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Witnesses: Guy Levin, David Pollard and Antony Walker

USE OF THE TRANSCRIPT

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Members present

Baroness Morgan of Huyton (Chairman)
 Lord Aberdare
 Baroness Garden of Frognal
 Lord Holmes of Richmond
 Lord Janvrin
 Lord Kirkwood of Kirkhope
 Lord Macdonald of Tradeston
 Baroness O’Cathain

Examination of Witnesses

Guy Levin, Executive Director, Coalition for a Digital Economy, **David Pollard**, Chairman for Education, Skills and Business Support, Federation of Small Businesses, and **Antony Walker**, Deputy Chief Executive Officer, techUK

The Chairman: Thank you very much indeed for joining us this morning. You have a list of interests that have been declared by the Committee members in front of you. They were declared orally by members at the previous sessions on 8 and 22 July and they can be found in the transcripts. This is a formal evidence-taking session of the Committee and a full note will be taken. This will be put on the public record in printed form and on the parliamentary website. You will be sent a copy of the transcript and you will be able to revise any minor errors. This session is on the record. It is being webcast live and will be subsequently accessible via the parliamentary website. You are welcome to submit written supplementary evidence after the session. If there is anything else you want to add or clarify, that is great. Witnesses and Members are reminded to speak up. I think the acoustics are quite good in this room, so it is not a bad one but speaking up always helps.

I suggest first that I ask each of you to introduce yourselves and if you want to make any short opening remarks you are welcome to do so. If you do not want to, we will go straight into the questions. It is entirely up to you.

Antony Walker: Good morning. My name is Antony Walker. I am representing techUK. techUK is a trade association representing about 850 companies right across the digital technology space. It is a mix of small, medium, large, domestic and foreign owned, all of them pretty much at the cutting edge of digital technology. Collectively, they employ 500,000 people here in the UK. Skills are an absolute top priority for all those companies. Many of them have active programmes where they try to contribute to the skills base in the UK. Several of them are running apprenticeship schemes, which we may talk about later, and most of them are involved in the new skills tech partnership that has recently been announced. techUK is on the board of e-skills. We are closely involved in the Information Economy Council and we are on the board of the independent Digital Skills Taskforce, which produced its interim report this week.

David Pollard: David Pollard. I am a member of the Federation of Small Businesses, which is a member-led organisation, and I chair their policy group on education, skills and business support. We have about 200,000-odd members who are micro and small businesses. Our spectrum of membership covers the whole gamut of the British economy, everything from the seaside cafe or the gift shop at a tourist spot to university professors running consultancy businesses, people in IT and high-tech manufacturing, and quite a number of farmers and small construction companies—the whole spectrum.

Guy Levin: I am Guy Levin. I am the executive director of Coadec, the Coalition for a Digital Economy. We are a non-profit organisation that campaigns for policies to support digital start-ups in the UK, so we are at the smaller end of the spectrum, and our members not small businesses but start-ups specifically, so they are companies that have high growth potential.

Q53 The Chairman: Great, thank you very much indeed. Can we start with a pretty general question? Can you describe for us which technology trends you think will have the highest impact on UK businesses and how? Just give us a flavour of the breadth and size of the change and what you think the impacts of that will be.

Antony Walker: The first thing I would do is quote Tim Berners-Lee, “The future is still so much bigger than the past”. An important point to make is that we are still at the very beginnings of this digital revolution and there is a huge amount to play for in opportunities for jobs, growth and productivity improvements across UK firms. We are at the start of something. I think sometimes there is a sense that it has all been invented, it has all been created, but that is absolutely not the case.

In terms of the big trends, I would highlight e-commerce, mobility and cloud, data and analytics, the Internet of Things, machine-to-machine learning, automation and, importantly, security and privacy as areas of real importance. I can explain each of those more, but those are the technologies that the companies we work with daily are thinking about in how they drive their own businesses and how they develop products and services that can drive other businesses, such as the members of the Federation of Small Businesses.

David Pollard: I asked this question of my two sons on Sunday because they are both computer scientists.

The Chairman: They will be well placed, then.

David Pollard: Their first response was, “What is the timeframe?”, because what is going to be big in the next five years will be totally different probably to what is going to be big beyond that. I think the two gentlemen either side of me will give you a lot more detail on the technical side of it. From my perspective, cloud is a very useful and important thing. I am a one man band these days and I do a lot of my work and all my back-ups and everything through cloud systems. I keep records of all my work doing that. That is a big tool for small businesses. Anywhere they can get access to the internet they can use cloud-based tools to access digital technology that is exactly the same as that of a large company. That is one big impact.

Another is that mobile is going to have a big impact on an awful lot of businesses over the next five years and beyond. We have seen the way people use the internet to do a lot of their online shopping, and that tends to be a fairly structured, planned sort of thing, “I need some more bits and pieces for my IT set-up. I will go online and search where I can get the

best price". You take your time over it. "I want a good holiday but I want a cheap holiday", and you spend days researching where the best place is and so on. Mobile has the potential to make it a very local and reactive sort of thing. You can be out in town and meet a few friends and say, "Why do we not all go out and have a meal? Where are we going to go? Oh, it is a bit of a hot day. There will be a lot of people out there trying to get into pubs". You can check on a mobile device and find a restaurant that you like that has space for six of you, book a table, get in and turn up, where 20 minutes before you were not even thinking of going for a meal. It has that ability to provide an awful lot of very immediate response to things.

The Chairman: Before I come to Mr Levin, can I ask you a supplementary on that? You described what you do yourself, so cloud is really important to you. How did you learn and access that and how do your members do so? How do small businesses know what the useful tools are for them going forward? Where do they get access to it? How do they get training in it?

David Pollard: I think that is a key issue. In my case, I am a technical guy by background. My original degree was aeronautical engineering and management. That was taken a long time ago, but I got into it. I had a little involvement with programmable calculators and what have you. I had to learn a lot about the electronics and mathematics that underpin computing. Then when I did my MBA at Cranfield, the digital economy was coming—it was seen even then, back in 1978-79—so one of the things we had to start learning was programming. I started to learn to program in Basic on a Commodore, first on a terminal on a mainframe and then on a Commodore PET. Shortly after that, I worked for Plessey as a corporate planner and the Apple II turned up with VisiCalc. When I first saw VisiCalc it was absolutely magic: you could put all the numbers in and it would add them up, calculate the percentages and do all those things. We take it for granted now. You do your expense forms that way, but we were doing business planning with that. When I went to running small businesses, I started—

The Chairman: This is you. You are a technical man and it clearly comes to you naturally. You are inquisitive, that is what you do, but there are a fair number of people running businesses who are not like you. In fact, there are many people running businesses who are not like you. How do they get the skills, in your experience, talking to your membership? What lessons are there about making sure that they have access to those?

David Pollard: Speaking about what I have seen in action in Hampshire, for instance, when the internet started to take off for businesses of all sorts of sizes, I went to some events about using the internet. There were a lot of people from small businesses there. The event was run by a guy who has become quite a good friend of mine, who was paid by local councils to run these events. They used to take over space in council offices for large presentations. He could talk to 30 or 40 people and do a presentation and take them through what a website was and how you put it together.

The Chairman: So that was local authority-directed?

David Pollard: They were taking a lot of the initiative in that area and getting people in as part of their support to local businesses. He was giving them an understanding of what it was and making the difference between the technical side of it and the marketing.

The Chairman: Does that still happen, in your experience?

David Pollard: No, I do not see much of it these days.

The Chairman: Okay. Thank you. Mr Levin?

Guy Levin: I would first highlight the huge pace of change. It was only seven years ago when the first iPhone came out, basically inventing a whole new platform for things. The app economy did not exist until 2008 when the next update came out. Over recent years, digital barriers to entry have plummeted. If you wanted to run a digital business or a web-based business 10 years ago, you needed rooms full of servers and incredibly expensive equipment and skilled people costing tens of thousands of pounds, if not hundreds of thousands of pounds. Now you can do that for free, pretty much, as a new starter. That has been an incredibly powerful trend that has meant that a huge number of new innovative technologies have sprung up.

With the emergence of new platforms and the sharing economy, barriers to entry have fallen not just for the digital start-ups, the sort of firms I represent, but for consumers and individuals. Putting the sharing economy to one side, platforms like Shopify or Etsy mean that you as an individual could set up an online shop-front to sell your wares for free tomorrow in very little time. There has been a democratisation of technology and I think it is a powerful trend that will continue. It is part of what Marc Andreessen, the VC, termed software eating the world. In recent decades we have seen Netflix beating Blockbuster and Spotify and iTunes beating HMV. There is a shift of things moving on to software, and that lowers barriers to entry and makes things more open and democratic.

I think Antony was right to pick up on greater connectivity and the proliferation of smartphones in the UK and across the world, and that is only going to continue as we get greater connectivity with the Internet of Things and the rise of wearables. I do not want to predict the future, but it is easy to conceive of the number of connected devices soaring in the coming years.

Q54 The Chairman: We will come to this in some of our later questions, but how do we make sure that that does not become used by a relatively small part of the population and that a larger part of the population are left behind even more than arguably they are now?

Guy Levin: I think partly market forces will help do that.

The Chairman: I think that is a bit optimistic, if you do not mind me saying so.

Guy Levin: What I mean by that is that using a computer today is infinitely easier than it was when you had to use a mainframe terminal. Most good start-ups and most good larger tech companies put a huge amount of effort into user experience and design to make things as simple and easy as possible. I know there are still challenges and that digital skills are incredibly important—that is why we are here—but I am reasonably optimistic that this is going to get better, not worse.

Antony Walker: I support Guy on that, because I think he is absolutely right. We are seeing this massive democratisation and all the pressures of the market are to reach as many customers as possible. The challenge is not going to be that a majority is left behind. It is going to be a minority, and there are very serious issues there that we do need to come to, but I think most people will be included.

Your question does draw out one very important point in relation to SMEs in particular. We know that at least half of UK SMEs do not have a website and that only 17% of SMEs transact

online. There is a big issue, which you very rightly draw upon, which is one of awareness for a lot of small companies. That should be a major area of concern, because there are huge opportunities to digitise and therefore drive the productivity of those small companies.

Baroness O’Cathain: That is all very interesting. I am sure we could spend all day talking about that. Can I make a point following the last minor discussion? All of you are in senior positions and you need to know what the future looks like, and none of us can predict that. Do you spend enough time thinking about the minorities? It is very glib to say that it is a decreasing minority who will not be involved in computers. How do we know that? What sort of research do we have? All the information that I seem to hear and read, both from the chattering classes and the stuff that I read, is that people get to a certain age or stage, maybe 60, maybe early retirement, and they are getting more and more isolated because of all the new things. Mr Levin, you have just painted a fantastic, buzzing future and fireworks in the sky and all the rest of it, but the fact remains that more and more of these people are going to become more and more dependent on the state or on people to look after them. How can they get involved in this?

There seems to be a huge gulf between young people and the people who are, I do not know, maybe 40% of the population, or maybe you are dealing with 60% of the population. Have you any idea what the divide is? I do not. We are always talking about the digital divide, and I think it is important that we have this in our minds because, do not forget, we are looking at the whole digital situation, not just at competitiveness but at people’s ability, the infrastructure, and all that comes into it.

Antony Walker: Go ON UK is a body that brings together industry and government to look at these precise issues.

The Chairman: Yes, we are taking evidence from them.

Antony Walker: Lots of our members are active in that. They produced a very good report recently setting out a strategy for how you address the digital inclusion issue. There are real concerns about the extent to which broadly 10% of the population can really be included. There is a strong correlation. They tend to be people who are socially excluded anyway, so they are hard to reach by any means. There is a proportion of the elderly who have no real experience of the technology. There is also a strong correlation with levels of education. You need to think about all those three things: social exclusion, education and age groups that have been isolated from the digital revolution. Go ON UK, together with the Tinder Foundation, has put together a very good potential road map for how you address that and they have also costed that. I think it was about £875 million to get everybody to a basic level of digital skills by 2020. My concern at the moment is that there are absolutely none of those resources available. We have great plans in place, but what we have not had is significant funding.

The Chairman: That is really helpful. I am going to stop you there because we have them coming to give evidence. It is good news because we have the right people coming.

Baroness O’Cathain: It is, yes. That is right.

The Chairman: Do you want to go on to your other question?

Q55 Baroness O’Cathain: Yes. My real question was: how is the scale-up of medium-sized enterprises best achieved? You have all these great people firing on all cylinders and then

they come to the block in SMEs. How much do they have to invest? Who is going to help them through it? Who is going to suggest that they look at cloud even more than they are at the moment and have it explained to them?

The Chairman: It is absolutely crucial, is it not? Who wants to start? Mr Pollard.

David Pollard: That is a massive agenda to try to address. There are so many different factors in there. If you have small businesses and they begin to grow, how do you keep them growing? There is the old story of crossing the chasm, going from being a niche provider into behaving like a major company and being able to sell and market to a much broader audience. An awful lot of that, of course, is about marketing and selling skills, but then there is the technology as well.

We have a problem, which is a subset for business owners of the one you mentioned earlier, which is that an awful lot of people do not have the basic educational qualifications for the modern world. We have an education system that is geared to producing an elite who will go to university. We now live in an economy where everybody has to have a fairly reasonable level of literacy, numeracy, personal skills, and so on. If our education system is not geared to getting everybody to that level so that they have the basic competencies for the 21st century, we are always going to have this big chunk of people who will not be able to participate in the digital economy.

Trying to address the problem of the over-60s who have not been on the internet is difficult. There will be some you will never get on to the internet. On the other hand, there are an awful lot who, once you start to get them involved, take to it like a duck to water. One of the big things that seems to be getting a lot of 60-plus people into the internet is grandchildren. All of a sudden the grandchildren are in Australia and we do not get to see them very often, but with FaceTime on an iPad you can chat to them and see them at the same time. That is an incentive for somebody to pick up that technology.

We have to try to find other issues like that that we can present to businesses, which give them the understanding that, "Yes, I have seen that. That is fantastic. I have to start putting that into my business".

The Chairman: With your Federation of Small Businesses hat on, are the Government doing enough to help small businesses overcome the barriers at the moment? You said earlier that you knew that local authorities used to do some stuff that they are probably not doing now. Are you aware of that? Do you want to send a supplementary note on it? One of the things we are keen to do is make recommendations to government about supporting those things.

David Pollard: I think that government programmes always go for the sexy, high-profile ones like finding the companies that are going to grow by 20% or 30% per annum and trying to get them to grow or finding the ones that are driven by other political initiatives. What we do not have is local ones saying, "What are the local problems? What is going to make a quick benefit locally? What can we do?". The LEPs are beginning to get more involved in skills and business support, and they are the natural people to work with their local authorities and put together programmes of this nature that can help businesses pick up those things.

Antony Walker: It is useful to draw some distinctions here between different types of companies. We have talked about start-ups, SMEs and scale-ups. They are all fundamentally different groups. Start-ups tend to be born digital. As Guy very correctly said, they are the individuals who are using all these amazing tools, a lot of which are now available free, to

create whole new businesses, scale-up from scratch and be able to quickly trade and work online to collaborate and bring people together. There are 340,000 new start-ups already this year, according to StartUp Britain. All that change is being enabled by digital technologies, so I think that is a huge tick for the growth and jobs agenda for the UK driven by technology.

The SMEs are a much more mixed picture. Some get it and are harnessing technology well, but a huge amount are not. Here I think the problem is primarily one of awareness. The first steps of getting on the ladder of being digital are not particularly difficult and the skills are available for getting a web presence, starting to transact online, and so on. A good example is a company called Annie Barr Associates, which we work with, which is based in rural Northumberland. It has five employees. They had a website but it was not generating much business for them. It trains healthcare and social care professionals across the UK and internationally. They said, "What can we do about it?". They talked to a local web developer in the town a few miles away who said, "You need to look at your search engine optimisation". "Oh, what is that? We did not know about that". He helped them with that and he also said, "These are a few things that you need to do to help raise your profile up the search engine rankings. You need to start blogging a little, tweeting and so on". They spent about £10,000 on upgrading their website and implementing SEO, as it is called—search engine optimisation. They started to change their behaviour. In a year, they have doubled their revenues simply by having a much greater web profile. It was simple and easy; the skills were available and the local people were available to support them. All they needed was that awareness. I think we need to focus on the awareness issue for SMEs.

The Chairman: Just to pin you down, because that is a really helpful example, how did they know who to go to to get that initial advice?

Antony Walker: They talked to their business cohort. They talked to people like us and others and asked, "What should we be doing differently?". They used their network. Again, it comes back to the powers in this technology because, as Guy will attest to, we are now seeing these clusters and networks appearing all over the UK. That is a fantastic self-learning mechanism for businesses, but there is a massive job to do here; do not underestimate it. If we can digitise the other 50% of SMEs, we can drive the productivity of the UK economy, and that leads to a real increase in the standard of living for us all. It is a massive prize.

The other issue is scale-ups. I wanted to come back to that because this is where we think there is a huge opportunity. Almost all net new job creation in Europe in the last 10 years has come from high-growth companies. These are the companies that can contribute most to the economy in a short period and yet, while we have focused on start-ups and SMEs, we have not really focused on what it takes to get more scale-up companies to scale but also to get them to stay in the UK and not move to the US or other markets. We are working with the Information Economy Council at the moment on a project led by Sherry Coutu, who has a venture capital background, and we are expecting to publish a high-profile report in the autumn that I think will come forward with some very good and strong recommendations. I will not go into all of those now. We will come back to you on that.

The Chairman: Great. Make sure you send us that, please.

Antony Walker: We absolutely will.

The Chairman: That will still be within our timescale, so that is very useful.

Guy Levin: I completely endorse everything Antony has just said. It is important when thinking about digital skills to segment the population and talk about what sort of skills and people you are talking about—the digital inclusion issues that we touched upon earlier. I think that basic digital literacy for everybody is very important. I quite liked the segmentation that was in the Maggie Philbin report out last week: the digital muggles, people who are excluded; digital citizens, the basic level of digital literacy; digital workers, who have slightly more advanced skills; and digital makers, who have the advanced technical skills. From my point of view, from Coadec’s point of view, it is mainly that last category, the digital makers, who we are most concerned about, because they are the high-tech, highly skilled employees who our start-ups need to grow into scale.

I completely agree that there are massive inclusion issues at the higher levels and that they are important for start-ups and organisations like ours. The more digitally savvy consumers and the more digital businesses there are, the better for everyone. They all depend on network effects and larger markets.

Q56 Lord Aberdare: I wanted to focus specifically on one barrier, which I notice was mentioned in the FSB written submission. Antony Walker also referred to it, and that was cybercrime. There were some quite remarkable statistics about the number of small businesses that are suffering from fraud and cybercrime. I suppose the question is: what might we do about it? What are the sorts of actions that we might be able to recommend as a group to help minimise cybercrime as a barrier to the otherwise glorious uplands of digital success?

Antony Walker: You are absolutely right to raise this. It is a crucial issue. If you want to be a world-leading tech economy you have to be two things: the most connected economy and the most secure economy. Those two things should be high in everybody’s mind. We think a lot about broadband; we should probably think as much about how we make sure that we minimise opportunities for cybercrime, keep our businesses, consumers and citizens safe and secure online, and ensure that they have full trust in services.

Awareness is a critical issue for many businesses. Far too many companies are simply not aware of the relatively simple steps that they can take to protect themselves. I think there is more that government, working with industry, could do to try to address those issues. There is some work being done but I do not think it is enough. That is what a lot of our members would say. An area of considerable concern is how we raise awareness about cybercrime issues. A lot can be done relatively simply. It is just a matter of awareness and education.

However, there is more that the technology industry can do itself to design out opportunities for cybercrime. We are engaged in the Cybercrime Reduction Partnership, which is looking at exactly that issue: how do you minimise opportunities? A simple one, for example, is iPhone thefts. The fact that you can now remotely kill your iPhone is reducing the amount of street crime in relation to iPhones. It is things like that. It is identifying where there is an opportunity for a crime to exist and then thinking about how you improve the technology to take away that opportunity. Then at the high-risk, high-threat end there is all the work that we need to do to ensure that our national critical infrastructure is secure and that the UK as a whole is cybersecure. UK industry is at the forefront of working on some of those issues as well.

The Chairman: When you talked about government, presumably you were talking about BIS as the lead department, were you?

Antony Walker: Yes, particularly in terms of SMEs. In other areas we work with different parts of government, but business awareness is a BIS issue.

Q57 Lord Macdonald of Tradeston: How do you come up with the figures? I think there is mention of £4,000 per business being lost. Is one of the problems here that businesses do not tell you what has been lost, especially banks? A lot of this is very speculative. We really do not know who is stealing what because people do not want to tell us, because once they tell us we will not trust them either.

David Pollard: That is the case with banks. Banks want to cover up their losses because they do not want to be seen to be insecure, otherwise we would not put our money in them.

Lord Macdonald of Tradeston: How do we know what we are talking about?

David Pollard: The £4,000 came from us, and that is from surveying members and asking them how much they have lost.

Lord Macdonald of Tradeston: Is that somebody losing £4 million rather than an average of £4,000 over every small shop and business?

David Pollard: It is not £4 million but it is probably a certain number of people losing maybe £5,000, £10,000. It could also be a lot of people who lose a few hundred pounds at a time. What we have to be careful about when we talk about cybercrime and the losses from it and cybersecurity is that they are not necessarily the same thing. If somebody stays at your guest house, runs up a bill, pays with a stolen credit card, and you do not realise it is stolen until afterwards, that is no different from the old days when they turned up with a cheque and a guarantee card and the cheque bounced. That is not cyber-related crime; it is just simple fraud. These days, because it is so easy to commit fraud over the internet in that way, there is an awful lot of bog standard fraud going on that is coming up under the head of cybersecurity.

Q58 Baroness Garden of Frognal: Can you give examples of UK companies faced with the decision as to whether to automate or to offshore work tasks? What are the key considerations there? Mr Walker, you already mentioned the desirability of trying to keep work within the UK if possible. Do you have some examples of companies?

Antony Walker: The desirability is to keep work in the UK from the perspective of the UK economy. In terms of individual business decisions, individual businesses need to work out how best to do what they do in a way that drives efficiencies, drives down costs and increases their productivity, so those companies need to make business-based decisions. Offshoring is one avenue that companies can look at. It depends very much on the nature of their business, the activity that they are considering offshoring and so on. It is a rather complicated set of questions that a company needs to go through.

Here I would make a distinction between a number of things. Automation, outsourcing and offshoring are three different things. They are all about driving productivity but they are about driving it in different ways. With outsourcing in particular we see more and more IT going into the cloud, so software is a service and so-called platforms are a service. What we are seeing now—and this is a fantastic thing for small businesses in particular—is a

democratisation of business IT provided as a cloud resource rather than something that a company has to build, operate and staff internally. It not only reduces costs but massively increases functionality for small businesses. It allows them to do things that were previously only possible by large companies. That is a massive enabling trend and it will only continue. More and more small businesses will be using the cloud in the same way start-ups do automatically; they would not even consider buying servers and hiring IT staff and so on.

As I said, offshoring is a different thing. It is more complex. Automation is another major trend, both in things like manufacturing but also in business processes. We are increasingly seeing firms looking at standard business processes that are perhaps done manually to see how they can automate those. Again, there are lots of opportunities to do that that will have real productivity benefits. As you rightly imply by your line of questioning, it will have implications for the labour market, and we need to think about what those implications are.

The Chairman: Thank you very much. Who else would like to come in on this?

Guy Levin: Just to reinforce Antony's point about the benefits of cloud, particularly for start-ups, cloud really does allow start-ups to pay for what they use rather than having to purchase redundant machinery, and it allows rapid scale-in. If you launch an app or a service and it gets featured on the front of a BBC website or something, you get 10 million hits instantly overnight. Using Amazon web services or something to host it means that they can instantly just scale it up, and if that passes they can bring it back down and only pay for what they use. It is a remarkably efficient way of doing things.

In terms of offshoring, most of the capacity that start-ups need is developers, whether that is web developers or app developers. I would say there is a skills shortage there, or maybe there is no shortage but there is a shortage in the prices that start-ups can afford to pay and that often leads to offshore contracting. I know start-ups that have teams or hire in subcontractors from Latin America, South Asia, Eastern Europe and former Soviet countries, because that is the only way they can afford it.

Antony Walker: We are seeing wage prices increasing in some of these other markets, so already in areas of manufacturing we are starting to see some reshoring, where the technological potential to automate the manufacturing means that the labour costs become less significant. There are potentially lots of good reasons why you want to do that activity closer to home, because you want to do things more quickly or you want to protect your IP and things like that. The same will be true of IT skills as wages increase in other countries. We will see reshoring as well as offshoring.

David Pollard: I was given an interesting perspective on reshoring by Doug Richard, the ex-Dragon, who was in conversation with Lord Adonis at an event a while back, and he is investing in a young woman's company in a textile business producing designer jeans. She wanted to make the brand focus on its Britishness, so she was very keen on having them all built in Britain. Doug overruled her on that, on the basis that it was not something that they could do at that stage of the business. They are having them made in Turkey, but the interesting point he made was that there is going to be no difference in cost between making them in Turkey and making them in the UK because the factory in Turkey is fully automated and is a state of the art textile factory. The issue was that there was no capacity, there were no businesses, in Britain doing this sort of textile manufacturing because, of course, we got out of textiles in the 1960s.

On the point Doug is making, a start-up business cannot raise an extra few million to build a factory with all the technology and recruit and train the staff to do it. They are dependent upon there being somebody in the market who is providing those services. There are opportunities for new companies with this new technology in the UK, provided that we can find the mechanisms, the venture capitalists, to fund the businesses to support a whole range of start-ups so that some of them—

The Chairman: And identify the needs as well, yes. That is very helpful. Thank you.

Q59 Lord Kirkwood of Kirkhope: Could I take you back to the question of inclusion and inequality that we touched on earlier? I think it was Mr Walker who suggested that a best guess would be something like 10% as the residual minority that you might have to embrace and try to support in some way. The problem about the 10% is that that is 6.3 million people, and if you think about universal credit going to 7.7 million households it is probably the same group that you are talking about, because they are, generally speaking, households with low education, high disability, all the usual indicators for poverty. Do you think that the kind of organisations that you represent feel a responsibility for dealing with that, or do you think this is something that the Government need to shape up to?

Antony Walker: Private companies can certainly play their part with both ideas and mechanisms for reaching out to those people. You mentioned the potential saving in the cost of service delivery for getting to that last 10%, which would come directly back to the UK Exchequer. There is no doubt about it. If that estimate—£875 million—is anything close to being right, if that allowed you to fully automate at least one of the major public services that tends to be used, particularly by that socially excluded group, you will have made huge cost savings. That is exactly why we think now is the time to start thinking about properly funding a programme of digital inclusion, because we think that the savings for the UK Government will be so significant that they can properly transform their service to the right places.

Lord Kirkwood of Kirkhope: That is a helpful answer. Do you think that if you decided it was worth doing—and it is for all sorts of social justice reasons, apart from the efficiency point that you importantly made—it is best left to groups in Northumberland who know the local communities perhaps better than people in Whitehall and the DWP, and try to stimulate hubs and clusters that provide the support network rather than a big government programme?

Antony Walker: I do not think it is an either/or. You want to localise the delivery as much as possible, because people trust people that they know. They do not necessarily trust a remote government service or whatever it is, so you want to harness local delivery but you want to create a national framework to support that delivery. It is a combination of both. At the very local level there is certainly a need to think about local authority level, but there is also a need for something national as well, not least because if you want the private sector to engage and large companies to engage, in order for them to do it cost effectively they need to engage at a national level and not just at a local or micro level.

Lord Kirkwood of Kirkhope: If you could do everything you can do and everything that you did went right, what would be the residual rump, which is an unfortunate way of describing it? If it is 10% now, with a determined effort what could you break that figure down to?

Antony Walker: Some have estimated that that 10% is that residual rump—and I agree it is unfortunate terminology—but a significant number of people will have to be assisted digital rather than fully digital citizens. Some people will always need some form of support.

Lord Kirkwood of Kirkhope: That is a good idea; assisted digital.

Antony Walker: We need to think about what the mechanisms are to do that. Is it through things like local libraries? Is it through the network of post offices? We need to think about how we can support them.

Guy Levin: I was just going to come on to that. I looked it up, and according to the ONS 13% of adults have not used the internet in the last year, which is 6.5 million people. That correlates very closely to age. Less than 40% of the over-75s have used the internet in the last year. There is clearly a large group of people who are excluded.

There has been some interesting research done—I am by no means an expert on this and strongly suggest that you get in the people who are—looking at the reasons for that. I was reading through some of it. The Government Digital Service did some research on this as part of their work about digitising government services and found that the number one largest reason was not a lack of access or lack of skills; it was just lack of interest. I think over 60% said that they were not interested. “It is not for me”. “It is not for people like me”. That is a harder barrier to overcome. I am citing this piece of research, but if that is true that is harder to overcome.

The Chairman: I think we should move on from this only because we are doing a complete session on it, so we should probably focus more on the labour market today.

Q60 Lord Janvrin: Can I come back to the labour market—Mr Walker, you mentioned it just now—some of the trends that we have been discussing, and how they are affecting the labour market? What is the employment impact, particularly in the SME scale-up area? Could you expand a little on the longer-term, wider impact?

Antony Walker: I said at the beginning of the session that we are at the early stages of the digital revolution. Whilst that is true in terms of the changes ahead, we should not forget that this digital revolution has in fact been going for about 25, 30 years, so it is not an immediate shock. It has happened over a sustained period. We are seeing the progressive digitalisation of the global economy. That means a couple of things for the labour market. First, it means that digital technologies are being used to drive efficiencies in the way businesses work and organisations operate, and they have the potential to significantly drive productivity of businesses.

If you look across business sectors, the business sector with the highest levels of total factor productivity is the technology sector. That is precisely because it is very good at using its own technology to drive productivity benefits. Unfortunately we do not see anything like those levels of productivity in other sectors of the economy, so there is a huge opportunity still to drive productivity across the whole of the UK economy.

What does that mean for skills in the labour market? It means that some tasks will be made redundant through a process of automation, outsourcing and so on, but it also means that those resources can be redeployed to do more productive things. One thing I highlight is that there are more jobs in the UK economy today than there have ever been, and that is after 25 years of the digitalisation process. We certainly do not believe that there is a correlation

between digital revolution and a reduction in the total number of jobs. It is just that those jobs change and become different.

That means that you need a flexible and skilled labour force and labour market. The UK Digital Skills Taskforce report that Guy referred to makes a very useful distinction about those who need basic digital literacy. They estimate that 90% of the workforce needs basic literacy; that about 50% will be digital workers, a higher level of skill; and that 10% will be digital makers. That gives you a broad idea. If we want to grow the UK economy we need to increase that number of digital makers, because in a global digital economy you want to be a net producer rather than a net consumer, so let us double that number of digital makers. That would be a good thing for the UK to do.

The Chairman: That was a very helpful summary. Only add if you need to at this stage, because that encapsulated it very clearly.

David Pollard: Just one brief point. I heard Andreas Schleicher from OECD present the first skills survey. What was quite startling was the high number of people who do not have basic digital skills—something like 30% of the population—but that seemed to be replicated in younger people as well. One of the messages that we have been giving when we are trying to get small businesses to recruit young people is that they understand social media, they understand what is happening out there in the digital world, and they can help you get up to speed with it, but there is a whole chunk of these young people who are not like that.

I have a colleague who was hired by DWP to train unemployed people to use Universal Jobmatch. He was expecting to teach them how to use Universal Jobmatch when he got there but none of them had e-mail addresses and did not know how to use e-mail or the internet. He had to be able to set them up with Hotmail and Gmail accounts and everything and start to educate them all on that. We have to take on board this idea that we have a problem now with a rump of people who are not digitally literate, but we also have to work to make sure that the education system is not adding to it as we spend a lot of money at the top taking them off. The education system has to be preparing people to live in a digital world.

The Chairman: Yes, absolutely. We have heard that a lot.

Guy Levin: Just to add a couple of points, I reinforce Antony's optimism here. I am resolutely optimistic about the digital revolution. It will have an impact on the labour market, but now with the smartphone you have access for the first time in human history to almost the complete sum of human knowledge and international markets that you did not previously, whether that is through selling something on eBay, which is slightly old now as technologies go, or through the sharing economy: if you have a spare room you can rent it out on Airbnb.

One of the things this has led to is an increased need for flexibility in the labour market that Antony alluded to, and the digital technologies have allowed better matching of people who have something and people who want something. Where that is labour, that may mean new opportunities if you have a skill to teach and being matched with somebody who wants it or anything else you have to offer. Even if that is just walking a dog or cleaning a house, there are now far easier and more efficient ways of being matched with somebody who desires that, so that may need a more flexible labour market.

I would also note that it is particularly good for people like stay-at-home mothers. Google has done quite a lot of work with Campus for Mums, for example, trying to get mums to go

into tech. Start-ups are quite good in the sense that they can be flexible. You can run an online store in your spare time around your other commitments, so there are these upsides to technology.

Q61 Lord Macdonald of Tradeston: We have heard a lot about the need for hard skills, soft skills, developing the talent pipeline and so on, but if this is, as you say, a truly profound revolutionary change, one does not immediately get the impression that it is seen that way by politicians, teachers, universities. Certainly all these disciplines and interests are being affected in the margins probably organically by what people are doing piecemeal, but should there not be a stronger thrust from the centre? In schools, for instance, it is good to hear that coding is finally coming in, you say 25 years into the digital revolution, but they seem more preoccupied with English literature, the history curriculum or various foreign languages. Surely this should be the main thrust of what is going on in schools, colleges, universities and vocational training for apprenticeships. We say very glibly that people need a lot more social skills. A lot of people would like to know exactly where that is taught.

Antony Walker: In terms of the skills requirement either for the sector or for the economy as a whole, first, as you have just said, we need to raise the general level of digital skills and we need to have more people going through to the very high end and very specific skills that are needed by the digital makers. There is a big challenge there. There is an enormous challenge with schools. As an industry, we are pleased with the new computing curriculum, but we are concerned about the lack of resource dedicated to teaching that curriculum. We are missing a whole generation of teachers who are equipped to teach computing at schools while also ploughing ahead with the implementation of this curriculum. We must take that issue incredibly seriously and rethink how we are going to address it.

The Digital Skills Taskforce report suggests that there is a funding gap of about £20 million to address the teaching provision for computing, and we absolutely endorse that. We think that is an urgent issue. Industry can play its part there and in fact is playing its part. We work very closely with an organisation called Code Club, which has been actively using people from the industry to run after-school coding clubs in schools, which is all about inspiring kids and showing them how creative and fun coding can be. But that organisation also does something called Code Club Pro, which is about using people from the industry to teach the teachers, which is the long-term solution.

As an industry we are concerned that we properly resource computing in schools. It needs to be given the same level of attention as other science subjects. It needs to be part of the rich mix of good and solid education that young people will need if they are going to succeed and thrive in this digital economy.

Lord Macdonald of Tradeston: Would your concern for schools and teachers also extend to universities and further education colleges and the lecturers there?

Antony Walker: Absolutely. All the way through the educational pipeline there are jobs that need to be done in both colleges and universities. The industry can and is stepping up to the plate in recognising that it needs to be much better at articulating its needs and working with colleges and universities to help structure education at those kinds of levels. We also recognise that a lot of work is required in relation to apprenticeships being recognised as an alternative and good route into the sector, and that means private companies working together to create a more common approach to developing apprenticeships. That is starting

to happen now through the new tech partnership that was recently announced. I think industry is trying to do a lot, but there is a lot more to do.

In teaching in particular, we think there is a real problem. I do not think we should be shy of looking to bring teachers from overseas. There is an absolutely critical gap at the moment. We did not train a whole generation of teachers in these skills.

Q62 Lord Macdonald of Tradeston: Mr Levin, you have been an adviser to the Treasury and to other government departments. The sums that we hear talked of seem pretty puny; £20 million here and there. Do you see any evidence that the Government are taking this as a first order issue as befits something that is such a revolutionary change? Are we getting the money pumped in?

Guy Levin: It is incredibly positive that the Government have made the changes to the curriculum that they have. I agree with Antony; I would like to see more money spent on the CPD for teachers to enable them to have the skills to deliver on it. Since I left government I have spoken to people at the Department for Education who are privately concerned, and I am not surprised that they are. I think Antony is right that if we want to deliver the digital makers of the future, at all stages of the education system there needs to be greater effort, emphasis and investment, and I would include universities in that. If you look overseas, in the US there are far better links between universities such as Stanford and MIT with local digital clusters. You have that in the UK too with UCL and Cambridge with their local tech cluster, but that could be massively improved upon.

In the UK now there are private sector organisations such as General Assembly and MakersAcademy that exist to allow people to change career. If you want to be a web developer you can do a three-month immersive course with them and they will teach you all the skills you need to be a junior web developer at a start-up or at a larger tech company. The only problem is that it costs you £8,000, which is not something that most people have lying around, so it might be worth a public policy response of some sort to make it easier for people who want to change career or upskill in that way.

The Chairman: I am going to give you notice that the final thing we want you to do is give us one recommendation that would move all this on. The thing that we have heard from all of you very clearly today, and that we have heard in previous sessions, is that there are lots of quite small-scale great initiatives happening. Our concern is how the whole thing moves up a gear. If I can just warn you that in 10 minutes we are going to ask for a recommendation from you. Teaching may be the one, but something that is the most pivotal thing to shift the whole thing up a gear is what we are starting to be concerned about. There is lots of good stuff but it is bits here and there.

Q63 Lord Holmes of Richmond: Good morning. We have touched on a number of elements I wanted to bring out on this question, so feel free to list some specific examples. How can the digital sector be supported in the short and medium term? I am interested in what you think could and should be done as we prepare individuals and businesses for the shock, not least to labour markets, occupations and so on.

David Pollard: These two guys will give you the real digital industry perspective on it. What I would say, taking an overall perspective when we try to prepare people, is that we have to educate them for the future for a technological society. We have a culture where it is not just okay but quite cool to be no good at maths or technology. We have to change that

culture and have an education system that says that our core function is to churn out 99.9% of all those who do not have documented learning difficulties with at least all the core communication skills, the numeracy, the understanding of technology and the ability to think in structured and logical ways that are needed to cope with the 21st century.

Lord Macdonald asked about all the English and so on that is being taught and whether they are teaching the right things. I had an interesting discussion recently about education with a friend of ours who is an ex-deputy head of a large comprehensive. He gave the example of talking to an Oxbridge cohort about work experience and when it was coming up, and suggested to them that they should think of a company or sector they would like to be in, get some companies, write to or phone these people and ask about opportunities for work experience. They did not know where to start. They considered that they were capable of writing an essay for an admissions tutor at Oxbridge but they did not know how to start on the basic communication skills, and everybody needs that. If we can get people to have a basic understanding of all the maths, how to communicate and so on, we can pick out the bright ones, who are going to be the Oxbridge candidates after that, but at least we know that everybody has a chance of functioning in the 21st century and getting and holding a job.

Guy Levin: From the start-up perspective, the biggest thing that could be done for skills in the short term is immigration reform. The changes to the curriculum are fantastic, but it will be a decade before any of those people work in a start-up—and start-ups are not known for their long lifespans; probably 90% of them fail. A start-up today, sitting in the Google campus up in Manchester or wherever it is, cares about being able to hire a good developer tomorrow who has the skills it needs to build its product. That is mercenary and capitalist, I suppose, but it is what we need for the economy and for growth and innovation.

The visa reforms since 2010 have been quite detrimental to that. Scrapping post-study visas means that some of our best STEM graduates and computer science graduates from the US, India or wherever are forced to leave when they could be delivering massive contributions not just for start-ups but in any section of the economy. In the short term I would say that immigration reform is definitely the number one ask on the skills side of things from us.

I would also say there are a couple of things on the labour market to make it more flexible. Non-compete clauses are quite common in the tech industry and can be detrimental to efficiency. Signing a contract saying that you are not allowed to work for a competitor makes it much harder for someone to get hired. I think that banning non-compete clauses would be a positive step.

Lots of tech third sector initiatives are good at trying to encourage more people to become digital makers, such as the CoderDojos—the code clubs that Antony has already alluded to. There is an organisation called Geekettes that is trying to get more women into digital things, because there is a massive gender divide, particularly when it comes to the digital-maker end of things.

The Chairman: We can tell that. We are struggling to get female witnesses in any of our sessions, and it is not through lack of effort.

Guy Levin: Those are third sector initiatives. They are not necessarily for the Government to do but they should be encouraged and flag-posted.

The Chairman: Anything to add, Mr Walker?

Antony Walker: It is my turn to agree with what Guy was saying. I draw a point from that, which is that start-ups in big established companies broadly agree on these issues. They have the same concerns, they see the future of the digital world in a very similar way, and they are all part of one big ecosystem. I think that is a point worth making.

The migration point is incredibly important. If you want the UK to be a global hub for tech you have to be a global hub for talent. Silicon Valley is built on its ability to attract the best global talent from around the world. One in seven new firms in the UK is created by foreign entrepreneurs. We need to keep the UK open to global talent, and that means having a smart migration policy, which is entirely achievable if it is focused on bringing in and attracting wealth creators. In that category I would put entrepreneurs and researchers, because our universities are the anchor point in the information economy. To keep our universities at the forefront of global universities they need to be able to attract the best researchers from around the world. We need to be encouraging them to come.

When those researchers have completed their studies, when they have developed their ideas, we need to be encouraging them to stay in the UK and build businesses and wealth here. I met a professor at Cambridge a couple of weeks ago who said about the work that they are doing on high-end manufacturing, "I am worried that we are training our competitors to out-compete us". This is a fundamental issue. There is a whole set of specialist skills that we need, that Guy's members and my member companies need right now in order to continue to succeed here in the UK. My last point is that we need to bring in educators and teachers. A smart immigration policy is absolutely fundamental.

The second big ask for me would be to properly fund the teaching of computing, not just focus on the curriculum.

The third is important for techUK and our members: addressing the fact that only 16% of the IT workforce is female. This is an important issue that we have to address. That requires targeted interventions all the way from the classroom to the boardroom, so techUK has a programme of work. We are working with all our members, focusing on issues like interventions at primary school level such as code clubs, where 40% of participants in code clubs are girls, which is a great thing. Let us continue them all the way through. We have a programme called Walking Tall, which is about encouraging women to return to the workplace after a career break to have families, and encouraging them to have the confidence to come back into the tech sector and not to feel that their skills are out of date. We have a Challenging Industry programme, which is focusing on cultural issues within technology companies that do not have the right gender balance, and we have a Women on Boards programme. You have to look at all those stages. That is industry activity, and government can support that too.

The Chairman: I am going to ask, if you do not mind, for question 8 on inclusion, which we have broadly covered. We have just covered the final part on gender, and if anybody wants to send in extra supplementary evidence on that, that would be helpful. Similarly, it would be helpful if you could send in any written evidence on disadvantaged parts of the UK, because we are out of time. I do want Lord Aberdare to be able to ask quickly about infrastructure. Please just headline answers, and again further written evidence would be great because this is an area that we have not covered today at all and is a concern to us.

Q64 Lord Aberdare: The question is: how can the UK's infrastructure be improved to support a knowledge-driven economy. There has been a lot of focus on broadband, but what are the other aspects of that? There is connectivity, for example, but also perhaps softer things. We talked a bit about security, which is perhaps part of the infrastructure, as of course are skills. Are there infrastructural things that we need to be bearing in mind?

The Chairman: Mr Levin, are there any from your point of view? If there are none it does not matter, if you think that is not the key issue at the moment.

Guy Levin: Broadband is the most important one—access to high speed, fibre—but that has been covered elsewhere.

The Chairman: Yes, high-speed broadband.

David Pollard: One thing about broadband is that we all tend to think of it on a consumer basis, where it is about very fast downloads so that you can watch the TV through the internet and slow uploads because you are just sending e-mails, but if you are in business you need fast upload speeds. If you have done digital glazing and you want to send the product to your customer, you do not want to sit there and watch the computer for the next four hours while it uploads the film.

Antony Walker: If you want to address the infrastructure issues that are critical to businesses growing in a digital economy, the thing you need most is the ability to think and plan for the long term. We have struggled to get broadband to our rural businesses quickly enough because we were not planning ahead. It is the same with mobile coverage, and we all know the same is true with transport. The biggest fundamental challenge to the infrastructure issue is the ability of government, together with industry, to think and plan long term.

Q65 The Chairman: Thank you very much indeed. Just before you escape—that was a long session, I know—I have taken very clearly from all of you that teaching and smart immigration are very strong issues that you have raised with us today. Do you have any other recommendation that you would like us to hear very clearly?

David Pollard: One thing on the business of teaching is that back in the 1980s when I ran a technical consultancy, we used to do work experience for teachers and they would come in during the Easter holidays and see what the business was like. I suggested to Elizabeth Truss, on the reform of the computing curriculum, that one of the problems is that so many teachers go from school to university, to teacher training and back to school, and they do not understand how important the digital economy is in business. So my other recommendation would be work experience where teachers can go to companies and see just how much the computer is an integral part of everybody's job, not just the software guys or the designers but the people in logistics, the people loading up the trucks for delivery and so on.

Antony Walker: My one ask would be that you don't focus just on finding the 'one thing'.

The Chairman: I was giving you one thing each. It is not that we want only one thing.

Antony Walker: The one thing I would ask for is an approach that looks at interventions for the short, medium and long term—a comprehensive view of the pipeline. If you deliver that, that is the one thing that will be really successful.

The Chairman: That is easy then. Thank you very much indeed for coming today. That was helpful.