estimate the value in becoming a global leader at £63bn per annum: more than 4% of UK GDP. We will need that GDP growth to ensure that digital creates more British jobs than it displaces. This is a tough challenge: for example, ecommerce requires a third of the manpower of offline retail to sell the same volume of goods<sup>2</sup>.

The current government is investing less than £1bn in digital leadership and has no coherent plan for digital - this is wholly inadequate for a £63bn per annum opportunity.

## Our proposals

1. Britain requires a **national programme to make the UK the World’s leading digital economy and society** by the start of the next decade. This report contains 82 proposals appropriate for inclusion in that programme.
2. The development and implementation of this programme should be overseen by a **UK Digital Board**, comprised of relevant ministers and digital experts from the public, private and third sectors. The UK Digital Board would report to the Prime Minister, through a suitable chair, at least quarterly.
3. The national programme should promote digital initiatives with both predictable outcomes and outcomes which are experimental. Predictable initiatives are required to ensure best-in-the-World supporting infrastructure for digital (connectivity, regulation, tax, workforce skills). It also requires an infrastructure for the unpredictable: we propose a **National Fund for Digital Creativity** (NFDC) to finance a World-leading range of digital experiments.

The NFDC would have annual targets for disbursements across state, private and third sector experiments. Those experiments would be designed to test hypotheses (“doing X will achieve Y”) to the point where the case for scaling is proven. Successful experiments would subsequently be scaled using either private finance (venture capital etc.) or departmental budgets.

4. Public sector employees would be empowered to champion innovation with an infrastructure for public sector enterprise including a **recognition, reward and scaling system for social entrepreneurs** and their government sponsors.

We estimate that the programme outlined in this report requires spend of less than £10bn<sup>3</sup> over five years, to deliver UK digital leadership worth hundreds of billions and public services substantially more impactful than those imaginable today.

1 Go On UK: <http://www.go-on.co.uk/wp-content/uploads/2013/12/The-Booz-Report-Nov2012.pdf>

2 British Retail Consortium: [http://www.brc.org.uk/downloads/UK\\_Retail\\_Leading\\_Globally\\_Serving\\_Locally.pdf](http://www.brc.org.uk/downloads/UK_Retail_Leading_Globally_Serving_Locally.pdf)

3 See appendix




## Labour Digital and this report

Labour Digital is a grassroots network of over 300 digital professionals, launched in March 2014. It was created at the request of Shadow Business Secretary Chuka Umunna MP, and is chaired by Lord Mitchell, a former technology entrepreneur.

This report is a wish list, not an account of current Labour policy. We believe that its contents reflect current expert thinking in the Labour-supporting digital community, and we hope that our recommendations will become Labour policy in due course.

The text of this report takes three forms. Background information (like this) is indented.

**101.** Recommendations relating to **opportunities to exploit existing technology in the near future appear** are indented and numbered (e.g. 101).

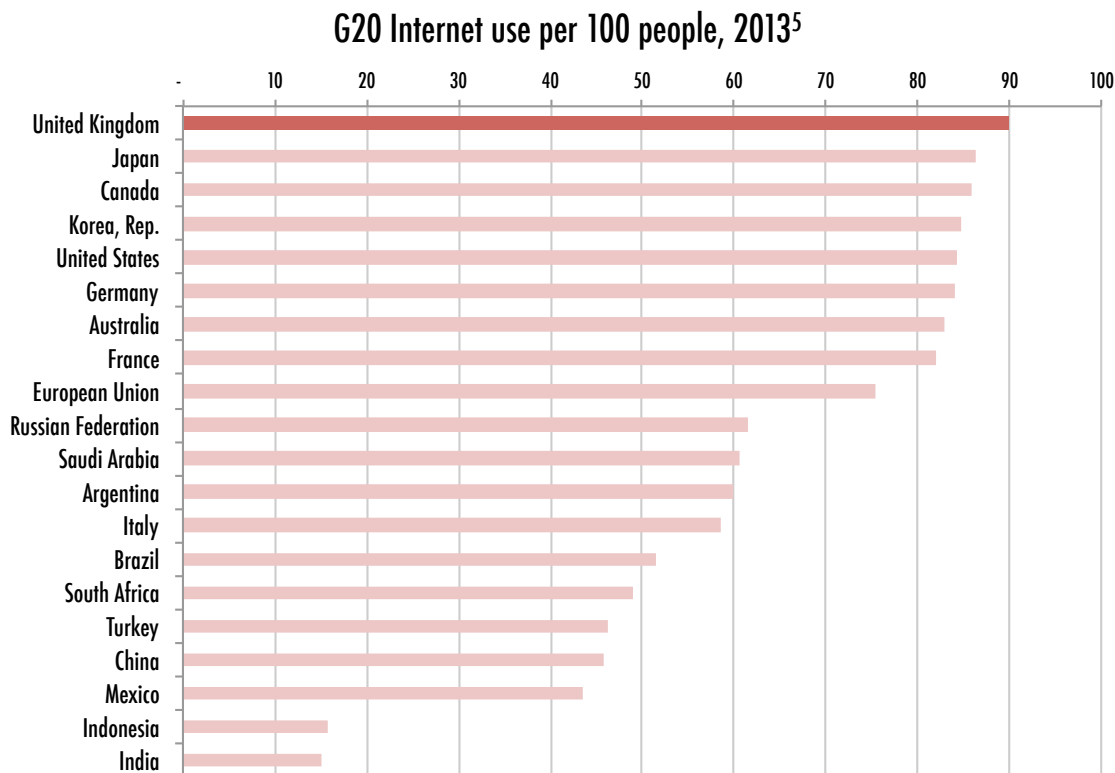
 **102.** A grey bar appears next to recommendations relating to **preparing Britain for the future** (which may take longer to come to fruition).

 **103.** A maroon bar appears next to recommendations of a **more experimental** nature.

There is a table of all recommendations in the appendix.

## 2. Connectivity and Inclusion

In 2014, the UK population finds itself better connected and more likely to use the Internet than ever before. Every day 38 million adults (76%) access the Internet, 21 million more than 2006, through a network that connects 84% of all households (up from 57% in 2006<sup>4</sup>). Britain leads the G20 in internet use per capita<sup>5</sup>.



Important social and economic opportunities are emerging and migrating online. In doing so, existing assumptions about basic rights and services are being challenged leading *connectivity* and *inclusion* to become essential in ensuring social and economic mobility.

### Connectivity

The explosion of innovative digital services in the first two decades of the 21st century has opened up unprecedented personal, educational and business opportunities previously inaccessible to a majority of the population. Nearly three quarters of all adults purchase goods or services online<sup>6</sup>, as many as 24 million Britons log-on to Facebook daily<sup>7</sup> and the UK's digital economy contributes over 14% of the nation's active companies<sup>8</sup>. Indeed, Booz & Company

4 Internet Access – Households and Individuals 2014, the ONS, 2014. [http://www.ons.gov.uk/ons/dcp171778\\_373584.pdf](http://www.ons.gov.uk/ons/dcp171778_373584.pdf)

5 Internet users (per 100 people), the World Bank, 2014. <http://data.worldbank.org/indicator/IT.NET.USER.P2>

6 Internet Access – Households and Individuals 2014, the ONS, 2014. [http://www.ons.gov.uk/ons/dcp171778\\_373584.pdf](http://www.ons.gov.uk/ons/dcp171778_373584.pdf)

7 Sedghi, A., Facebook: 10 years of social networking, in numbers, the Guardian, 2014. <http://www.theguardian.com/news/datablog/2014/feb/04/facebook-in-numbers-statistics>

8 Nathan, M., Rosso, A., et al., Measuring the UK's Economy With Big Data, Growth Intelligence and the National Institute of Economic and Social Research, 2013. [http://niesr.ac.uk/sites/default/files/publications/SI024\\_GI\\_NIESR\\_Google\\_Report12.pdf](http://niesr.ac.uk/sites/default/files/publications/SI024_GI_NIESR_Google_Report12.pdf)

estimate that between £14bn and £63bn could be added to national GDP if the UK became the world leader in digital infrastructure, services and skills<sup>9</sup>. Therefore, digital connectivity is becoming a necessary condition in grasping modern social and economic opportunity, as well as the central precondition for success in the digital economy. Though the Department for Culture, Media and Sport's Broadband Delivery UK (BDUK) scheme aims to extend superfast (24Mbps) broadband coverage to at least 95% of premises in the UK and universal access to standard (2Mbps) broadband<sup>10</sup>, these connection speeds already look slow in comparison to international leaders. Not only does the UK lag behind the major European and East Asian economies in average connection speed, the universal 2Mbps target appears inadequate in the face of a global average connection speed of 3.9Mbps<sup>11</sup>, while South Korea, already a global speed leader, is in the process of delivering gigabit-speeds to most parts of the country by 2017<sup>12</sup>. We are playing catchup.

5. The UK should target **nationwide access to 1 Gbps broadband in homes, businesses and public buildings, with 10Gbps services for tech-clusters, as early possible in the next parliament**. It is only through universal access to world class internet facilities that the economic and social benefits of the digital economy can be captured by all citizens. Although fixed line is the primary mechanism for broadband deployment, Government should also embrace wireless and satellite mechanisms where necessary to speed delivery of its targets.

Connectivity also includes the ability to gain access on the go and within the community. As communication and office functions migrate online, mobile connectivity is an essential component in and out of the workplace, with unreliability of connection presenting a drain on productivity and higher barriers to digital inclusion. Though mobile connection speeds are increasing, 2/3G coverage remains inconsistent across large swathes of the UK<sup>13</sup>.

The ubiquity of mobile phones and the services they provide leads to inevitable questions over what basic levels of connectivity should be guaranteed for the public good in light of the patchy coverage rural and coastal areas receive<sup>14</sup>. With mobile networks unwilling to erect extra masts in areas with relatively few users, many customers are calling for a change in attitudes<sup>15</sup>, presenting an opportunity to reassess the leading role mobile phone operators play in citizens' lives.

6. Ofcom should use its regulatory powers to **ensure that the entire UK is provided with reliable network coverage of at least 3G speeds**, including all populated coastal and rural areas.

In the interim and as part of the equitable improvement of digital infrastructure, public transport and community spaces can provide key mobile access outside of the home and office. Marginalised and digitally excluded groups are more likely to use public transport, with its

9 This is for Everyone, Booz and Company, 2012. <http://www.go-on.co.uk/wp-content/uploads/2013/12/The-Booz-Report-Nov2012.pdf>

10 Broadband Delivery UK, HM Government, 2013. <https://www.gov.uk/broadband-delivery-uk>

11 Akamai's State of the Internet: Q1 2014 Report, Akamai, 2014.

12 Kwang, K., S. Korea to deliver gigabit-speed broadband, ZDNet, 2013. <http://www.zdnet.com/s-korea-to-deliver-gigabit-speed-broadband-7000014970/>

13 UK Mobile Services Map 2013, Ofcom, 2013. <http://maps.ofcom.org.uk/mobile-services/>

14 Vodafone worst for rural calls, Ofcom finds, the BBC, 2014. <http://www.bbc.co.uk/news/technology-28758595>

15 Brignall, M., A third of rural customers dissatisfied with mobile service – Ofcom, the Guardian, 2014. <http://www.theguardian.com/money/2014/aug/12/uk-rural-customers-dissatisfied-mobile-services-ofcom>

expansion set to continue in the face of carbon reduction targets and an ageing population<sup>16</sup>, and rely more on community services for support and socialising. However, excepting the notable example of Transport for London's introduction of WiFi services on tubes and buses<sup>17</sup>, Internet provision across the transport network is not fit for the digital era. Of the 25 mainline rail providers, only 8 offer WiFi facilities across their networks, with only half of these offering free connections for standard class passengers<sup>18</sup> while mobile connections are needlessly poor in cuttings and tunnels (other than the Heathrow Express). And though much progress has been made to provide WiFi to local residents and tourists in some public spaces, local government cuts have stalled many projects, while collections of cafes and public buildings offer inconsistent coverage, disjointed networks and varying connection fees<sup>19</sup>. Camden Council has led the UK in deploying an innovative free WiFi scheme for its residents paid for by a private sector partner<sup>20</sup>: its approach can be followed by other councils.

7. In ensuring mobile and community connectivity, a future government should **require transport providers to offer reliable, blanket WiFi across their services**. It should also **require Network Rail to open access to its own mobile network** (used exclusively by train staff) to passengers. In doing so, barriers to entry into the digital economy will be lowered, particularly for those individuals and businesses reliant on mobility and travel.
8. Furthermore, local councils should be resourced and encouraged to develop and expand existing public space WiFi networks **to provide free internet access across public spaces**, guaranteeing access to citizens and businesses in population centres. Councils would produce a yearly monitor of usage and impact to demonstrate the value generated in their local economies and communities.

As well as updating regulations to take into account the effect of the internet on citizens' lives, government also holds the responsibility to ensure it modifies anachronistic legislation that has not kept pace with digital developments. Notable amongst them is the Electronic Communications Code (ECC), enacted in 1984 to regulate telephone provision, that governs the rights of operators to maintain communications infrastructure on private and public land and property. According to the Law Commission, the Code in its current form has been criticised by stakeholders as being "out of date, unclear and inconsistent with other legislation"<sup>21</sup>.

9. As such, the next government should update the ECC according to the reforms proposed by the Law Commission<sup>22</sup>. This would update the Code in the light of 21st century developments and ensure the **treatment of broadband infrastructure as a traditional utility and streamline the ability of network providers and landowners to reach agreements on the access to private property**.

<sup>16</sup> Accessing Public Transport, Parliamentary Office of Science & Technology, 2013.

<sup>17</sup> TfL to trial new bus technology, Transport for London, 2014. <https://www.tfl.gov.uk/info-for/media/press-releases/2014/august/tfl-to-trial-new-bus-technology>

<sup>18</sup> WiFi Facilities, National Rail Enquiries, 2014. [http://www.nationalrail.co.uk/stations\\_destinations/44866.aspx](http://www.nationalrail.co.uk/stations_destinations/44866.aspx)

<sup>19</sup> Jefferies, D., Should councils be investing in free public Wi-Fi networks?, the Guardian, 2011. <http://www.theguardian.com/local-government-network/2011/dec/05/councils-free-public-wifi-networks>

<sup>20</sup> Camden Labour. <http://camdenlabour.org.uk/wi-pay-camdens-labour-council-sets-up-free-wifi-hotspots-in-bloomsbury-holborn-kilburn-and-west-hampstead/>

<sup>21</sup> Electronic Communications Code, the Law Commission, 2012. <http://lawcommission.justice.gov.uk/areas/electronic-communications-code.htm>

<sup>22</sup> *Ibid*

Labour's progressive agenda can be furthered in response to calls for "net neutrality". These calls are best described by a recent letter from major digital companies, including Amazon, Google and Microsoft, to the USA's Federal Communications Commission that warns of a grave threat to the Internet from reports that the Commission "intends to propose rules that would enable phone and cable Internet service providers to discriminate both technically and financially against Internet companies and to impose new tolls on them"<sup>23</sup>.

10. With the European Parliament voting to adopt a net neutrality proposal that will restrict ISP charges for faster internet access, a Labour government should **declare support for national and EU-level net neutrality**.

## Inclusion

The availability of an Internet connection is necessary but not sufficient in ensuring all citizens have access to and can reap the benefits of digital opportunities and the digital economy. High quality social, educational and economic outcomes may only be obtainable by using the web, and Government "digital-by-default" initiatives will also migrate public services online. Therefore, the ability to use and exploit connectivity is central to a modern conception of social mobility. However, nearly 10 million people do not have basic online skills<sup>24</sup>, such as the ability to use a search engine and send emails, with 6.4 million adults (13%) having never used the internet<sup>25</sup>. Additionally, this digital exclusion is predominantly found among socially and economically disadvantaged groups, with age being the most common factor in determining exclusion and a lack of basic skills<sup>26</sup>.

11. In order to address the digital skills deficit, the government must invest in a **nationwide programme to equip the entire adult population of the UK with basic online skills by 2020**. This would enable access to the range of services and opportunities regular Internet use provides, putting an end to digital exclusion; enhancing social mobility; reducing social isolation; and enabling all to reap the benefits of the digital economy. Alongside the social benefits, universal skills can also open avenues to significant cost saving in public services. The Tinder Foundation estimates the cost of delivering online skills for all by 2020 at £875 million<sup>27</sup>. In comparison, estimates of achievable cost savings resulting from digitisation include a £1.7bn p.a. saving from digitising government transactions and £108 million if the NHS moved 1% of face-to-face interactions online<sup>28</sup>.
12. To deliver the programme in local communities, **free workshops and community support for digital learning should be provided in population centres**, utilising libraries and local groups to provide spaces in which citizens can learn, create and collaborate. Outreach programmes would be run in parallel to further encourage the attendance of the unskilled.

23 Letter to the Federal Communications Commission, Listed Signatories, 2014. <http://engine.is/wp-content/uploads/Company-Sign-On-Letter.pdf>

24 Media Literacy: Understanding Digital Capabilities follow-up, BBC and Ipsos MediaCT, 2014. [http://www.bbc.co.uk/learning/overview/assets/digital\\_capabilities\\_2014.pdf](http://www.bbc.co.uk/learning/overview/assets/digital_capabilities_2014.pdf)

25 Internet Access Quarterly Update Q1 2014, the ONS, 2014. <http://www.ons.gov.uk/ons/rel/rdit2/internet-access-quarterly-update/q1-2014/stb-ia-q1-2014.html>

26 Media Literacy: Understanding Digital Capabilities follow-up, BBC and Ipsos MediaCT, 2014. [http://www.bbc.co.uk/learning/overview/assets/digital\\_capabilities\\_2014.pdf](http://www.bbc.co.uk/learning/overview/assets/digital_capabilities_2014.pdf)

27 McDonald, C., A Leading Digital Nation by 2020: Calculating the cost of delivering online skills for all, the Tinder Foundation, 2014. [http://www.tinderfoundation.org/sites/default/files/research-publications/a\\_leading\\_digital\\_nation\\_by\\_2020\\_0.pdf](http://www.tinderfoundation.org/sites/default/files/research-publications/a_leading_digital_nation_by_2020_0.pdf)

28 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

13. Furthermore, to ensure fair and universal access to the application of digital skills, **government should assess the viability of providing free basic internet access to all citizens**, possibly as a requirement for participation in 5G auctions or targeted at children eligible for free school meals.

There is now wide recognition that older generations and those with disabilities are disadvantaged because technology, and the access to the skills required to use this technology, are not developed with their circumstances in mind<sup>29</sup>. Indeed, while 99% of all 16-24 year olds and 71% of all 65-74 year olds have used the Internet, only 37% of those aged 75 years and above have logged on<sup>30</sup>. This is corroborated by surveys of user habits<sup>31</sup>, with a majority of those staying offline citing a lack of knowledge as a key impediment<sup>32</sup>. This skills gap has particular implications for the digitised delivery of public services, which are disproportionately relied upon by older generations, when considering, for example, that only 5% of over 65s use the Internet to book health appointments<sup>33</sup>.

14. In addressing this disparity, a nationwide skilling programme must be joined by an **accessibility drive for older generations and marginalised groups that offers extra support catered to their needs** when equipping them with digital skills. This would provide context, familiarity and geographical accessibility through outreach programmes at local community facilities and in the home, as well as financial support for digital equipment.
15. Government should also use technology to support those who are experiencing isolation by **funding initiatives that use video conferencing and online volunteer networks to provide loneliness support to vulnerable groups**. With, for example, as many as two fifths of all older people saying that the television is their main company<sup>34</sup>, it is important that modern technology is utilised fully when providing support and social contact to otherwise marginalised citizens.
16. Finally, to ensure the costs associated with applying new digital skills are minimised for all households, the government should **mandate BT to provide broadband services to homes without requiring a telephone line for voice calls**. Furthermore, It should urgently review whether the dominant position of BT in controlling the basic telecommunications infrastructure is delivering sufficient innovation, value for money and social value.

29 Digital Exclusion, Low Income Tax Reform Group (LITRG), 2012. [http://www.litrg.org.uk/Resources/LITRG/Documents/2012/05/digital\\_exclusion\\_-\\_litrg\\_report.pdf](http://www.litrg.org.uk/Resources/LITRG/Documents/2012/05/digital_exclusion_-_litrg_report.pdf)

30 Internet Access Quarterly Update Q1 2014, the ONS, 2014. <http://www.ons.gov.uk/ons/rel/rdit2/internet-access-quarterly-update/q1-2014/stb-ia-q1-2014.html>

31 Dutton, W. H. and Blank, G., Cultures of the Internet: the Internet in Britain, the Oxford Internet Institute, 2013. [http://oxis.oii.ox.ac.uk/sites/oxis.oii.ox.ac.uk/files/content/files/publications/OxIS\\_2013.pdf](http://oxis.oii.ox.ac.uk/sites/oxis.oii.ox.ac.uk/files/content/files/publications/OxIS_2013.pdf)

32 Alongside: affordability; the Internet not being for "people their age"; a fear that they will break technologies; be exposed to threats to privacy, immoral material; or will simply waste their time.

33 Internet Access - Households and Individuals 2014, the ONS, 2014. [http://www.ons.gov.uk/ons/dcp171778\\_373584.pdf](http://www.ons.gov.uk/ons/dcp171778_373584.pdf)

34 Loneliness Research, the Campaign to End Loneliness, 2014. <http://www.campaigntoendloneliness.org/loneliness-research/>

### 3. Driving Economic Growth

The UK finds itself in an advantageous position as the development and exploitation of digital technology becomes an increasingly important determinant of economic success. Britain has the most advanced digital economy in the G20 and a world-leading online retail trade surplus of \$1 billion<sup>35</sup>, with tech clusters in Oxford, Cambridge and London increasingly making their mark on the international scene. E-commerce now accounts for a greater percentage of GDP than all other G20 countries, with online retail expected to turnover £140 billion by 2016<sup>36</sup>. The UK is the highest net exporter of ICT services among the G7 countries<sup>37</sup>. At home, the digital economy has the highest business creation rate of any sector, experiencing a 20% revenue growth rate between 2010-2012<sup>38</sup>, and an 8% rise in employment over the period 2009-2012, four times that seen in other sectors<sup>39</sup>. The growth in digital businesses and their resultant innovation and infrastructural development has been highly beneficial to the wider economy with up to 75% of the economic benefit of the Internet felt in non-digital sectors<sup>40</sup>. In order to maintain its position as a digital leader, the UK must ensure its approach to the digital economy keeps pace with emergent technologies, encouraging innovation and nurturing the startups and SMEs that drive growth in a digital world.

#### The Technology Industry and Intellectual Property

Attracting foreign direct investment (FDI) in digital businesses has been central to the UK's success to date. Businesses, particularly those that leverage digital technology, often need initial investment in order to create and develop products, enter national and international markets, and expand. Britain attracts 30% of all software FDI in Europe and capturing a larger share is an effective means to increase later stage funding and investment for scaling tech companies, heightening the chance that the UK will produce the world-leading businesses of tomorrow. Even when direct investment isn't foreign it may be substantial as British businesses currently sit on £440bn of cash reserves<sup>41</sup>. The UK "Corporate Venturing Scheme" offered tax relief for corporates who invested in high growth companies between 2000 and 2010, but it was subsequently abandoned.

17. We agree with Policy Exchange<sup>42</sup> that the UK should play to its existing strengths and aim to increase later stage equity funding for UK tech companies by attracting 50% of all software FDI in Europe by 2020, primarily through the **reintroduction of incentives for corporate venture capital**.

35 <http://www.ocstrategy.com/news-and-media/2014/01/global-retail-empire>

36 Dean, D. et al., The Connected World: The \$4.2 Trillion Opportunity, the Boston Consulting Group, 2012. [https://publicaffairs.linx.net/news/wp-content/uploads/2012/03/bcg\\_4trillion\\_opportunity.pdf](https://publicaffairs.linx.net/news/wp-content/uploads/2012/03/bcg_4trillion_opportunity.pdf)

37 Information Economy Strategy, HM Government, 2013. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/206944/13-901-information-economy-strategy.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/206944/13-901-information-economy-strategy.pdf)

38 Nathan, M., Rosso, A., et al., Measuring the UK's Economy With Big Data, Growth Intelligence and the National Institute of Economic and Social Research, 2013. [http://niesr.ac.uk/sites/default/files/publications/SIO24\\_GI\\_NIESR\\_Google\\_Report12.pdf](http://niesr.ac.uk/sites/default/files/publications/SIO24_GI_NIESR_Google_Report12.pdf)

39 Information Economy: Economic Estimates 2013; e-skills UK, intellect, BCS; 2013. <http://www.bcs.org/upload/pdf/information-economy-economic-estimates-oct2013-final2.pdf>

40 Pélissié du Rausas, M., et al., Internet matters: The Net's sweeping impact on growth, jobs, and prosperity, the McKinsey Global Institute, 2011. [http://www.mckinsey.com/insights/high\\_tech\\_telecoms\\_internet/internet\\_matters](http://www.mckinsey.com/insights/high_tech_telecoms_internet/internet_matters)

41 ICAEW <http://www.ion.icaew.com/ClientFiles/a42b9c80-6acd-4dca-980a-bac45d9a324d/Business%20Opinion%20cash%20surplus%202013%20-%20headlines.pdf>

42 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

Of the investment schemes still provided by HMRC, the Enterprise Investment Scheme (EIS) and the Seed Enterprise Investment Scheme (SEIS) have proven highly effective at reducing risk for angel investors and attracting investment in tech businesses. For example, since its inception in 2012, the SEIS has helped raise over £135 million in investment for more than 1,600 companies<sup>43</sup>, while a recent survey from Deloitte saw 86% of angel investors using the EIS or SEIS scheme and 58% citing the schemes as the primary stimulus for their investment<sup>44</sup>.

18. Therefore, in order to maintain the stream of investment from angel investors, the government should **commit to retaining the EIS and SEIS schemes** throughout the duration of the next parliament.

It can be difficult for those planning delivery of public services, or private investment, to keep track of developments in technology which will affect them. The absence of clarity about both technology adoption and the legislation around it may impede investment. For example, decisions around public transport planning and private car purchases will be significantly affected by predictions of adoption of self-driving cars (and the regulatory framework which surrounds them). Similarly, those defining technology education and training policy need to have a view of the technological skills most likely to be in use in the medium term.

19. To do so, government should publish **annual Technology Impact Assessments** that forecast how new technologies are expected to affect each sector of the UK economy up to a decade into the future. This would facilitate the targeting of private and public investment to ensure the UK remains a leader in the development and exploitation of digital innovation.

Alongside an understanding of how technology is expected to affect different sectors, copyright and patent protections encourage market entrants to create and innovate. This is of particular importance to tech businesses which need to protect ideas and products simply and cheaply. Technological development often challenges existing legislation: government is best placed to ensure continued protection of ideas and content against theft, patent thickets and trolls<sup>45</sup>.

20. Therefore, an **annual review of the intellectual property landscape** should be instituted to guarantee that legislation, regulation and legal codes keep pace with technological developments. Operating alongside impact assessments, an annual intellectual property review would ensure that UK businesses are provided with explicit legal guidance, enabling them to develop and exploit emergent technologies with confidence.

Public funding of upstream research has a central role to play in this creative process, addressing market failure from R&D knowledge spillovers, managing risk, and developing key technologies that are relied upon by many emergent digital companies and wider society. Recently, the Higher Education Innovation Fund (HEIF) has incentivised universities to configure research

43 Alexander, D., House of Commons Debate 1 April 2014, vol 578, col 746, the Hansard, 2014. [http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm140401/deb-text/140401-0002.htm#140401-0002.htm\\_snew18](http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm140401/deb-text/140401-0002.htm#140401-0002.htm_snew18)

44 Taking the Pulse of the Angel Market, Deloitte and the UK Business Angels Association, 2013. [http://www.ukbusinessangelsassociation.org.uk/sites/default/files/media/files/taking\\_pulse\\_of\\_the\\_angel\\_market\\_02\\_07\\_2013\\_0.pdf](http://www.ukbusinessangelsassociation.org.uk/sites/default/files/media/files/taking_pulse_of_the_angel_market_02_07_2013_0.pdf)

45 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>



agendas to ensure outputs that can be used by the wider economy, sitting alongside a multitude of initiatives aimed at coupling university research with the needs of the private sector. However, Nesta<sup>46</sup> notes that “the systems and processes of major research universities are not always well suited to dealing with...SMEs”, with different time horizons and the inaccessibility of bureaucracies to companies with limited institutional knowledge. They conclude that “a business-focused relationship between academic researchers and digital creative economy companies remains an aspiration rather than a reality”. For example, the Digital Economy Programme, a cross-research council incepted in 2008, has invested £138 million with limited economic impact, admitting that their “biggest concern is the need for more economics and business understanding of digital economies to put alongside the technological and user aspects”<sup>47</sup>. Furthermore, research may be atomised by discipline, as a result of the prevailing organisational model of universities, minimising the potential for beneficial multidisciplinary spillovers.

21. Therefore, government must provide a clearly defined process that evaluates cross-disciplinary and – sectoral research projects, ensuring universities and businesses are able to capture emergent opportunities. A **rigorous evaluation framework for cross-disciplinary research and knowledge exchange initiatives** should be introduced and work in conjunction with Technological Impact Assessments, ensuring R&D funding is targeted correctly and that lessons are applied to further rounds of investment. In achieving this, the interface between publicly funded research and industry must be simple, mutually beneficial and cognisant of each party’s agendas, with explicit input from intellectual property reviews, lowering the barriers to entry for SMEs who do not have access to the institutional knowledge and research budgets available to large, R&D-heavy incumbents.
22. The linkage between research and industry would be further aided by encouraging all university computer science departments to have **industry advisory boards**, potentially in conjunction with LEPs or sector skills boards.. These would be comprised of key members of the local and national digital economy. These members would provide cutting edge advice on everything from changing working practices and collaborations to feedback on curricula and the provision of accreditation (such as the Creative Skillset Tick<sup>48</sup>).

## Helping SMEs

Small businesses make up 99% of UK businesses, including the 7% of high growth firms that provide over half of the country’s employment growth<sup>49</sup>. SMEs, whether an explicit part of the digital economy or not, can gain enormous benefit from utilising the internet, with businesses that are accessible and transact online growing an average three times faster than those that do not<sup>50</sup>. Yet only a third of SMEs sell their products online, with 16% of SMEs

46 Bakhshi, H., Hargreaves, I. and Mateos-Garcia, J., A Manifesto for the Creative Economy, Nesta, 2013. <http://www.nesta.org.uk/sites/default/files/a-manifesto-for-the-creative-economy-april13.pdf>

47 Digital Economy: Report of the 2012 RCUK Digital Economy Impact Review Panel, Research Councils UK, 2012. <http://www.rcuk.ac.uk/RCUK-prod/assets/documents/documents/RCUKDEconReport.pdf>

48 [http://courses.creativeskillset.org/pick\\_the\\_tick\\_degree\\_courses/what\\_is\\_the\\_tick](http://courses.creativeskillset.org/pick_the_tick_degree_courses/what_is_the_tick)

49 An Enterprising Nation: the final report of the Small Business Taskforce, the Small Business Taskforce, 2013. <http://www.labouremail.org.uk/files/uploads/b6e7fa23-1132-0364-1560-7898854ed07b.pdf>

50 Lloyds Bank UK Business Digital Index 2014, Lloyds Bank and Go ON UK, 2014. [http://resources.lloydsbank.com/economic-research/uk-business-digital-index-2014/?WT.mc\\_id=2014\\_UK\\_Business\\_Digital%20\\_Index](http://resources.lloydsbank.com/economic-research/uk-business-digital-index-2014/?WT.mc_id=2014_UK_Business_Digital%20_Index)

having no online presence at all and 29% of business owners being disconnected, unconfident Internet users<sup>51</sup>.

23. The government must deliver an **SME roadmap that explicitly signals how it is to bridge this divide and ensure SMEs stay at the forefront of digital developments**. This would include targeted, locally-delivered training to equip SMEs and startups with the skills needed to leverage the potential of an online presence, as well as support for those who have gone through training programmes or who already have basic skills. Funding would also be provided to assist in the procurement of key equipment and human capital. The roadmap would hold government accountable to short- and long-term targets based on technology impact assessments and other economic indicators, providing clear signals to potential and established SMEs.

Such a roadmap would also recognise the crucial role entrepreneurs who found SMEs and startups play in driving innovation and growth in and out of the digital economy. In particular, the current rules over Entrepreneur Relief are not fit for purpose. Entrepreneur's Relief provides founders with a reduced, 10% rate of capital gains tax capped at a lifetime value of £10 million, which can discourage reinvestment from successful individuals who are mindful of increasing their lifetime value and having to pay up to the 28% rate. Furthermore, the equity threshold for the Relief presents a skewed incentive, with only those owning more than 5% of the business's equity able to qualify. Considering that rounds of investment often reduce the equity holdings of founders and early employees, decision-makers are incentivised to favour low risk strategies that preclude new rounds of investment to ensure founders stay above the equity threshold.

24. In order to maximise investment and ensure that entrepreneurs are presented with incentives to continue innovating, the next government should **reconfigure Entrepreneur's Relief** by removing the lifetime value cap and lowering the qualifying equity threshold below 5%.

Alongside financial incentives, the worth that vocational careers bring to SMEs must be recognised. Apprenticeships offer valuable alternative models of training, for both students and businesses, that are highly reactive to industry developments and more responsive to working requirements than some further education qualifications. The UK Digital Skills Taskforce<sup>52</sup> has found that teachers and students alike are lacking in reliable information as to the benefits of apprenticeships, with one apprentice working for O2 only discovering the company's scheme through his mobile phone plan. For those SMEs looking to create apprenticeships, the system is frequently cited as being too complicated, operating through a National Apprenticeship Service website that isn't fit for purpose. Andrew Corbett of the UK IT Association concludes that "the current apprenticeship system does not work for small IT companies"<sup>53</sup>. This presents a high barrier to entry for digital SMEs looking to access the benefits of bringing on apprentices, and, as such, incurs disproportionate costs relative to larger incumbents.

51 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

52 Digital Skills for Tomorrow's World: Interim Report, the UK Digital Skills Taskforce, 2014. <http://www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder7-REDUCED2.pdf>

53 Ibid

25. Government must make it easier for SMEs to seek and hire apprentices by **reforming the national apprenticeship system**, championing models that allow micro-businesses and SMEs to share digital apprentices and to collaborate with other businesses in digital apprenticeship training.

The third sector also plays a key role as a facilitator of ideas and talent and a driver of innovation and collaboration with SMEs. The Centre for London's "Connecting Tech City" campaign is a prime example, seeking to help young people from disadvantaged socioeconomic groups in East London find work in the capital's digital economy<sup>54</sup>. However, information on third sector initiatives is difficult to acquire, with no recognised central hub for learning of local and national initiatives.

26. As such, government must provide central, online **third sector mapping**, signposting third sector tech initiatives to allow students, companies and communities to easily find and involve themselves in schemes and collaborations in their local area.

Finally, government can also assist SMEs by ensuring burdens are limited as major legislation and regulations are updated to keep pace with 21st century developments. In particular, the European Commission's proposed General Data Protection Regulation (GDPR) seeks to unify data protection under a single law, replacing the current, outdated directive that takes little consideration of globalisation, cloud computing and other important developments. However, the Ministry of Justice has raised concerns over a number of the proposed elements within the Regulation, including an estimated net cost to the UK economy of £100-360 million per year<sup>55</sup>.

27. The government must **continue to argue the case for digital businesses when negotiating the terms of the EU's proposed GDPR**, ensuring that the needs of UK companies are not ignored in the process of rationalising European data protection laws.

## Transforming Other Industries

The government should also recognise where it has succeeded in supporting leading areas of the digital economy. The UK's financial technology (fintech) sector leads the world<sup>56</sup> and has received encouragement and support from the government, offering myriad benefits to citizens.

P2P finance in particular presents an opportunity to replace traditional banking with mechanisms where the structural risk of a "run on the bank" is entirely removed. However, P2P lending is constrained by lacking the protections of the FSCS scheme and by legislation which taxes lenders on their gross lending income irrespective of any credit losses. Innovative digital money transfer services like Transferwise struggle to promote their customer proposition when there is no legal requirements for foreign exchange services to market their exchange rates and fees in a consistent format.

54 <http://centreforlondon.org/connecting-tech-city/>

55 Government response to Justice Select Committee's opinion on the European Union Data Protection framework proposals, Ministry of Justice, 2013. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/217296/response-eu-data-protection-framework-proposals.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/217296/response-eu-data-protection-framework-proposals.pdf)

56 Mandel, M., Liebenau, J., London: Digital City on the Rise, South Mountain Economics and Bloomberg, 2014. <http://mikebloomberg.com/files/London-Digital-City-On-The-Rise.PDF>

To facilitate the growth of fintech startups, the Treasury has indicated intentions for P2P lending to be included in ISAs and reformed payments regulations, while the Financial Conduct Authority (FCA) has developed Project Innovate, joining the Chancellor's trade body for fintech firms (Innovate Finance), that offers support to market entrants<sup>57</sup>.

28. The government should build on its past success by **continuing to provide support to the fintech industry** through facilitating the development of market entrants and reviewing existing laws and regulations that may impede the growth of financial innovation. The government should grant preferred status to P2P lending, including providing FSCS protection for assets and a change in income tax rules, alongside marketing budget to promote the sector and a flexible approach to regulation. Marketing for foreign exchange services should be regulated to end the practise of "0% commission" masking high exchange rate margins.

A common complaint<sup>58</sup> of financial services innovators is that banks refuse to enable automated access to consumers' and businesses' transaction data when requested. This creates significant impediments for fintech businesses and their customers. For example, it is difficult for users to import transaction data into accounting software, and therefore impossible for (for example) innovators to create services which analyse transactions to propose savings, a common service in USA (eg MINT.com).

29. Government should mandate retail banks to provide read-only API access to those of their customers who wish to use it, either directly or via third party services (for example accountancy platforms) of their choosing.

The growth in the sharing economy has opened up new avenues for citizens to work flexibly and to exploit underutilised assets, with knock-on benefits to society. For example, BlaBlaCar<sup>59</sup> connects those who are willing to car share with those looking to travel, providing economic benefit to both parties and reducing carbon emissions through a more efficient allocation of drivers and passengers. This allocative efficiency is the sharing economy's greatest strength and PwC forecast that the top five sharing economy sectors will generate global revenues of \$335bn by 2025, from \$15bn today<sup>60</sup>. However, many of the laws and regulations affecting the operation of sharing economy businesses are out-of-date, presenting obstacles to their successful operation and raising questions over the safety and continued rights of customers<sup>61</sup>.

30. As such, government should **review the laws and regulations surrounding the sharing economy** to ensure that the full benefits of peer-to-peer businesses can be exploited by citizens while maintaining basic protections.

Furthermore, the flexible economies of scale that digital technology provides offer enormous potential for local government data collection and the improvement of public service provision. From

57 Supporting innovation in financial services: call for input into Project Innovate, the FCA, 2014. <http://www.fca.org.uk/about/what/promoting-competition/project-innovate>

58 For example: <http://www.kashflow.com/press/open-letter-to-banks-api-access-to-statement-data/>

59 <http://www.blablacar.com>

60 The sharing economy – sizing the revenue opportunity, PwC, 2014. <http://www.pwc.co.uk/issues/megatrends/collisions/sharingeconomy/the-sharing-economy-sizing-the-revenue-opportunity.jhtml>

61 Eric Pickles backs renting of driveways with guidelines, the BBC, 2013. <http://www.bbc.co.uk/news/uk-23558130>

monitoring demographic changes and crime trends to the identification of potholes and faulty streetlamps, local authorities have vast data requirements when seeking to understand and provide for their constituents. Though interfaces between councils and individuals exist (for example, the Birmingham City Council app<sup>62</sup>), councils across the country have yet to exploit the potential SMEs hold for data collection, and the attendant benefits to the local economy, cost savings, and improvements in the quality of service provision that is educated by larger and more detailed sources of data.

31. To exploit this potential, government should establish a **data repository for local services** that enables businesses and citizens to provide data to government. This platform would allow local authorities to share their data in a central sharing environment, and open up the potential for shared applications for many authorities to be built using standardised data formats.

## Supporting Progressive Values in Business

Ensuring that innovation is utilised for the public good has been a central pillar of the Labour Party's progressive agenda since its formation, and this approach is more important than ever in an age dominated by giant internet firms. In particular, four main companies dominate the digital landscape: Apple, Amazon, Facebook and Google; with all able to wield enormous economic and political might. Apple accounts for over 4% of the S&P 500's value and has nearly 800 million people<sup>63</sup> use its iTunes store; Google is the world's search engine preference, the global leader in online advertising, and provides Android software to 80% of new smartphones<sup>64</sup>; Amazon sits at the apex of online retailing and cloud computing; and Facebook has amassed over one billion users from across the world<sup>65</sup>.

While this power extends over the citizen as more and more of people's everyday consumption and experiences are touched by digital firms, governments have warned of abuses of power and market positions, such as with the European Commission's antitrust case against Google<sup>66</sup>. These large companies can exert massive power over the fortunes of others. For example, PayPal may close a trader's merchant account overnight and withhold all funds without notice, or Amazon may remove a trader from its marketplace, or Google may hide a website from web searches – all without any external arbitration.

32. The next government should **create a Digital Ombudsman** to ensure that digital utilities and essential services, including those provided by large internet companies, are run in the public interest. The Ombudsman would contribute a yearly overview of market issues and enforce high standards of customer care in the ecommerce market, including arbitration of an appeals processes when monopoly behaviours are unfair, as well as delivering recommendations on how marketplaces can be influenced to protect small business<sup>67</sup>.

62 <http://www.birmingham.gov.uk/app>

63 CNET <http://www.cnet.com/news/apple-itunes-nears-800-million-mark/>

64 Strategy Analytics <http://blogs.strategyanalytics.com/WSS/post/2013/08/01/Strategy-Analytics-Android-Captures-Record-80-Percent-Share-of-Global-Smartphone-Shipments-in-Q2-2013.aspx>

65 Survival of the biggest, the Economist, 2012. <http://www.economist.com/news/leaders/21567355-concern-about-clout-internet-giants-growing-antitrust-watchdogs-should-tread>

66 Arthur, C., Google accused of slowing down European Commission's antitrust case. the Guardian, 2013. <http://www.theguardian.com/technology/2013/nov/06/google-accused-slowing-down-european-union-antitrust>

67 An Enterprising Nation: the final report of the Small Business Taskforce, the Small Business Taskforce, 2013. <http://www.labouremail.org.uk/files/uploads/b6e7fa23-1132-0364-1560-7898854ed07b.pdf>

Customer protections can also be extended to businesses whose traditional role on the high street is increasingly migrating online. In particular, while gambling self-exclusion facilities are widely available in high street bookies, they are not universally provided online, with some websites not being licensed by the Gambling Commission or having different requirements in relation to the exclusionary process<sup>68</sup>. Since the inception of online gambling in 2005, the sector has experienced consistent growth, opening up new markets in the home, leading to a rise in problem gambling and addiction across age-groups and socioeconomic backgrounds<sup>69</sup>.

**33.** As such, the government should **mandate online gambling services to provide a universal, standardised self-exclusionary service** for all online gambling websites and services.

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<sup>68</sup> What is self-exclusion?, the Gambling Commission, 2013. [http://www.gamblingcommission.gov.uk/frequently\\_asked\\_questions\\_fa/problem\\_gambling/what\\_is\\_self-exclusion.aspx](http://www.gamblingcommission.gov.uk/frequently_asked_questions_fa/problem_gambling/what_is_self-exclusion.aspx)

<sup>69</sup> Gallagher, P., Addiction soars as online gambling hits £2bn mark, the Independent, 2013. <http://www.independent.co.uk/news/uk/home-news/addiction-soars-as-online-gambling-hits-2bn-mark-8468376.html>

## 4. Digital Skills For All

The need for digital skills is growing as the economy changes and old work practices decline. The UK digital economy now contributes over 10% of all jobs, with the Science Council estimating a 39% growth in the ICT workforce by 2030<sup>70</sup> notwithstanding the increasing prevalence of a digital component to nearly all businesses and jobs. Alongside this, there are currently 955,000 young people in the UK who are not in education, employment or training, (13.3% of all young people<sup>71</sup>). In meeting this shortfall, O2 predicts that 745,000 additional digitally-skilled workers will be needed to meet rising demand in the period up to 2017. A fifth of these could be captured by young people entering the job market, while improving the quality and quantity of digital skills in supply could generate a further 96,000 jobs at an additional economic benefit of over £11 billion per year<sup>72</sup>.

Providing citizens, young and old, with digital skills is not only important in keeping pace with developments in the digital economy but in ensuring workers in existing industries can adapt to the vagaries of automation and the changing face of the workplace<sup>73</sup>. The modern economy requires not only computer programmers but also people who can use, manipulate and analyse information with skills such as systems thinking, real world problem-solving and design. Digitally equipping the workforce has never been more important and, in doing so, the UK has a unique opportunity to provide all generations with highly valuable, transferable and lasting skills. Success in the digital economy requires “doers”, as well as users, and digital training will have to provide people with a full complement of digital, creative, technical and business competencies. The UK is already taking steps to achieve this. In September 2014 it becomes the first G20 country to provide mandatory, national computing lessons for 5-16 year olds with a major programming component<sup>74</sup>. But more work is needed - in upgrading schools and teacher training, assisting all generations, and taking full advantage of digital technology and open source resources – in order for the UK to lead the world in digital education and training.

### Education to 16

Through its new computing curriculum, the UK has the opportunity to equip more of the nation's young people with a balance of ICT, computer science and digital literacy than ever before. Such an unprecedented move goes a long way to ensuring primary and secondary schools remain at the forefront of 21st century educational developments, but major challenges are inherent in implementation and the guarantee of its success. In assessing these challenges, the UK Digital Skills Taskforce has found that only 44.9% of secondary school ICT teachers have a post A-level qualification that is relevant to the subject, and that the overwhelming majority of primary school teachers do not have a background in computing<sup>75</sup>. The Taskforce highlighted

70 We need to equip everyone for the digital revolution, says skills taskforce, the Science Council, 2014. <http://www.sciencecouncil.org/content/we-need-equip-everyone-digital-revolution-says-skills-taskforce>

71 Young People Not in Education, Employment or Training (NEET), August 2014, the ONS, 2014. <http://www.ons.gov.uk/ons/rel/lms/young-people-not-in-education--employment-or-training--needs-/august-2014/stb---young-people-not-in-education--employment--training--needs---august-2014.html>

72 The Future Digital Skills Needs of the UK Economy, O2 and Development Economics, 2013. <http://cdn.news.o2.co.uk.s3.amazonaws.com/wp-content/uploads/2013/09/The-Future-Digital-Skills-Needs-of-the-UK-Economy1.pdf>

73 Frey, C. B. and Osborne, M. A., The Future of Employment: How Susceptible are Jobs to Computerisation?, the Oxford Martin School, 2013. [http://www.oxfordmartin.ox.ac.uk/downloads/academic/The\\_Future\\_of\\_Employment.pdf](http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf)

74 Skills for the Twenty First Century Summit, the RSA, 2014. <http://www.skills2014.com/#about-1>

75 Digital Skills for Tomorrow's World: Interim Report, the UK Digital Skills Taskforce, 2014. <http://www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder7-REDUCED2.pdf>

the results of a recent TES/Nesta survey that found that 60% teachers have reported a lack of confidence in delivering the curriculum, casting doubt over the preparedness of the education sector. Though the government has provided £3.5 million of funding to upskill the existing workforce, the Taskforce has warned that such an investment is inefficient and points out that such a figure is equivalent to only £175 per school across England's 20,000 state funded primary and secondaries. Following a conclusion from the UK Forum for Computing Education, the Taskforce recommends that an additional £20 million investment over the next parliament is the minimum required to guarantee teachers are provided with the training needed to deliver the curriculum. Drawing upon an estimate that 50,000 teachers will be needed to teach the new curriculum up to A-level, Policy Exchange recommend the establishment of a competitive grant pot for third parties who help teachers gain the skills needed to deliver the new computing **curriculum**<sup>76</sup>.

34. Therefore, the next government must provide substantial investment in teacher training for computer science, programming and relevant STEM subjects to **ensure that teachers are fully prepared to deliver the computing curriculum**, and able to respond to future educational developments.
35. We recommend the establishment of a **national endowment for teaching computing**<sup>77</sup> comparable to the grant pot advocated by Policy Exchange. This could ensure public money is efficiently targeted toward programmes providing everything from direct training to valuable liaisons between teachers and industry experts. We believe the appropriate investment is the additional £20m (minimum) suggested by the UK Digital Skills Taskforce to put computing on a par with mathematics and physics.
36. Such a scheme should be complemented by a **Teach Tech Next programme**, modelled on the highly successful Teach First initiative, that provides another mechanism in which to attract the digitally-qualified into teaching<sup>78</sup>. This would offer experienced professionals with an entry route into the teaching profession, bringing with them the experience and knowledge gained in industry. The opening of another recruitment channel is of particular importance in light of the government only hitting 57% of its 2013/14 target for computer science teacher recruitment<sup>79</sup>.

Beyond the shortage of suitably qualified teachers, the Royal Society has warned of “a lack of continuing professional development for teachers of computing”<sup>80</sup>. Continuing professional development (CPD) is essential for teachers who need a constantly evolving digital skill set and many educational bodies have expressed fears that the government's £3.5 million upskilling investment provides little support, with the BCS recommending that the government “should expand existing high quality CPD schemes for computing teachers, and ensure they have mainstream funding over the next decade at least”<sup>81</sup>.

76 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

77 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

78 Digital Skills for Tomorrow's World: Interim Report, the UK Digital Skills Taskforce, 2014. <http://www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder7-REDUCED2.pdf>

79 Initial teacher training: trainee number census - 2013 to 2014, HM Government, 2014. <https://www.gov.uk/government/publications/initial-teacher-training-trainee-number-census-2013-to-2014>

80 Shut down or restart? The way forward for computing in UK schools, the Royal Society and the Royal Academy of Engineering, 2012. <https://royalsociety.org/~media/education/computing-in-schools/2012-01-12-summary.pdf>

81 Call for Evidence - UK Digital Skills Taskforce, the BCS, 2014. <https://policy.bcs.org/sites/policy.bcs.org/files/BCS%20response%20to%20UKDST%20call%20for%20evidence%20final.pdf>



37. As such, the next government should **provide consistent investment in, and expansion of, existing continuing professional development (CPD) schemes for computing teachers** to guarantee their adaptability in the face of educational developments.

Furthermore, the continued development and adaptation of all schools' computing departments would be aided by greater input from those on the front line of digital industries and the promotion of "computing champions within schools"<sup>82</sup>.

Camden Council has created a 'ladder' of opportunity to get Camden children coding and to build their digital skills. All Camden's maintained schools subscribe to, or otherwise use the services of, the Camden City Learning Centre (CLC). The CLC provides opportunities for all Camden pupils to participate in day-long technology-rich projects led by a highly skilled team using the latest technology from programmable toys to robotics. Schools can then build on these experiences (e.g. nursery children exploring the use of programmable and remote controlled toys borrowed from the CLC). Activities at the CLC are always designed to develop creativity, to support the wider curriculum and to foster confidence and the ability to work both independently and as a successful team member.

Nurturing interest and talent in technology beyond the school day will be central to increasing both general skill levels and the supply of future technology specialists. To do this, Camden needs to harness support for our schools and teachers. A collaboration with Code Club has enabled staff from local businesses and Higher Education (UCL's Department of Engineering) to support Camden's intention to be the first Local Authority nationally to have a Code Club in every primary school. Nearly 75% of Camden schools have either an active club or are seeking volunteer partners. All Camden secondary schools have after school computing opportunities for those who have a particular interest to explore further.

38. The government should **encourage technology industry leaders to apply to school governor boards**, through the establishment of a network of school governors with expertise in computing, providing schools with the benefit of their experience and inter-industry relationships.
39. Furthermore, the government should **launch a Digital Challenge for Schools**, modelled on the London Challenge, to stimulate collaboration between schools and businesses on a regional level. This would centre around the emphasis on leadership that was key to the London Challenge's success, providing an environment in which local schools could support and learn from each other.

Finally, though major challenges exist in the successful delivery of *England's* new computing curriculum, it still leads the UK in institutionalising a digital education fit for the 21st century and the resultant benefits must be made available to all school children across the rest of the United Kingdom.

82 Digital Skills for Tomorrow's World: Interim Report, the UK Digital Skills Taskforce, 2014. <http://www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder7-REDUCED2.pdf>

40. Therefore, in ensuring that “a significant proportion of the 14-19 age group understands computing concepts”<sup>83</sup>, the next government must work with the devolved administrations to **guarantee the basic standards provided by the English computing curriculum are included in the curricula decided upon by the Scottish and Welsh Governments and the Northern Ireland Executive.**
41. Furthermore, the next government should experiment with an **open source UK curriculum to be used abroad.** This would continue a tradition of global educational influence and allow schools to reap the fiscal and educative benefits of free, open source resources (such as those available via TES Teaching Resources) developed throughout the world.

## Higher Education, Helping Our Workforce For Future Change and Migration

As the nexus that links education, research and industry, higher education establishments have a unique role in preparing the UK’s workforce for contemporary challenges and future changes. Of particular importance are university students who are well positioned to dispel misconceptions of digital jobs and skills and encourage a broader spectrum of young people to consider applying to computer science courses. Indeed, the Young Digital Taskforce has reported a prevalence of narrow stereotypes surrounding those who are looking to work in a digital job, with a prevailing impression of the tech industry being white, “geeky”, masculine and dull<sup>84</sup>.

42. Government should expand on the achievements of organisations that seek to counter these perceptions, such as TeenTech<sup>85</sup>, by rolling out a **national campaign to promote digital skills to school children.** University computer science students would sit at the heart of this initiative, being best suited to understand the perspectives of those below them in the education system, and must all be offered the Undergraduate Ambassador Scheme<sup>86</sup> through their departments<sup>87</sup>. The scheme provides STEM undergraduates with academic credits in return for working as teaching assistants and acting as role models to school children, encouraging university students to consider teaching while dispelling myths surrounding digital career paths to younger generations.
43. Misconceptions and skill deficits also exist within universities, and the next government should ensure that universities **provide students of all disciplines with extra-curricular opportunities in which to gain digital skills.** Where applicable, these would build on existing in-house skills programmes, offering classes and experiences to develop skills outside of (and complementary to) core subjects, and be linked to employability awards and internship schemes.

Furthermore, in providing careers and employability support to students and graduates, government and universities can work together to facilitate student placements in digital jobs. The UK Digital Skills Taskforce has suggested a “matching website” whereby students detail their skills and

83 ICT for the UK’s Future: the implications of the changing nature of Information and Communications Technology, the Royal Academy of Engineering, 2009. <http://www.raeng.org.uk/publications/reports/ict-for-the-uks-future>

84 Digital Skills for Tomorrow’s World: Interim Report, the UK Digital Skills Taskforce, 2014. <http://www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder7-REDUCED2.pdf>

85 <http://www.teentech.com/about-2/>

86 <http://www.uas.ac.uk>

87 Digital Skills for Tomorrow’s World: Interim Report, the UK Digital Skills Taskforce, 2014. <http://www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder7-REDUCED2.pdf>

experience while businesses signal their employment needs, with both groups free to explore their respective options and decide on the length and type of course that would provide most value<sup>88</sup>. The Taskforce advocates the National Centre for Universities and Business (NCUB) as being uniquely positioned to deliver the website, leveraging its expertise and cross-sectoral relationships.

44. Government should adopt the recommendation of the Taskforce and fund the National Centre for Universities and Business (NCUB) to work with other sector bodies to **establish a matching website to connect students with tech businesses across the UK.**

Further to targeting education establishments, government must also recognise the need to retrain and reskill the existing workforce in order to plug the shortfall in the supply of the digitally qualified. As government does not hold the capacity to reskill the entire population, employers must share the burden of improving their staff's digital skills, working with unions and staff groups to provide employees with training opportunities<sup>89</sup>.

45. As such, job seekers must be offered digital skills training to help them back into the workforce through collaboration between businesses and unions. In doing so, government can contribute by establishing **a national fund with the explicit goal of digitally upskilling the UK.** Its funds would be used to provide free massive open online courses (MOOCs), after obtaining discounted rates from major suppliers commensurate with the enormous demand, and real world training opportunities for citizens in and out of the workforce.

Finally, migration has a major role to play in meeting the UK's digital skills needs in education and the workplace. With almost half of technology businesses looking outside of the UK when employing new staff, Policy Exchange have warned of the challenge to the digital economy presented by changes to visa regulations, which, they conclude, has “effectively shut the door to many of the best and brightest from around the world, and even to international students who have studied in the UK”<sup>90</sup>. Between 2010 and 2013, the number of non-EU international students entering STEM courses at UK universities fell by 8% and 20% for undergraduate and taught postgraduate respectively, while computer science saw a decline of 38% across undergraduate and postgraduate courses. Furthermore, 35% of UK computer science graduates do not receive an annual salary in excess of £20,000 in the six months after their graduation and yet visa requirements stipulate that migrants must earn at least £20,300, closing the door to many international skilled workers and British startups<sup>91</sup>. Not only should those studying in UK universities be able to offer their skills to the nation's economy after graduation but SMEs should have the ability to remain competitive while employing skilled migrants.

46. As such, the next government should reform visa regulations to provide a **one year “Programmers’ Passport”** whereby, upon successful assessment, digitally skilled migrants from outside the EU may reside in the UK and be provided with support in matching with domestic businesses.

88 Ibid

89 Ibid

90 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

91 Ibid

## Further Education and MOOCs

Rapid developments in digital technology and their effects on workers place increased importance on further education and lifelong learning, particularly for older generations. As people enjoy longer, healthier lives, they expect to work longer. The Institute for Fiscal Studies (IFS) predicts that, by 2022/23, the proportion of working women aged 65-69 may reach 37%<sup>92</sup>. The UK Digital Skills Taskforce has warned of the implications of demographic change, citing a CBI report on the creative industries where 66% of firms reported that IT skill problems are “likely to be concentrated amongst older workers” and noting a 46% decline in part-time university students, who are predominantly mature, in the last 4 years<sup>93</sup>. These factors must be given a level of attention commensurate with the problems presented by a lifelong learning system that is “not fit for purpose”.

47. Government should **commission a major review of lifelong learning** to ensure full support is given to citizens as they maintain a level of digital skills throughout life.
48. Finally, massive open online courses (MOOCs) offer one avenue in which lifelong learning can be improved. The next government should explore the possibility of negotiating with MOOC providers, to **deliver quality higher education MOOCs to UK citizens at a fraction of the price of existing qualifications**, with particular emphasis on those that contribute toward digital upskilling. The Open University is already in the vanguard of this movement with Futurelearn, an initiative offering free courses in conjunction with 20 universities.

92 Emmerson, C., Heald, K., Hood, A., The Changing Face of Retirement, the IFS, 2014. <http://www.ifs.org.uk/uploads/publications/comms/r95.pdf>

93 Digital Skills for Tomorrow's World: Interim Report, the UK Digital Skills Taskforce, 2014. <http://www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder7-REDUCED2.pdf>

## 5. Government and Public Services

Digital technology and processes have the potential to transform the way in which public services are delivered and forge a new era of government flexibility and efficiency as it responds to 21st century challenges. In a time of fiscal prudence, the cost saving potential of moving transactions online and rationalising operations can relieve pressure on squeezed budgets whilst dramatically increasing speed and responsiveness. It is now straightforward to accumulate and assess data to educate all areas of public policy, expanding government's attention to detail and opening up new avenues for inclusion and transparency (as well as raising serious questions over personal privacy and the ownership of data). Never before has it been possible, both financially and practically, to cater public services to the individual and community, transforming long-held assumptions over the role of the State and offering a chance to break from the tired dichotomy of inflexible, monolithic government vs. wholesale privatisation and marketisation. As such, the digital age presents the UK with the chance to take the useful aspects of the individualist, consumer revolution while reigniting a recognition of shared responsibilities. As Policy Exchange conclude: "delivering more with less by being smarter"<sup>94</sup>. Great leaps have been made toward realising this goal, such as the Government Digital Service (GDS), founded in 2011, that has delivered the award-winning gov.uk domain, replacing over 300 service and departmental websites. Meanwhile, other digital initiatives saved the taxpayer over £500 million in 2013 and further digitisation is expected to save £1.7 billion per year after 2015<sup>95</sup>. Though recent results have been impressive, the UK still has a long way to go in exploiting the potential of digital technology in government and the delivery of public services.

### Digital by Default

In 2009 the public sector spent around 1% of GDP on ICT<sup>96</sup> and each year a large part of this budget is spent purchasing and maintaining an interconnected nexus of hundreds of unstandardised, often ad-hoc pieces of hardware, software and other processes. This impinges upon the effectiveness of departments, their ability to work together and learn the lessons of bad practices, as well as increasing procurement costs and precluding productive economies of scale. In recognising the need to streamline the government's digital nexus, the GDS has highlighted the success of the platform-based operating models used by major online companies: "Google, Amazon, Twitter and Facebook, among many others, have all built their success on the back of platforms. They have developed a core technology infrastructure that others have then built upon, driving the success of the platform and meeting far more users' needs than the original provider could have done on their own."<sup>97</sup> These platforms provide standardisation, scalability and are driven by data, offering a high-quality user interface that can be easily reproduced across departments. A prime example of such an approach already exists within government in the form of the GDS's design principles, which focus on design, data, iteration and consistency<sup>98</sup>.

94 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

95 Ibid

96 Government Digital Strategy 2013, HM Government, 2013. <https://www.gov.uk/government/publications/government-digital-strategy/government-digital-strategy>

97 Government as a platform, HM Government, 2014. <https://www.gov.uk/service-manual/technology/government-as-a-platform.html>

98 Design Principles, the GDS, 2012. <https://www.gov.uk/design-principles>

49. While the government has stated its intention to move toward a platform-based operating model, it must **formally commit to the wholesale adoption of a Government as a Platform (GAAP) model based on open standards**. The GDS should take a leading role in the development and management of the platform, limiting the prevalence of ad-hoc products and processes and simplifying interactions within government and between public sector organisations.

Open standards allow organisations to free up the development of the IT products and processes they use to external parties, who may have greater levels of specialised knowledge and cheaper methods of production. The resultant competition between developers drives innovation and saves costs, stimulating the digital economy and offering benefits to wider society. Prime examples of this process include the highly popular Zoopla website and Citymapper app, which are built on data from the Land Registry and Transport for London, respectively, through the opening up of their APIs.

50. Though government has made progress in opening up its APIs<sup>99</sup>, it should aim to **expose 50% of all APIs for transactional services by 2018**. This would allow anyone to gain access to the read and write APIs of the most used public services, ushering in a new era of beneficial innovation and government accessibility.

The government provides more than 750 transactional services to citizens. Of these, 150 are defined as “high-volume services”, having over 750,000 transactions per year, or a yearly departmental spend in excess of £750 million<sup>100</sup>. These account for more than 95% of all interactions between government and its citizens and businesses<sup>101</sup>. While the government has taken steps to improve accessibility through digitising 25 “exemplar services”<sup>102</sup>, around half of all government transactional services do not have any digital option at all, contributing toward the total government spend on non-digital transactions of £4 billion<sup>103</sup>. Indeed, though the move to digitisation is made difficult by the 17% of UK citizens who are currently offline, more precise private and voluntary sector targeting of assisted digital support has the potential to save up to £2.7 billion from the government’s non-digital spend<sup>104</sup>.

51. In order to address this deficit, the government must ensure that all **150 of the highest-volume government transactional services are converted to a digital-by-default standard by 2020**, complementing the already existing aim to digitise any new services introduced after April 2014<sup>105</sup>.
52. In achieving this aim, all government departments and local authorities should be required to **publish annual digitisation progress reports** that detail which processes have been digitised and those that can and cannot be digitised in the following year.

99 For example, over 1500 third party commercial providers are accredited to use HMRC’s third party integration suite. See: Government Digital Strategy 2013, HM Government, 2013. <https://www.gov.uk/government/publications/government-digital-strategy/government-digital-strategy>

100 High-volume services, HM Government, 2014. <https://www.gov.uk/performance/transactions-explorer/high-volume-services/by-transactions-per-year/descending>

101 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

102 <https://www.gov.uk/transformation>

103 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

104 Government approach to assisted digital, HM Government, 2013. <https://www.gov.uk/government/publications/government-approach-to-assisted-digital/government-approach-to-assisted-digital>

105 Government Digital Strategy, HM Government, 2012. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/296336/Government\\_Digital\\_Strategy\\_-\\_November\\_2012.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296336/Government_Digital_Strategy_-_November_2012.pdf)

53. To ensure continued coverage to those citizens who remain offline while capitalising on the significant savings from moving to digital, **non-digital public service provision should be replaced with high-quality assisted-digital services.**

Alongside transactional services, there is great scope to improve basic, yet crucial, aspects of government's day-to-day functions, with a number of "low hanging fruit" existing where exploitation of existing technology can provide significant efficiency gains and cost savings. For example, it is estimated that the adoption of electronic purchasing methods can save organisations between 3% and 10% on the price of frequently purchased, low-cost items. This results from increased access to high value deals and competition between suppliers, opening the public sector up to billions of pounds in potential savings, and providing value to the wider economy<sup>106</sup>.

As well as internal processes, many basic external, citizen-facing processes are encumbered in their utility by remaining analogue. In particular, nearly all proofs – that is, certification, driving licenses, identity documents, etc. – are still produced and provided through analogue systems. Though security and privacy considerations should always be at the top of the agenda when reforming sensitive services, the lack of electronic proofs presents a hindrance to citizens in the face of the digitisation of many essential, commercialised services, such as banking.

54. In solving this problem, the next government should upgrade the nation's official documentation by **developing and adopting universal electronic proofs**, ensuring compatibility with all modern services that require their use and using the identity framework mentioned elsewhere in this document.

Furthermore, a lack of standardisation of data across government and the public sector inhibits citizens' ability to learn and act on the decisions that affect their lives. Many data sources are provided in flattened form, making it hard to input data into relational databases, and disparities in format, presentation and source exist across the public sector, with PDFs often utilised over more accessible formats.

55. In order for all citizens to be able to access and compare available government data, **all presentation and formatting of public data and information must be standardised across departments and services**, both internally and externally. This is particularly important in the case of freedom of information (FoI) requests and can be complemented by an expansion of the 83 real-time performance dashboards introduced by the GDS<sup>107</sup>.

The digitisation of services and processes also presents an enormous opportunity for government to exploit the vast quantities of data it creates and accumulates, with, for example, HMRC estimated to hold approximately 80 times the data of the British Library<sup>108</sup>. These information stores could be used in conjunction with data analysis techniques, enabling an increase in evidence-based policymaking and efficiency gains that Policy Exchange estimate could save

106 Yiu, C., Fink, S., Smaller, Better, Faster, Stronger: Remaking government for the digital age, Policy Exchange, 2013. <http://www.policyexchange.org.uk/images/publications/smaller%20better%20faster%20stronger.pdf>

107 <https://gds.blog.gov.uk/2014/05/14/releasing-all-the-things-a-good-day-for-the-performance-platform>

108 Pollock, I., On the trail of the offshore tax dodgers, BBC, 2011. <http://www.bbc.co.uk/news/business-16111639>

the public sector between £16 billion and £33 billion a year<sup>109</sup>. However, as yet, little progress has been made in realising this potential.

**56.** In order to maximise the value of its data assets, government should **establish a dedicated Advanced Analytics Team (AAT) within the Cabinet Office** that ascertains the best big data opportunities for the public sector, ensures the spread of innovation and best practices, and maintains common standards. The team would work closely with BIS, data protection teams and CTOs to maximise the value of big data analytics across all departments and processes.

The use of big data comes with concerns about privacy and its correct application. Public concern around the care.data scheme has highlighted a number of important considerations for government when collecting and using data on its citizens. Foremost among them is the level of mistrust toward government as a handler and user of personal data in an era where highly sensitive State assets and responsibilities are being sold to often unaccountable private organizations and firms. Furthermore, care.data underlined the dangers of misinformation stemming from the media and an innate suspicion, and even fear, of new data collection techniques. These considerations reaffirm the need to increase public scrutiny over government collection and use of big data.

**57.** To ensure that the enormous opportunities from the use of big data can be realised alongside responsible, publicly scrutinised management, the government should **establish an Independent Committee of Data Ethics responsible for writing a Code for Responsible Analytics**. The Committee would comprise of members from government, the judiciary, businesses, charities and civil society and citizens' groups to ensure that innovations in the uses of data by government move in step with transparent protections that honour individual rights and freedoms and the rule of law.

**58.** This Code would work alongside a **legal and regulatory system for the collection, use and sharing of big data for both the public and private sectors**. This is particularly important in the interface between government departments and private contractors where sensitive personal data collected by the public sector is analysed by firms on the behalf of government. The myriad concerns of citizens and business must be considered, allowing big data to be exploited without threatening privacy, safety and intellectual property rights.

Finally, a coherent, long term strategy must reside over the digitisation of government in the UK. Though the GDS, the Cabinet Office and the Government Digital Strategy Reviews provide scope in which initiatives can be coordinated alongside a strategic vision, many inter-related programmes have sprung up in the last few years, as well as those recommended in this document, increasing the potential for strategic drift. As with all areas of public policy, short termism can be highly dangerous when seeking to maximise the benefits of digital technology and processes, especially when facing the plethora of different organisational and political structures across the world.

<sup>109</sup> Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>



59. In order to ensure that the gains from all forms of digitisation are maximised, government must institute **digital impact assessments on all parliamentary bills**. As yet, there is no compulsory requirement to assess the scope and impact of digital processes on a given bill, similar to that used by the Treasury to assess financial implications. Such assessments would ensure that any new legislation took full consideration of the extent that digital processes and big data could be used, what procurement and contracting services and procedures were required, and the wider ethical, economic and social implications.

## IT Procurement for Government

In the past, government departments have relied on a small number of large suppliers when procuring IT services, with, at times, as much as 70% of IT spending going to only 7 companies<sup>110</sup>. Reliance on a small pool of suppliers can present considerable costs, through a lack of competition as well as the entrenchment of vested interests, stymying innovation and increasing scope for moral hazard. Indeed, the Government Digital Strategy admits that “departments currently rely on a few, large systems integrators to supply their digital requirements. They can lack the in-house expertise to act as a challenging and informed client, and this has resulted in expensive and inflexible long-term contracts which do not support delivery of services likely to meet the forthcoming digital service standard.”<sup>111</sup> Furthermore, such an approach effectively prices out SMEs, who often provide more innovative digital services, from obtaining contracts, with many businesses reporting that the current procurement procedures are excessively bureaucratic<sup>112</sup>. Though the government has set a target for 25% of procurement to be supplied by SMEs, the Public Accounts Committee has concluded that “[it] has not yet done enough to provide greater opportunities for SMEs to win government business. The government has a long way to go in its aspiration to achieve 25% of its procurement spending with small businesses by 2015. Current data suggests that, despite clear commitments, only 10% of government spending is currently with SMEs”<sup>113</sup>.

60. In order to rebalance IT procurement, government must **simplify the procurement process to ensure equal opportunities exist for SMEs**, removing biases toward large firms and incumbents, where appropriate. This would require government to meet and improve on its own 25% target, expand useful initiatives such as Cloudstore and the G-Cloud framework, and reduce bureaucratic processes that favour larger incumbents with institutional knowledge. Opportunities for SMEs to jointly bid for procurement contracts should also be encouraged.

Further to the deficit in SME procurement, concerns have been raised over the costs associated with having a limited pool of large contractors and the resultant propensity for monopolistic and oligopolistic behaviour. In their submission to the Digital Government Review, the Public

110 Yiu, C., Fink, S., Smaller, Better, Faster, Stronger: Remaking government for the digital age, Policy Exchange, 2013. <http://www.policyexchange.org.uk/images/publications/smaller%20better%20faster%20stronger.pdf>

111 Government Digital Strategy, HM Government, 2013. <https://www.gov.uk/government/publications/government-digital-strategy/government-digital-strategy>

112 Bakhshi, H., Hargreaves, I. and Mateos-Garcia, J., A Manifesto for the Creative Economy, Nesta, 2013. <http://www.nesta.org.uk/sites/default/files/a-manifesto-for-the-creative-economy-april13.pdf>

113 Improving government procurement and the impact of government's ICT savings initiatives, Parliament and the Public Accounts Committee, 2013. <http://www.publications.parliament.uk/pa/cm201314/cmselect/cmpubacc/137/13704.htm>

and Commercial Services Union (PCS) has warned of the risks of waste as well as inefficiencies resulting from exploitation of contract terms by private providers, such as the emergence of a “bloated middle-management structure that manages and re-negotiates contracts with departments and other providers”<sup>114</sup>.

61. In a further effort to overcome the deficit in SME procurement, the government has expanded the GDS’s remit by introducing a Digital Procurement Framework that aims to streamline the ability for agile SMEs to compete for contracts<sup>115</sup>. Government should **reconfigure the GDS remit expansion to assist in a process of rationalisation of the non-GDS tech consultancy spend**, to ensure wasteful management processes are reduced and to identify waste in private sector contracts for digital services.
62. Furthermore, reform of the government’s IT procurement procedures could benefit from the **establishment of a National Institute for ICT Excellence (NIITE)** along the lines of that advocated by an informal group of independent IT professionals and specialists in their submission to the Digital Government Review<sup>116</sup>. This permanent body would comprise of experienced civil servants and industry specialists, providing expertise and objective, evidence-based advice and encouraging organisational learning for government when procuring digital services and investment.

Finally, digital processes can be used to target the waste inherent in the running of any large organisation. Stories abound of the waste that can sometimes occur in public procurement<sup>117</sup>, including unnecessary and duplicate purchases, while the average cost of a procurement project are the most in the EU, at £45,200 against the EU average of £23,900<sup>118</sup>.

63. The next government should **create a digital database of assets in public ownership**, with the aspiration to catalogue all government assets over £1000 by 2018, leading to substantial cuts in procurement costs by 2019/20. This would ensure that public assets were universally mapped, reducing the scope for unnecessary purchasing and allowing departments to pool resources and be consistently cognisant of underutilised capital. It would also facilitate efforts to drive efficiencies through cross-government procurement.

## Local Government

Under the policies of the current government, local authorities face unprecedented real terms cuts, with some departments having lost nearly a majority of their funding<sup>119</sup> and projections up to 2018 pointing to a 40% real terms cut in local government<sup>120</sup>. Local authorities hold the

114 PCS response to Labour’s Digital Review, the Public and Commercial Services Union, 2014. <https://www.dropbox.com/s/w5kvrccgspt03x6/PCS%20IT%20Response%20.pdf>

115 Bakhshi, H., Hargreaves, I. and Mateos-Garcia, J., A Manifesto for the Creative Economy, Nesta, 2013. <http://www.nesta.org.uk/sites/default/files/a-manifesto-for-the-creative-economy-april13.pdf>

116 Tackling the Problem of Improving the Delivery of Major Software Systems to UK Central Government, Submission to Labour’s Digital Government Review, 2014. <https://www.dropbox.com/s/hbtzsmpt7f95yhp/NIITE%20proposal%20v0.5.pdf>

117 See, for example: Bumper Book of Government Waste, the TaxPayers’ Alliance, 2013. <http://www.taxpayersalliance.com/bbgw2013.pdf>

118 UK Procurement Most Expensive in EU, the Centre for Economics and Business Research, 2013. <http://www.cebr.com/reports/uk-procurement-most-expensive-in-eu/>

119 Crawford, R., Phillips, D., Local government spending: where is the axe falling? The Institute for Fiscal Studies, 2012. <http://www.ifs.org.uk/budgets/gb2012/12chap6.pdf>

120 Cymbal, M., Transport Transformation: Showing the true cost of transport, Northgate Public Services, 2013. <http://www.northgate-ispublishingservices.com/Literature/Files/Northgate->

responsibility of delivering some of the most important and frequently used public services across government and these cuts raise inevitable questions as to the continued quality, and even existence, of these services<sup>121</sup>. Digitisation offers a mechanism in which to reduce cost in this highly squeezed fiscal environment while improving the efficiency and quality of service provision. For example, over 400 local authority websites exist and, with limited standardisation, there is great variation in quality and ease-of-use across each. This can present barriers to use, especially in older generations and less digitally literate, high volume service users. Digital opportunities abound for councils, particularly in the effect big data can have on educating local policy and service provision, and in boosting local economies through the expansion of SME procurement. In adopting digital processes, councils must ensure they are not caught up in the bad practices of old, such as the propensity to use big IT firms as a matter of course, and that they reap the benefits of collaboration. As Policy Exchange have noted: “though they must be free to determine their own course, local authorities will fail to achieve the benefits of digital government if they try to undergo the transformation completely independently of one another”<sup>122</sup>.

64. In allowing local authorities to reap the benefits of digitisation, the GDS should be expanded to **create an overall Local Government Digital Service (LGDS)**, providing resourcing and support in helping to upgrade existing processes and apply GAAP resources. The LGDS would be based on the GDS model but take the form of a coordinated coalition, empowering local bodies to assess, debate and commission digital projects, with support from the Local Government Association (LGA), SOLACE and the Department for Communities and Local Government (DCLG).

Alongside improving public services for citizens and navigating the recent fiscal environment, increasingly digitally savvy councils can utilise their skills to bring and boost the benefits of the digital economy to their local areas. Though London dominates the technology and creative landscape, other important hubs exist in, among others, Manchester, Brighton, Cambridge, Edinburgh and Cardiff, and even within areas of London, such as East London’s Tech City. These clusters are highly beneficial to local economies, bringing value beyond the sum of their parts through innovation spillovers, increased prevalence of specialist workers, investors and suppliers, and collaborative support through fast moving “agglomeration economies”. As Nesta notes, local councils and groups have consistently encouraged and stimulated the development of clusters, attracting inward investment, incentivising businesses to integrate into local supply chains and even betting on their clusters in the hope of creating a competitive brand<sup>123</sup>. However, in the same breath, Nesta concludes that “the track record of these initiatives is patchy to say the least” and that this partly results from “unrealistic expectations among policymakers - experience suggest that successful clusters develop organically and over long periods of time”.

65. To ensure that local authorities are able to maximise the benefits of the digital economy in their area, local and central government bodies should work with industry leaders to **standardise and implement a local approach for developing creative clusters**, based

Public-Services-Transport-Transformation---Showing-the-cost-of-transport.pdf

121 For example, Sir Albert Bore’s conclusion that recent cuts present “the end of local government as we know it”. See: Birmingham City Council announces cuts and job losses, the BBC, 2012. <http://www.bbc.co.uk/news/uk-england-birmingham-20038979>

122 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

123 Bakhshi, H., Hargreaves, I. and Mateos-Garcia, J., A Manifesto for the Creative Economy, Nesta, 2013. <http://www.nesta.org.uk/sites/default/files/a-manifesto-for-the-creative-economy-april13.pdf>

along the guiding principles given by Nesta in its *Manifesto for a Creative Economy*<sup>124</sup>. Local government would be encouraged to develop blueprints for local skills development, connectivity and infrastructure, local information and services, business support and so forth.

## Crime and Policing

Accompanying these opportunities, the digital revolution presents government with new challenges and dimensions in its basic responsibilities to protect its citizens. Cybercrime and threats from within and out of the country are on the rise. At IA14, the government's flagship event for cyber security and information assurance, Francis Maude reflected on 2013/14's major security threats, highlighting the effect of recent attacks on eBay accounts and revealing that a "state-sponsored hostile group gained access to a system administrator account on the Government Secure Intranet" only to be discovered and dealt with<sup>125</sup>. Indeed, the Cabinet Office estimates that cybercrime enacts a £27 billion a year cost on the UK<sup>126</sup>, with 81% of large corporations and 60% of small businesses reporting a security breach in 2013 alone<sup>127</sup>. For the worst cyber-security breaches, cost can be as much as £1.15 million for large businesses and £115,000 for small businesses<sup>128</sup>, which, in the case of the latter, can often be fatal. Though action has been taken by the government, with the allocation of £650 million over 4 years by the Strategic Defence and Security Review to establish the National Cyber Security Programme (NCSP)<sup>129</sup>, only 16.1% of the Programme's budget is apportioned to combat cybercrime<sup>130</sup>. As Policy Exchange conclude, "the scale of the problem highlights that there is more left to do"<sup>131</sup>. As we become increasingly reliant on digital payments (online banking any PayPal in the last decade, potentially Apple Pay and Bitcoin in the next) the opportunity for cybercrime is only set to grow.

**66.** To combat the rise in costly online crime, the **proportion of the NCSP's budget allocated to law enforcement and combating cybercrime should be increased**, with a particular focus on equipping the police force and justice system with the necessary skills and expertise to rise to emergent threats.

In recognising that cyber security and safety extends to the home, the Prime Minister announced, in 2013, that internet service providers (ISPs) in the UK were to offer "unavoidable choice" content filters that block legal pornography and adult subjects "by default"<sup>132</sup>. The resulting measures caused controversy, with many commentators citing concerns over censorship, and have been overwhelmingly opted-out of or, in the case of Virgin Media, not been offered to the vast majority of customers<sup>133</sup>. These experiences make it clear that greater public scrutiny of what should be available to different age groups on the internet is required. This should be

124 Ibid

125 Francis Maude speech at IA14, HM Government, 2014. <https://www.gov.uk/government/speeches/francis-maude-speech-at-ia14>

126 The Cost of Cyber Crime, HM Government, 2011. <https://www.gov.uk/government/publications/the-cost-of-cyber-crime-joint-government-and-industry-report>

127 Keeping the UK safe in cyber space, HM Government, 2014. <https://www.gov.uk/government/policies/keeping-the-uk-safe-in-cyberspace>

128 Ibid

129 Ibid

130 Progress against the Objectives of the National Cyber Security Strategy - December 2013, HM Government, 2013. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/265384/Progress\\_Against\\_the\\_Objectives\\_of\\_the\\_National\\_Cyber\\_Security\\_Strategy\\_December\\_2013.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/265384/Progress_Against_the_Objectives_of_the_National_Cyber_Security_Strategy_December_2013.pdf)

131 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

132 The internet and pornography: Prime Minister calls for action, HM Government, 2013. <https://www.gov.uk/government/speeches/the-internet-and-pornography-prime-minister-calls-for-action>

133 Ofcom Report on Internet safety measures, Ofcom, 2014. [http://stakeholders.ofcom.org.uk/binaries/internet/internet\\_safety\\_measures\\_2.pdf](http://stakeholders.ofcom.org.uk/binaries/internet/internet_safety_measures_2.pdf)

within parameters set according to the rule of law, and the understanding that ISPs, social media sites and search engines are unable to undertake a policing role and should not be given one.

67. The government should make an **explicit, publicly scrutinised commitment to ensure only illegal websites are blocked from public use**, with basic legal parameters comprising the foundation by which parents and guardians may then filter content in the home.

## The Future of Public Sector Data

The collection and use of data lies at the heart of the digital revolution. Ensuring that data is open and its collection is transparent is a key first step in realising its potential whilst sustaining a progressive balance of power between citizens and government, and offering economic opportunities to both. Indeed, in a recent BIS Market Assessment of Public Sector Information report, Deloitte estimated that the “social value...of public sector information to consumers, businesses and the public sector [was] between £6.2 billion and £7.2 billion in 2011/12”<sup>134</sup>.

68. In ensuring transparency and the openness of public data, government should **require public sector bodies to audit and declare the non-personal datasets they hold**, publishing a schedule for future release<sup>135</sup>. This would also enable citizens to see what data can be requested and what is missing, while allowing businesses to exploit datasets and plan investment and resource allocation in line with the audit and release cycle.

Increased openness of public data also offers an economic opportunity for government. Of particular use is that held by the Ordnance Survey. Research by BIS lists geospatial data among the highest value forms of public sector information<sup>136</sup>, with most government departments and public sector bodies using Ordnance Survey maps, as well as startups and businesses.

69. In realising the revenue raising potential that Ordnance Survey (OS) holds while opening its data up to wider use, government should **investigate per usage pricing for non-free OS information with intention of delivering as much revenue as currently achieved but with more open access to information**. This would entail licensing OS APIs on a volume basis, such that non-free data is charged at a nominal price per use, opening it up to citizens while maximising revenue from large, corporate users.

134 Market Assessment of Public Sector Information, Deloitte for the Department for Business Innovation & Skills, 2013. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/198905/bis-13-743-market-assessment-of-public-sector-information.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/198905/bis-13-743-market-assessment-of-public-sector-information.pdf)

135 Copeland, E., Fink, S., Scott, C., Technology Manifesto, Policy Exchange, 2014. <http://www.policyexchange.org.uk/publications/category/item/technology-manifesto>

136 Ibid

## 6. Digital Citizenship: Privacy and Politics

The epochal shift towards digital demands a moment of reflection on the values that will drive this new age. Never before have technological processes enabled the scale of data collection we see today, and never before have citizens so readily parted with information on their day-to-day lives. As discussed throughout this report, this brings with it enormous potential for the public good as well as new responsibilities to maintain existing rights and freedoms.

The Internet has created and enabled means of expression, unimaginable to previous generations, which are now embedded in the lexicon of fundamental rights and freedoms. As the digital era begins, the opportunity to engage citizens in entirely new ways must be at the forefront of the process of politics.

### Digital Privacy, Identity and Online Safety

There is enormous public support throughout the world for the recognition of basic digital rights. It is widely argued that access to the internet should be treated as a basic human right and that national and international bodies are needed to protect freedoms in the use of its functions<sup>137</sup>. Calls for explicit recognition of these rights have increased in the wake of the Edward Snowden and Wikileaks affairs, and, with the UN consistently underlining the role the internet plays in freedoms of expression and opinion<sup>138</sup>, there is an urgent requirement for government to be explicit about the fundamental rights its citizens are entitled to in the digital era.

**70.** A Labour government could bring together many of the strands of this report by **supporting, endorsing and committing to a Digital Magna Carta**, comparable to that presented by WePromise.eu at the European Parliament elections<sup>139</sup>. Such a Charter would ensure protections for the basic rights now associated with the internet and digital technology and an appropriate balance between national security and the public's reasonable expectations of transparency and accountability.

Trust in governments and digital firms has been eroded in the wake of major security breaches. Retailers collect vast datasets on the behaviour of nominally consenting consumers that are then sold to other organisations. Though initiatives such as a Midata<sup>140</sup> are encouraging a migration back to public ownership, Nesta warns of a tipping point in which further privacy revelations and the inception of even more complex technology will see an end to public complacency over their data rights<sup>141</sup>. Trust in public data collection can be damaged by blurring between the private and the public sectors, as seen in commentary on the recent care.data plans and debate over the current government's desire to privatise key elements of the UK's public data infrastructure<sup>142</sup>.

137 See, for example, Global Internet User Survey 2012, the Internet Society, 2012. [https://www.internetsociety.org/sites/default/files/GIUS2012-GlobalData-Table-20121120\\_0.pdf](https://www.internetsociety.org/sites/default/files/GIUS2012-GlobalData-Table-20121120_0.pdf)

138 Report of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression, Frank La Rue, UN General Assembly, 2011. [http://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.27\\_en.pdf](http://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.27_en.pdf)

139 <https://www.wepromise.eu/en/page/charter>

140 <http://www.midatalab.org.uk>

141 The growing movement to take back control of personal data will reach a tipping point, says Geoff Mulgan, Nesta, 2014. <http://www.nesta.org.uk/news/14-predictions-2014/people-powered-data>

142 Syal, R., Land Registry privatisation plans abandoned by ministers, the Guardian, 2014. <http://www.theguardian.com/politics/2014/jul/14/land-registry-privatisation-plans-abandoned-ministers>

71. The next government must overhaul the approach to government-held data on citizens, ensuring that **information and data is owned by and accessible to the individual** from whom the data has been collected; that there is personal control over personal data.
72. To further ensure data protections, government must **improve the transparency of the public data infrastructure and ensure protections against privatisation** through establishing a Royal Commission to create a flexible, secure, publicly-owned data infrastructure for the 21st century.
73. Trust can be further built by providing **online protection guarantees for the public sector**, ensuring that a conciliatory and compensatory process is on hand for citizens who experience error or fault in online public services. These would reassure the public that they are protected against instances when online services go wrong.

Beyond political and community engagement, digital citizenship also includes the concept of “digital personhood”. This is defined by the OECD as being the “recognition of a human being as having status as a person in the electronic realm”<sup>143</sup> and comes with attendant responsibilities and rights to privacy and safety<sup>144</sup>. Of particular contemporary relevance is the online “right to be forgotten”, ruled by the Court of Justice of the European Union, that provides individuals with the conditional right to ask search engines to remove links that lead to personal information<sup>145</sup>. The ruling joins California’s “eraser button” bill that provides all under-18s with the ability to remove content from any website, and ensures companies are clear on how citizens may do so<sup>146</sup>. These legislative moves are in response to privacy concerns arising from the ever-increasing volume and availability of personal data on social media and other sites, with, in particular, younger generations having a considerable online presence during sensitive periods of their development.

74. The government should complement existing EU regulations on the right to be forgotten by **introducing a right for citizens to permanently delete personal and sensitive data** they have provided to public websites, particularly social media, before turning 16. The implementation of this would be overseen by the Information Commissioner’s Office. It would extend EU directives that target inaccurate, inadequate, irrelevant or excessive information used for the purposes of data processing<sup>147</sup>.

Alongside personal data on social media and other websites, integrated systems that collect, store, transmit and process all forms of data on individuals are becoming more ubiquitous, offering improvements in everything from public health management to real time tolling of congested roads. While data on everyday behaviour offers enormous possibilities to individuals, businesses and policymakers, its collection and use has the potential to impact significantly on privacy. As such, identity management (IDM) is set to become the central theme in matters of personal privacy, with the OECD concluding that “*a decisive factor in whether the ubiquitous information environment makes for a healthy or repressive information society is whether the user enjoys control of identity information relating to him*”<sup>148</sup>.

143 At a Crossroads: “Personhood” and Digital Identity in the Information Society, OECD, 2008.

144 Of which are discussed further in Chapter 7, Progressive Values, including the ownership of public data and its infrastructure.

145 Factsheet on the “Right to be Forgotten” ruling, the European Commission, 2014. [http://ec.europa.eu/justice/data-protection/files/factsheets/factsheet\\_data\\_protection\\_en.pdf](http://ec.europa.eu/justice/data-protection/files/factsheets/factsheet_data_protection_en.pdf)

146 Senate Bill No. 568, Chapter 336, California State Legislative Information, 2014. [http://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=201320140SB568](http://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB568)

147 Factsheet on the “Right to be Forgotten” ruling, the European Commission, 2014. [http://ec.europa.eu/justice/data-protection/files/factsheets/factsheet\\_data\\_protection\\_en.pdf](http://ec.europa.eu/justice/data-protection/files/factsheets/factsheet_data_protection_en.pdf)

148 At a Crossroads: “Personhood” and Digital Identity in the Information Society, OECD, 2008.

75. Therefore, in order to honour its responsibility to protect its citizens' privacy, the government should **develop an official UK online federated identity management framework**, spanning both government and non-government uses.

A key area in which privacy intersects explicitly with safety is in the terms and conditions for online services. In nearly all cases these agreements are both lengthy and complex, with, for example, the iTunes terms and conditions being longer than Macbeth and the text of the PayPal user agreement extending beyond that of Hamlet, at over 36,000 words<sup>149</sup>. It is extremely time consuming for users to read through the greater extent of the agreement to which they are to be bound, with many users neglecting to read the most important elements<sup>150</sup>, increasing the chance of information asymmetries between service provider and user and the potential for moral hazard and product misuse. Furthermore, many license agreements include clauses that aren't relevant to UK residents and those that could be standardised across all agreements (such as the infamous Apple stipulation that products will not be used to develop, design, manufacture or produce nuclear missiles or chemical and biological weapons).

76. In response, government should catalyse and encourage a **standardised set of privacy agreements across major online services**, comparable to the "Creative Commons" terms. Online services would then sign-post when terms, and subsequent updates, differed from the standard, rather than asking readers to read the entire document upon installation or first time use.
77. In building trust in data collection and use, government should **raise awareness of privacy and safety controls that already exist** in public and private sector services and products through a government- and industry-backed privacy awareness campaign.
78. On top of promoting public information on already existing measures, the government must provide clarity to citizens on data protection by changing **regulation to focus on the use rather than collection of data**. This would ensure that the lines between personal and non-personal data are clear and that citizens are fully aware of laws that govern the use of data without prior consent.

## Towards a new politics

Inclusion and participation in democratic institutions is central to the idea of citizenship. However, the British political process and its politicians are facing unprecedented deficits of trust and engagement through "traditional" democratic means. As many as 75% of the population feel "parties are only interested in votes"<sup>151</sup>, while 40% "almost never trust government"<sup>152</sup>. Though UK citizens have traditionally reported little trust in politicians and the political process, levels of mistrust are reaching unprecedented highs that, fuelled by scandal

149 Gardner, T., To read, or not to read... the terms and conditions: PayPal agreement is longer than Hamlet, while iTunes beats Macbeth, the Daily Mail, 2012. <http://www.dailymail.co.uk/news/article-2118688/PayPal-agreement-longer-Hamlet-iTunes-beats-Macbeth.html>

150 See, for example, the work of Terms of Service; Didn't Read: <https://tosdr.org>

151 British Social Attitudes 30, NatCen Social Research, 2013. [http://www.bsa-30.natcen.ac.uk/media/37580/bsa30\\_full\\_report\\_final.pdf](http://www.bsa-30.natcen.ac.uk/media/37580/bsa30_full_report_final.pdf)

152 How sceptical are people in Britain? British Social Attitudes 29, NatCen Research, 2012. <http://www.bsa-29.natcen.ac.uk/read-the-report/constitutional-reform/how-sceptical-are-people-in-britain.aspx>



and suspicion, have spread to erode the standing of previously well regarded institutions, such as the banking sector and the BBC<sup>153</sup>. Indeed, the last 20 years have seen the 5 worst election turnouts in British history<sup>154</sup>, the nadir coming with a 15% turnout for the 2012 Police and Crime Commissioner elections. Polling shows that as many as 47% of the population feel “angry at politicians” while only 2% feel “inspired”<sup>155</sup>.

The decline in voting and membership of political parties is spread unevenly across ages and socioeconomic groups, raising doubts over the efficacy of outcomes as politicians respond to electoral incentives biased toward powerful economic vested interests<sup>156</sup>. Young people are significantly less likely to vote than their elders<sup>157</sup>. However, and seemingly counterintuitively, the decline in voting has been accompanied by an increase in political knowledge, understanding and interest since the mid-1980s<sup>158</sup>. Citizens are increasingly likely to participate in other forms of political engagement, through, for example, widely available government and civil society petitions, spread through social media and email, which in turn allow voters to learn of and respond to political developments as they evolve in real time. As such, digital technology provides previously unavailable means to lower barriers to political engagement, reduce information asymmetries, and ensure that the democratic process caters for all.

**79.** Councils should seek ways to introduce **online participation and voting in local public meetings**, from council committees to planning forums, providing local residents who are unable to attend, or find the costs of doing so too high, with the ability to view and contribute remotely. Though some councils already offer web streaming of meetings<sup>159</sup>, public meetings should be equipped with an online participatory element. This would take the form of an appropriate balance of text and speech, with codified rules of conduct, and the ability to provide feedback through voting and the raising of motions, alongside an integrated information service with concise briefs of the issues in hand.

To further encourage participation in politics at all levels, citizens should be able to access information on the political activity in their area. Transparency measures have been attempted by some civil society groups, including efforts to compile a database of electioneering materials<sup>160</sup>, but, as yet, there is no official, easily accessible central hub in which citizens may learn of the existence and intentions of the political groups that are seeking to affect them.

**80.** As such, government should provide a **central, online directory of all political groups and entities in the UK**, including local party groups and councillors, to complement existing directories of MPs, MEPs and peers.

Furthermore, when considering the fall in voting amongst younger generations<sup>161</sup>, most of whom are highly digitally-literate, and the prevalence of the postal voting system, the next

153 Trust, politics and institutions - British Social Attitudes, NatCen Social Research, 2013. <http://bsa-30.natcen.ac.uk/read-the-report/key-findings/trust,-politics-and-institutions.aspx>

154 Rogers, S. and Burn-Murdoch, J., UK election historic turnouts since 1918, the Guardian, 2012. <http://www.theguardian.com/news/datablog/2012/nov/16/uk-election-turnouts-historic>

155 Clark, T. and Mason, R., Fury with MPs is main reason for not voting - poll, the Guardian, 2013. <http://www.theguardian.com/politics/2013/dec/26/fury-mps-not-voting-poll>

156 Wilks-Heeg, S., Blick, A., Crone, S., How Democratic is the UK? The 2012 Audit, Democratic Audit, 2012. <http://democraticaudituk.files.wordpress.com/2013/06/exec-summary.pdf>

157 House of Commons library note <http://www.parliament.uk/briefing-papers/SN01467.pdf>

158 Trust, politics and institutions - British Social Attitudes, NatCen Social Research, 2013. <http://bsa-30.natcen.ac.uk/read-the-report/key-findings/trust,-politics-and-institutions.aspx>

159 See, for example, Birmingham City Council webcasting <http://www.birmingham.public-1.tv/core/portal/home>

160 See, for example, Unlock Democracy's Election Leaflets initiative. <http://electionleaflets.org>

161 How Britain Voted in 2010, Ipsos MORI, 2010. <http://www.ipsos-mori.com/researchpublications/researcharchive/2613/How-Britain-Voted-in>

government must assess the potential technology holds for recovering political participation. In doing so, lessons must be taken from the increasing reliability of sensitive services such as online banking in order to overcome the security concerns inherent in electronic voting, as seen in Estonia's recent, world-leading efforts<sup>162</sup>.

81. Britain should implement an **electronic voting system** that allows all citizens to vote online for national and local UK elections.

Indeed, questions must be raised over the efficacy of a representative democratic system that provides little official scope for realtime digital feedback in age where an MP, standing in central lobby, can read the tweet of a constituent who has just watched Prime Minister's Questions on the BBC's dedicated online democracy service. The potential digital technology holds in providing data to policy makers, reducing information asymmetries between politicians and voters and lowering the barriers to engagement, must be faced head on, and a future government should consider moving toward an inclusive model of democracy fit for 21st century society.

82. 20% of the electoral college of the House of Lords should be allocated to the public who would **vote on legislation online** and be supported by an institutionalised briefing service. This would have several positive benefits. It would provide a channel to engage the electorate directly in decision-making. It would incentivise politicians to pay even closer attention to the popular impact of their decisions. It would also help to reposition the House of Lords as the most broadly-based forum for scrutiny of legislation.

<sup>162</sup> Halderman, J. A., et al., Security Analysis of the Estonian Internet Voting System, Estonia eVoting, 2014. <https://estoniaevoting.org/wp-content/uploads/2014/05/IVotingReport.pdf>

## Afterword

One of the facts that jumped out at me from this report in particular was that four companies dominate the digital landscape: Apple, Amazon, Facebook and Google. Fifteen years ago three of these companies did not exist, and even Apple was recovering from a near death experience. Today they represent some of the largest industrial enterprises in the world.

When I started my entrepreneurial career in IT in the 1960s, computers were often air-conditioned and filled entire rooms. Since then I have been lucky enough to be a part of this industry and have witnessed dramatic change. Today there is a device in my pocket with many, many times the power and the storage capacity of those behemoths of yesteryear and which costs a mere fraction of the price. One would be challenged to name any industry in history that has witnessed such dramatic growth in such a short period of time.

As my life moved from business into politics I became increasingly aware that our industry was set to change the world, not just from the point of view of business, but also in the world of communications and instantaneous knowledge. Our country faced a challenge – we had to ensure that in the 21st century technology would be paramount and that we didn't stand a chance unless all our people had IT skills. I set up a charity called the eLearning Foundation which successfully ensured that children, especially from socially derived backgrounds, had access to computing both at school and at home. But it's not just our children with whom we should be concerned. We simply cannot allow any of our fellow citizens to be left behind: all need to have the skills to participate in the digital revolution that is upon us.

I was asked by Shadow Secretary of State Chuka Umunna to chair Labour Digital. *Number One in Digital* is the culmination of a lot of hard work and inspiration from many talented people. In the end this report is not just about the challenges and opportunities of this amazing industry, it is also about our Labour values, because what we stand for – equality of opportunity, knowledge for all, protection of personal data, skills training, government for the people and most importantly economic growth – totally complements our political agenda for future government.

This paper was put together thanks to the insight of a wide variety of participants who entered, rated or read ideas through the [ideas.labourdigital.org](http://ideas.labourdigital.org) crowdsourcing exercise (including Jimmy Wales!). First and foremost my gratitude is to all of them:

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**Parry Mitchell, September 2014**

## Appendix: Summary of Recommendations

|                                   | Recommendation   | Acknowledgement                 | Cost |
|-----------------------------------|--|---------------------------------|------|
| <b>Introduction</b>               |  |                                 |      |
| 1                                 | National programme to make UK the World's leading digital economy and society  | Labour Digital                  | A    |
| 2                                 | Create "UK Digital Board" to oversee programme, reporting to Prime Minister  | Labour Digital                  | A    |
| 3                                 | Create "National Fund for Digital Creativity" to fund experiments in state and third sector digital initiatives  | Labour Digital                  | G    |
| 4                                 | Create recognition, reward and scaling system for social entrepreneurs in digital  | Labour Digital                  | B    |
| 5                                 | National delivery of 1Gbps broadband to homes, businesses and public buildings, with 10Gbps services for tech-clusters.  | Labour Digital, Policy Exchange | G    |
| <b>Connectivity and Inclusion</b> |  |                                 |      |
| 6                                 | Ofcom to use its regulatory powers to ensure that the entire UK is provided with reliable network coverage of at least 3G speeds   | Labour Digital                  | A    |
| 7                                 | Reliable signal on public transport, through mandating transport suppliers to invest in WiFi and cellular networks to ensure consistent coverage across the transport network. | Labour Digital                  | E    |
| 8                                 | Develop and expand existing public space WiFi networks to provide free internet access across public spaces.   | Labour Digital                  | D    |
| 9                                 | Update the ECC according to the reforms proposed by the Law Commission.  | Policy Exchange                 | A    |
| 10                                | Declare support for national and EU-level net neutrality.  | Labour Digital                  | C    |
| 11                                | Invest in a nationwide programme to equip the entire adult population of the UK with basic online skills by 2020.  | The Tinder Foundation           | D    |
| 12                                | Provide free workshops and community support for digital learning in population centres.   | Labour Digital                  | C    |
| 13                                | Assess the viability of providing free basic internet access to all citizens.  | Labour Digital                  | A    |
| 14                                | Accessibility drive for older generations and marginalised groups.   | Labour Digital                  | C    |
| 15                                | Funding for initiatives that use video conferencing & online networks to provide loneliness support to vulnerable groups.  | Labour Digital                  | A    |
| 16                                | Mandate BT to provide broadband services to homes without the need for a second telephone line and review dominant position of BT in infrastructure provision.                 | Labour Digital                  | A    |
| <b>Driving Economic Growth</b>    |  |                                 |      |
| 17                                | Relaunch tax incentives for corporate venture capital to enhance late stage technology funding   | Policy Exchange                 | C    |
| 18                                | Commit to retaining the EIS and SEIS schemes throughout the duration of the next parliament.   | Coadec                          | A    |
| 19                                | Publish annual Technology Impact Assessments that forecast how new technologies are expected to affect each sector of the UK economy up to 2025.                               | Policy Exchange                 | A    |

|                               |  |  |   |
|-------------------------------|--|--|---|
| 20                            | Conduct an annual review of the intellectual property landscape.   | Policy Exchange                                  | A |
| 21                            | Establish a rigorous evaluation framework for cross-disciplinary research and knowledge exchange initiatives.  | Nesta  | C |
| 22                            | Encourage computer science departments to have industry advisory boards, comprised of key members of the local and national digital economy.           | The UK Digital Skills Taskforce                  | C |
| 23                            | Deliver an SME roadmap that explains how government will ensure SMEs stay at the forefront of digital developments.                                    | Policy Exchange                                  | A |
| 24                            | Reconfigure Entrepreneurs' Relief by removing the lifetime value cap and lowering the qualifying equity threshold below 5%                             | Coadec   | D |
| 25                            | Reform the national apprenticeship system.   | The UK Digital Skills Taskforce                  | D |
| 26                            | Provide central, online third sector mapping, signposting third sector tech initiatives.   | The UK Digital Skills Taskforce                  | A |
| 27                            | Continue to argue the case for startups and SMEs when negotiating the terms of the EU's proposed GDPR.   | Coadec   | A |
| 28                            | Continuation of support to the fintech industry through facilitating the development of market entrants and reviewing existing laws and regulations.   | Coadec   | D |
| 29                            | Mandate retail banks to provide customers with API access to their transaction data.   | Labour Digital                                   | A |
| 30                            | Review the laws and regulations surrounding the sharing economy.   | Coadec   | A |
| 31                            | Establish a data marketplace for local services that enables businesses and citizens to provide data to government.                                    | Policy Exchange                                  | C |
| 32                            | Create a Digital Ombudsman to protect SMEs and consumers   | Labour Digital                                   | C |
| 33                            | Mandate online gambling retailers to provide a universal, standardised self-exclusionary service for all online gambling websites and services.        | Labour Digital                                   | A |
| <b>Digital Skills for All</b> |  |  |   |
| 34                            | Provide substantial investment in teacher training for computer science, programming and relevant STEM subjects.                                       | The UK Digital Skills Taskforce, Policy Exchange | E |
| 35                            | Establish a national endowment of at least £20m for third parties to help teachers gain the skills needed to deliver the new computing curriculum.     | Policy Exchange                                  | D |
| 36                            | Create a Teach Tech Next programme, modelled on the highly successful Teach First initiative.  | The UK Digital Skills Taskforce                  | F |
| 37                            | Provide consistent investment in, and expansion of, existing continuing professional development (CPD) schemes for computing teachers.                 | The UK Digital Skills Taskforce, Policy Exchange | D |
| 38                            | Encourage industry leaders to apply to school governor boards, through the establishment of a network of school governors with expertise in computing. | The UK Digital Skills Taskforce                  | C |
| 39                            | Launch a Digital Challenge for Schools, modelled on the London Challenge.  | The UK Digital Skills Taskforce                  | C |
| 40                            | Work with the devolved administrations to ensure the basic standards provided by the English computing curriculum are spread across the UK.            | The UK Digital Skills Taskforce                  | C |
| 41                            | Experiment with an open source UK curriculum to be used abroad.  | Joe Macleod                                      | C |
| 42                            | Deliver a national campaign to promote digital skills to school children.  | The UK Digital Skills Taskforce                  | D |

|                                       |   |                                 |   |
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| 43                                    | Ensure that universities provide students of all disciplines with extra-curricular opportunities in which to gain digital skills.                     | The UK Digital Skills Taskforce | D |
| 44                                    | Fund the National Centre for Universities and Business (NCUB) to establish a matching website to connect students with tech businesses across the UK. | The UK Digital Skills Taskforce | D |
| 45                                    | Establish a national fund with the explicit goal of digitally upskilling the UK.  | Labour Digital                  | E |
| 46                                    | Reform visa regulations by providing a one year "Programmers' Passport".  | Labour Digital                  | C |
| 47                                    | Commission a major review of lifelong learning.   | The UK Digital Skills Taskforce | C |
| 48                                    | Negotiate with MOOC providers to deliver quality higher education at a fraction of the price of existing qualifications.                              | Labour Digital                  | E |
| <b>Government and public services</b> |   |                                 |   |
| 49                                    | Formally commit to the wholesale adoption of a Government as a Platform (GAAP) model based on open standards.   | Policy Exchange                 | F |
| 50                                    | Expose 50% of all APIs for transactional services by 2018.  | Labour Digital, Policy Exchange | E |
| 51                                    | Ensure that all 150 of the highest-volume government transactional service are converted to a digital-by-default standard by 2020.                    | Labour Digital, Policy Exchange | E |
| 52                                    | Require government departments and local authorities to publish annual digitisation progress reports.   | Labour Digital                  | E |
| 53                                    | Replace non-digital public service provision with high-quality assisted-digital services.   | Policy Exchange                 | E |
| 54                                    | Upgrade the nation's official documentation by developing and adopting universal electronic proofs.   | Policy Exchange                 | F |
| 55                                    | Standardisation of presentation and formatting of public data and information across departments and services.  | Labour Digital                  | D |
| 56                                    | Establish a dedicated Advanced Analytics Team (AAT) within the Cabinet Office.  | Policy Exchange                 | B |
| 57                                    | Establish an Independent Committee of Data Ethics responsible for writing a Code for Responsible Analytics.   | Policy Exchange                 | B |
| 58                                    | Create a legal and regulatory system for the collection, use and sharing of big data for both the public and private sectors.                         | Big Innovation Centre           | B |
| 59                                    | Institute digital impact assessments on all parliamentary bills.  | Derek Wyatt FRSA                | C |
| 60                                    | Simplify the procurement process to ensure equal opportunities exist for SMEs.  | Policy Exchange                 | D |
| 61                                    | Reconfigure the GDS remit to assist in a process of rationalisation of the non-GDS tech consultancy spend.  | PCS                             | C |
| 62                                    | Establish a National Institute for ICT Excellence (NIITE).  | Multiple                        | C |
| 63                                    | Create a digital database of assets in public ownership.  | Labour Digital                  | E |
| 64                                    | Expand the GDS to create an overall Local Government Digital Service (LGDS).  | Labour Digital, Policy Exchange | E |
| 65                                    | Standardise and implement a local approach for developing creative clusters.  | Nesta                           | C |
| 66                                    | Increase the proportion of the NCSP's budget allocated to law enforcement and combating cybercrime.   | Policy Exchange                 | C |
| 67                                    | Commit that only illegal websites are blocked from public use.  | Policy Exchange                 | C |

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| 68   | Require public sector bodies to audit and declare the non-personal datasets they hold, publishing a schedule for future release.                                    | Policy Exchange                 | D |
| 69   | Investigate per usage pricing for non-free OS information.  | Policy Exchange, Labour Digital | C |
| <b>Digital Citizenship: Privacy &amp; Politics</b> |   |                                 |   |
| 70   | Support, endorse and commit to a Digital Magna Carta  | Labour Digital, Netopia         | C |
| 71   | Ensure that information and data is owned by and accessible to the individual from whom the data has been collected.  | Labour Digital                  | C |
| 72   | Establish a Royal Commission to create a flexible, secure, publicly-owned data infrastructure for the 21st century.   | Labour Digital                  | D |
| 73   | Provide a conciliatory and compensatory process for citizens who experience error or fault in online public services.   | Deloitte                        | C |
| 74   | Introduce a service that provides citizens with the ability to permanently delete personal and sensitive data from all websites.                                    | Labour Digital                  | C |
| 75   | Develop an official UK online federated identity management framework, spanning both government and non-government cases.   | Labour Digital                  | F |
| 76   | Catalyse and encourage a standardised set of privacy agreements across major online services.   | Labour Digital                  | C |
| 77   | Launch a publicity campaign to raise awareness of privacy and safety controls that already exist.   | Microsoft                       | C |
| 78   | Change regulations to focus on the use rather than collection of data.  | Policy Exchange                 | C |
| 79   | Introduce online participation and voting in all local public meetings.   | Labour Digital                  | E |
| 80   | Provide a central, online directory of all political groups and entities in the UK.   | Labour Digital                  | A |
| 81   | Implement an electronic voting system that allows all citizens to vote online for national and local UK elections.  | Labour Digital                  | E |
| 82   | Allocate 20% of the electoral college of the House of Lords to the public who would vote on legislation online, supported by an institutionalised briefing service. | Labour Digital                  | E |

Each recommendation has been allocated a cost band. This was part of an informal exercise to estimate the overall financial impact of our recommendations and is highly approximate. The cost estimates sum to less than £10bn.

The bands are as follows: **A**: £0-1m, **B**: up to £5m, **C**: up to £10m, **D**: up to £50m, **E**: up to £100m, **F**: up to £1bn, **G**: up to £5bn.

Our acknowledgement of sources does not imply that those organisations and individuals are aware of, or endorse, any of our recommendations. We wish only to recognise that their writings informed our own judgements.



In assembling the recommendations in this report, we have been inspired by a number of sources. Labour Digital members contributed their own ideas at <http://ideas.labourdigital.org>, for which we are grateful. We also recommend the following:

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|---------------------------------|--|
| Coadec                          | <u><a href="#">Startup Manifesto</a></u><br><a href="http://www.coadec.com/wp-content/uploads/2014/09/Startup-Manifesto.pdf">http://www.coadec.com/wp-content/uploads/2014/09/Startup-Manifesto.pdf</a>  |
| Deloitte                        | <u><a href="#">Making Digital Default</a></u><br><a href="https://www.deloitte.com/assets/Dcom-UnitedKingdom/Local%20Assets/Documents/Industries/GPS/uk-gps-making-digital-default.pdf">https://www.deloitte.com/assets/Dcom-UnitedKingdom/Local%20Assets/Documents/Industries/GPS/uk-gps-making-digital-default.pdf</a> |
| Netopia                         | <u><a href="#">Can we make the digital world ethical?</a></u><br><a href="http://www.netopia.eu/wp-content/uploads/2014/01/Can-we-make-the-Digital-World-ethical.pdf">http://www.netopia.eu/wp-content/uploads/2014/01/Can-we-make-the-Digital-World-ethical.pdf</a>   |
| Nesta                           | <u><a href="#">Various</a></u><br><a href="http://www.nesta.org.uk/publications">http://www.nesta.org.uk/publications</a>  |
| Policy Exchange                 | <u><a href="#">Technology Manifesto</a></u><br><a href="http://www.policyexchange.org.uk/images/publications/technology%20manifesto.pdf">http://www.policyexchange.org.uk/images/publications/technology%20manifesto.pdf</a>   |
| The Tinder Foundation           | <u><a href="#">A Leading Digital Nation by 2020</a></u><br><a href="http://www.tinderfoundation.org/nation2020">http://www.tinderfoundation.org/nation2020</a>   |
| The UK Digital Skills Taskforce | <u><a href="#">Beta Report</a></u><br><a href="http://www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder-9-reduced.pdf">http://www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder-9-reduced.pdf</a>  |
| Various                         | <u><a href="#">Labour Digital Government Review Submissions</a></u><br><a href="http://www.digitalgovernmentreview.org.uk/articles.html">http://www.digitalgovernmentreview.org.uk/articles.html</a>   |

