

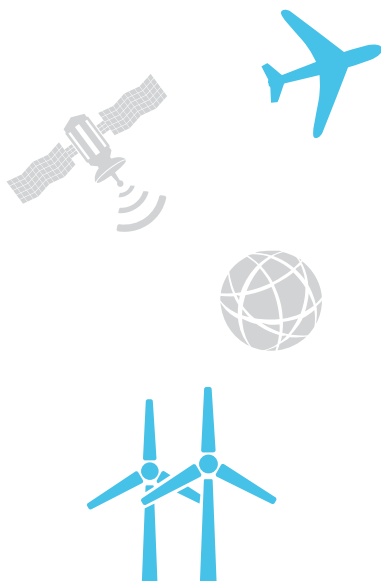
NewStatesman

Spotlight

SKILLS: DEGREES OF ADVANCEMENT

David Blunkett / James Daunt / David Sainsbury





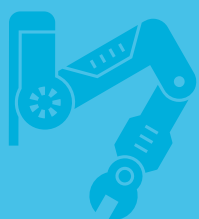
**PROMOTING COLLABORATION
BETWEEN INDUSTRY, HIGHER
EDUCATION AND STUDENTS TO
CHAMPION QUALITY ENGINEERING
WORK EXPERIENCE.**



The Engineering Work Experience for All campaign aims to improve the range of quality work experience opportunities available to engineering students.

91% of employers agree that to improve the supply of engineers and technicians in the UK, more employers need to provide work experience for those in education or training (IET Skills Survey 2016).

Engineering Work Experience for All is about showcasing the best practice work experience schemes already on offer to engineering students – and creating a forum to highlight the benefits and tackle the challenges of making creative, practical and engaging engineering work experience opportunities more widespread.



Visit

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What counts as a skill?



When, in May, the former Work and Pensions Secretary Ian Duncan Smith casually referred to most of the people who come from the EU to work in the UK as “low-value”, he intended to make the case for a work-permit system for immigration. If only high-value, highly skilled people were allowed in, argued Duncan Smith, they would all start doing terrifically important jobs – “scientists, academics... working in the software industry, or whatever” – and all the Eastern European fruit pickers that so trouble Duncan Smith’s target voters would stay at home.

There are grave problems with this kind of thinking. It is of course personally insulting to anyone to be degraded as “low value” on the basis that they are not a dentist or an app developer or one of the other categories of person of whom the Department for Work and Pensions has decided the country could accommodate a few more. But more seriously, it is only really possible to pin down what skills people have if you sort them by their qualifications or their occupation. As Ian Duncan Smith knows, qualifications – such as his own claim to have studied at the University of Perugia – can be overstated or faked. In fact, qualifications and occupations are not a great indicator of who will contribute to the economy; many of the world’s most successful entrepreneurs, including Bill Gates, Richard Branson and Mark Zuckerberg, don’t have degrees.

In fact most of the skills that are really important in work – from life skills such as confidence and perseverance to intellectual disciplines – are far beyond the means of any government department to test, but few would dispute the economic value of something like creativity. Only by seeing skills as equally valuable can a country make the most of the talented people who want to live there.

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Empowering young people with vital life skills



Labour peer and former Home Secretary David Blunkett explains why the principles of citizenship must be upheld and instilled in young people

Our young people are growing up in a country that is increasingly divided and uncertain. The future of the labour market can seem bleak with the uncertainty that Brexit brings in the years ahead. It is the responsibility of all of us who care about the next generation to support them to develop the skills and capabilities that will help young people overcome these challenges of our age. The right investment now will help unite us and provide hope for the future.

As a former Education Secretary, you might expect me to believe that the answer is “education, education, education”. In one sense this is right: we need to invest in our schools, support our teachers and help our young people with their academic studies. But just as importantly, we need to help our young people to become more confident, connected and compassionate citizens. This won’t just happen: we need broader investment in life skills and citizenship.

Teaching citizenship and democracy and teaching it well, is an essential starting point which is neglected at our peril.

That’s why alongside the work I have

done to support academic learning – cutting class sizes and improving literacy and numeracy – I have also focussed on helping young people to develop their broader character and citizenship. From Millennium Volunteers to citizenship education in schools, this is the work that I think addresses some of our most important challenges as a nation.

I am also a keen supporter and board member of National Citizen Service, perhaps the most ambitious national effort we have had at helping our young people learn life lessons beyond the classroom. The idea of national citizen service featured in the 1997 Labour manifesto, but this programme was introduced by David Cameron in 2010. It enjoys cross-party support enshrined in legislation – the National Citizen Service Act 2017 – and a Royal Charter, because the principles behind it have deep roots in our country and it represents a practical way to build stronger communities and prepare our young people for the future. It does this in three ways: building connections, developing life skills and being active citizens.

First, building connections.



NCS brings young people from all backgrounds together for a shared experience at 16 after GCSE exams. Our school system is segregated by income, ethnicity, and religion. NCS bridges these divides, attracting young people from different schools and different backgrounds to explore their shared humanity and their shared citizenship. It all starts with an outward bound adventure week away from home that pushes you out of your comfort zone and bonds the team together. Over four weeks these young people become lifelong friends.

Second, developing life skills. The second week of NCS takes place in university halls of residence. Young people are supported to cook their own meals and learn to live independently. They are taught practical skills such as public speaking and financial literacy. Just as important as these tangible skills, NCS supports them to work well in diverse teams and develops their confidence.

Third, being active citizens. The third and fourth week of NCS sees the young people return to their community. They get a feel for the social issues in their local area, visiting local charities, businesses and public services. Some of the most moving moments are when the young people connect with the elderly in care homes. They meet politicians and learn about the importance of democratic engagement, with many registering to vote. Together as a team, they design and deliver a practical project to make their community a better place. This social action not only develops the practical skills that come from turning an idea into reality. More importantly, it shows the young people that they can be change makers and that citizenship is about responsibilities as well as rights.

The impact of this investment in young people's futures is remarkable. In terms of building connections, eight in 10 NCS participants feel more positive about people from different backgrounds after taking part, and eight in 10 remain in touch with their new friends even two

years on. When it comes to life skills, three out of four NCS graduates feel more confident about getting a job. And recent research using data from UCAS showed that, controlling for other factors, NCS graduates were 12 per cent more likely to get into university, rising to almost 50 per cent for the poorest fifth of young people.

NCS has also been shown to support active citizenship. NCS graduates volunteer for an additional seven hours a month. The Office for National Statistics (ONS) recently found that 16-24 year olds have moved from being the least likely age range to volunteer in 2000, to the most likely in 2015, and both the ONS and NCVO cite NCS in their analysis of this data.

There are many initiatives that support young people to be their best and we should cherish them all. What sets NCS apart is that government funding has allowed it to grow rapidly and reach a mass of young people from all backgrounds. This is particularly important because we know that too few young people from poorer backgrounds are taking part in extra curricular programmes that help them build these vital life skills. Since its creation just seven years ago, NCS has reached more than 300,000 teenagers, making it the largest and fastest growing programme for young people of this age in our country. This year alone, it will reach more than 100,000 teenagers.

There are many things to be worried about in our country today, but I am incredibly proud to have played a small part in building NCS as a programme that is making a practical difference to some of our most urgent social issues. Given the scale of the challenge we face, we need NCS to become a rite of passage for all young people. We cannot stand by and let division and mistrust grow and fester. We cannot wait for the next generation's jobs to be replaced by robots and not skill them for the jobs of tomorrow. Developing life skills and citizenship cannot be optional extras in the twenty first century.



Teaching citizenship and democracy is essential

Technical education and parity of esteem

The chancellor of Cambridge University, Labour peer and former science and innovation minister **David Sainsbury** examines the UK's need for technical education reform



The system of technical education in this country today is a disgrace. It is over a hundred years since the first report which highlighted the fact that our system of technical education was not as good as that of Germany, and in comparison with other countries we are no better today. This is not due to the performance of FE teachers but to an appalling record of policymaking by successive governments.

The further education (FE) sector has seen almost continuous change over the last three decades. Since the early 1980s there have been 28 major pieces of legislation related to vocational, FE and skills training, and no organisation set up to oversee technical education has lasted more than a decade. During this long period, no-one has sought to learn from the many countries in the world that have excellent systems of technical education.

As a result we have today a serious shortage of technicians in industry at

a time when 366,000 of our 16-24 year olds are unemployed. I can't believe that none of these young people have the ability and motivation to train as technicians if given good opportunities to do so, and I think we should see these figures as a measure of our failure to provide our young people with a good system of technical education.

Also at a time when there is an increasing number of exciting and well-paid jobs for technicians, by 2020 the UK is predicted to rank just 28th out of 33 OECD countries in terms of developing intermediate skills.

Why is our system of technical education so poor and why is it held in such low esteem? If one looks at the systems in countries which provide good technical education for their young people, it is clear that three things are required for a good system of technical education. They are, firstly, a national system of qualifications which works in the marketplace. Technical qualifications will only achieve parity of esteem with 'A' Levels when young people know that if they work hard and get a good technical qualification, take it to an employer, and he or she will give them priority over someone who hasn't got a qualification.

Secondly, it is obviously necessary to have well-qualified teachers with well-equipped and up-to-date facilities to deliver excellent education and training programmes. Thirdly, one needs a system which shares the cost of training young people, and does not allow employers to get a competitive advantage by poaching well-trained young people from their competitors.

In the past we have not had any of these three foundations of a good system of technical education. Young people and employers have to try to understand a chaotic system of 13,000 qualifications, many of them of doubtful value. At the same time we have not invested sufficiently in either our FE teachers or their facilities. And, finally, we have not found a way of sharing fairly the costs of training, or stopping the poaching of trained staff.

Hopefully this is now all going to

change. Last year, I chaired a panel of experts tasked by government to make recommendations for measures that would not only improve, but transform technical education in England. The government accepted all our recommendations, in the Post-16 Skills Plan last summer, and officials are currently working to implement them.

Learning from what we found in other high-performing countries, my panel recommended that young people should be given a choice at 16 between two equally high-quality options: academic and technical. Transition support should be available for people not yet ready to access either option at 16, and bridging provision should be available for people who later wish to transfer between options.

The new technical option will be structured around 15 routes to skilled employment, with titles such as 'Engineering & Manufacturing', 'Legal, Finance & Accounting' or 'Catering & Hospitality'. This structure of routes will encompass both apprenticeships and the new T-level qualifications. This alignment of the apprenticeship pathway, which includes a significant off-the-job component, and college-based pathway, which includes a significant work placement, is the framework seen in almost all high-performing countries and brings many advantages. Learners can more easily transfer between pathways, colleges can utilise the same staff and equipment to teach both, and the system can flex throughout economic cycles: when apprenticeship opportunities dry up in a recession, students can still train for their chosen occupation in college.

The new T-levels will sweep aside large numbers of low-quality qualifications which currently attract public funding. For each cluster of occupations with similar knowledge and skills requirements, there will be just one T-level qualification, based on content and standards defined by employers. We estimate there will need to be around 40 T-levels across the routes. The reforms will see awarding organisations being able to compete for the right to develop

and deliver a technical qualification rather than offering competing qualifications. This represents a significant shift, but one which is necessary if we are to address the market failure evident in our current system.

Colleges will undoubtedly face challenges in adapting to the new system. The new qualifications will require demanding standards of teaching and assessment to ensure they maintain the confidence of employers. So, work needs to start now to ensure all colleges are suitably supported and prepared. The first stage of this should be for government to help local areas (LEPs, Combined Authorities and City Regions), and the colleges within them,

Why is our technical education so poor?

to understand what the new technical education system will mean. This includes the need to strengthen links between colleges and employers, plan the specialisms to be focused on within the 15 routes (reflecting local labour market needs), and identify the teaching expertise and facilities they will require to teach the new qualifications and where deficiencies lie.

Following this needs analysis, all colleges will require access to high-quality professional development, on a route-by-route basis. It is an international truism that the quality of any education system can never exceed the quality of its teachers. If we want these reforms to herald a new era of world-class technical education, England needs to upskill its technical education teachers, and this work needs to start now.

Of course, adequate funding is also a prerequisite for success. I welcomed

March's Budget announcement of extra investment in technical education. But it would be a mistake to allocate this extra money equally across all qualifications. Some routes will be more expensive to deliver than others and the funding-per-student should reflect this. We should move away from a one-size-fits-all approach to a system that funds study programmes according to what they actually cost to deliver. Funding levels should be set according not only to requirements for any specialist equipment, but also acknowledge that training programmes targeting different occupations need to be of different sizes. An electrician apprenticeship is twice the size of a butchery apprenticeship; why should it be any different for the college-based pathway? Moving to such a differentiated funding model would also help government deliver its industrial strategy, by providing a straightforward way of incentivising skills training in areas of most need.

All those that play a part in the system must rise to the challenge. Employers must commit to articulating what their industries – not just their companies – need, and support the next generation of employees by offering work placements alongside apprenticeships. Colleges and other training providers must redouble their efforts to deliver on employers' needs, and support students with clear and up-to-date career guidance. And ministers must ensure that the reforms described in the Post-16 Skills Plan are enacted in full, resisting any temptation to cherry-pick those aspects that are easy or cheap to deliver.

We have a great opportunity to make technical education in England the match of any in the world. A straightforward, easy-to-understand system of qualifications, based on employer-developed standards, will give our young people, regardless of background, the opportunity to work hard and build good careers and lives for themselves. It should also give us the best possible opportunity of producing the technical workforce our country desperately needs.

Clare McNeil, associate director for work and families at IPPR, and **Rod Dowler**, chairman of the Industry Forum, debate the threat that robots pose to employees, and whether skills can save them

Can skills survive the robot revolution?



Clare McNeil

The world of work is changing: technological advancement is rapid, with automation making skills redundant and transforming employment. Some of this is exaggerated: currently the data can only tell us which jobs have the “potential” to be automated and the technological feasibility, as opposed to the likelihood.

While caution is needed, so is serious planning. Our analysis at IPPR shows in information and communications less than one in four jobs have a high potential of being automated. In manufacturing, however, 49 per cent have a high potential for automation and two thirds of jobs in wholesale and retail.

Most concerning are industries with a high proportion of automation-friendly jobs, and a high proportion of workers who would struggle with redundancy. The wholesale and retail sector employs three in four workers without a degree-level qualification, and evidence suggests these workers are most vulnerable.

Adults without GCSE-level qualifications are more likely to be out of work a year after being made redundant.

The Conservative and Labour manifestos included broad pledges to introduce national re-training programmes, recognising if we are not to consign lower skilled workers to long-term unemployment, intervention is needed. But there is little detail on what or how from either.

Meanwhile, Germany is introducing plans to guarantee workers a right to lifelong learning and introduce personal work accounts allowing people to invest in skills enhancements. The “compte personnel de formation” (CPF) provides French workers with an entitlement of 150 hours of free tuition with paid leave.

The government should have three priorities: boosting investment in skills and their use, increasing the provision of high quality vocational training, and supporting workers in industries where skills needs are changing.



Rod Dowler

If you don't have a job, if your job is insecure or poorly paid, or if you spot trends that may eliminate your job, it is reasonable to be worried. The two most commonly identified threats to jobs are immigration and technology. There is a weary consensus the Brexit vote will address the immigration issue so technology, particularly in the form of robots, is now receiving intense media, political scrutiny, and fear-mongering.

Computers are not new, taking an increasingly active role in our lives for some 50 years. It is no longer an act of faith to think technology can be transformational; look at the amazingly fast adoption of smart phones and use of very complex technologies to communicate, navigate and access retail services. The potential of technology is real and may offer the best way to sustain the UK economy.

Many people continue to be suspicious of technology-driven change, and successive UK governments have struggled with major technological projects. The situation is similar in the US, but one difference is the government invests massively in military and security projects which benefits the US tech sector. This hasn't, however, solved problems such as static real wages for many workers, and poor infrastructure.

It is understandable people who fear being made poorer by technology changes are likely to oppose them. There is, therefore, an opportunity for a UK government with a confident attitude towards technology to achieve a lot. This

would depend on changing the Treasury's short-term investment thinking, and developing the civil service's ability to deliver major cross-department technology projects.

Examples of productive actions would be accelerating 5G mobile communications, installing electric vehicle charging points, introducing a smart grid, increasing technology support for care workers, and reskilling workers. It would need to be done on a scale sufficient to be effective. Hard-headed economists and accountants would question the cost. The alternative has not worked, so it is time to adopt an ambitious approach to technology.

A model for a tech-supported workplace of the future might be a mixed community of people and robots, with a division of labour. Humans could perform the tasks involving empathy and

While caution is needed, so is some serious planning

judgement, and robots tasks involving mechanical strength, high-speed calculations and more. For example, people currently stacking shelves in retail stores might be re-employed in the care services. It would require suitable laws, regulations, and taxation, and cooperation between government, companies, and human workers.

In a post-Brexit world, the UK must make the leap to a leader in developing and using technology successfully to benefit the economy and society as a whole. This would involve wrenching adjustments for politicians, a wake-up call to think tanks and universities, and a profound challenge for the civil service. In the process we could all come to fear robots less and love them a little more.

The government could introduce a skills levy to generate £5bn extra investment. We recently showed UK employers invest an average of £6bn per year less than their European competitors in employee training, and investment has fallen by £5.1bn since 2010. Greater co-investment from individuals with match funding from the state will also be needed, with a UK equivalent of the French and German lifelong learning accounts.

To increase high-quality vocational education, new sectorial institutions should be created and for industries with changing skills needs, a national retraining programme should include support for those made redundant, and those with low skill levels.

Two-thirds of the workforce of 2030 have left full-time education, so as Britain forges its new role in the world, the focus must be on the working age population as well as ensuring young people have the skills to thrive.

The skills of the future are already here

Focus on technological skills for their real uses and not for their own sake, writes the IPA's director of professional development, **Patrick Mills**

Developing the skills to get up to speed quickly with new technologies is tremendously important. But while it's important to know how the machines work, the really important thing is to know how you can harness their power, to use them appropriately rather than just for the sake of them. In advertising we understand this perhaps better than in other areas of business, because we've seen it happen before.

The golden age of advertising came about in the 70s and 80s; it was one of those great moments in time, with a bit of luck, and a following wind. Advertising had been around for ever, but as a means to grow brands and gain economic advantage it was suddenly exploding, and it attracted a lot of interesting and different people. A generation of brilliant thinkers coincided with a moment of great technological change – the sudden growth in the reach of television. Driven by the boom in TV watching, British creativity came to dominate the scene, and the Hofmeister bear and the



Smash Martians remain memorable symbols of the era. There are interesting parallels to be drawn with the present day, and the internet explosion.

Much has changed, of course, but in a world of algorithms and programmatic buying, you still need to communicate with human beings. It's true that technical skills are more valuable today; learning to code is actually a life skill now, because it gives you a deeper, richer understanding of this new, technologically driven world. New technology helps us grow our clients' brands, but to develop magical, interesting, creative work that engages with people, we rely on skills and principles that have held their value for decades.

In Paul Feldwick's excellent book, *The Anatomy of Humbug*, he outlines six techniques that have all, at one time or another, been held up as the secret of selling things. For example, in the 1980s all advertising creativity revolved around the idea of a unique selling point. With TV advertising space limited and extremely valuable, advertisers had only a split second to

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There will always be a market for people who can cut through the noise

sell, and the USP was identified as the single thing that differentiated the product from everything else. This theory was borne out of nothing more than somebody's great thinking, but it became a principle of creating advertising. Now, when you can sell products through long-form content or video, you can have multiple messages. People have moved away from that line of thinking, and yet it is still every bit as true today. A good piece of brand communication should always be pithy and to the point.

This is the thinking that now guides our training programmes to help grow skills – that technology is great, but if you don't know how to apply it to communicate with people, it's a bit pointless. Each generation seems to forget what was learned by the one before and tries to create a whole new set of rules, when actually the theories of the last 100 years or so are all valid and adaptable in this brave new world. By understanding these principles, people are better able to apply some of the new technologies to making

creative magic, if you like, with the machines.

In advertising, our employment strategy has always been to employ people who have an innate curiosity, who look at things in different ways. To be curious about data, about information, and to be able to interpret it and have different spins on it. This, together with creativity and innovation, are critical areas in which to encourage learning and development.

We believe that the best people in advertising have a combination of linear (or logical) skills and lateral skills – the ability to think broadly – so we actually built a tool to analyse people's suitability for the industry, called Diagonal Thinking. It tests whether you can think logically about a problem and assess how to get from A to B, but also if you can think about the problem in a different way. A lot of our agencies use it to help filter new recruits. This kind of assessment can be in the tech world, for example, customer experience is critical for brands. Agencies and individuals who specialise in this area map customer

journeys and how people interact with brands, –so it is important that they can map a journey in a linear fashion, but then to think laterally about how else a person might interact with brands.

But that's not to say that those with a logical or a lateral bent don't have an important place – creative staff will have a far more lateral orientation, and logical thinkers will be much better at data interpretation and evaluation.

And to ensure a sense of robustness in our work, and professionalism in approach we introduce new starters into our industry with a course that is designed to help them understand the theories and philosophies of the past so they can apply sound methodologies to client's marketing and brand communications problems. We believe that this helps ensure our industry can offer clients the most appropriate communication strategies and solutions that work in the diverse digital landscape, but not subject to fads that come and go in a rapidly developing media market place.

Clearly, some things have changed enormously. In this digital age, clients can measure the effect of advertising with ever greater effect. The great creativity of the past had looser shackles, if you like. Now, the boundaries of the playing field are more defined, and right from the off, agencies need to have a deep understanding of the client's business and how it works. They need to know, in far greater detail, what the client wants to achieve so they can put in place metrics to measure how effective their advertising is. This has changed the business, made it more commercially driven, and that does change the type of people we recruit. It's no surprise that we're one of the sectors we're looking to recruit from is people who have done STEM subjects at university. But while data is now our most valuable source of insight, there will always be a divide between the results that machine can improve and quantify, and the magic that remains uniquely human.

A fresh look at work experience could close the UK's biggest skills gap



As the IET continues to highlight its Engineering Work Experience for All campaign, IET president **Jeremy Watson CBE** explains why hands-on learning creates skills that are vital in the workplace

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The IET's annual Skills and Demand Survey is a definitive barometer of the way engineers feel about how their industry is trained and prepared for the future. In the most recent survey, one statistic stood head and shoulders above the rest: almost all (91 per cent) employers believe that to improve the supply of engineers and technicians, more employers need to offer work experience for those in education or training. A decisive majority (76 per cent) even agreed that the pool of engineering talent would be improved if offering work experience was compulsory for engineering and technology companies.

Why do engineering employers place such a high value on work experience? Further detail from the survey revealed that most employers (62 per cent) find that while graduates are well educated in the principles of their discipline, they don't know how to apply these skills in the workplace. Half of all those

surveyed said that a typical new technology or engineering recruit does not meet reasonable expectations. Employers are spending considerable time and resources getting new recruits ready for work, when this could be done much earlier.

But high quality, practical work experience is not only of great value to employers. It is also tremendously important to the young people, from school to university and beyond, who are considering a career in engineering. It benefits students, educators and the wider economy.

In recent years, education policy has acknowledged that funnelling students into narrow subject areas at an early age does not work for everyone. AS levels allow students to keep their options more open for an extra year, but it remains the case that we expect children to make decisions on the skills they are acquiring long before they have had any experience of the kind of career into



which those skills might take them. Relevant, good quality work experience gives students real criteria with which to properly weigh up their options.

The benefits of exposing students to the kind of work they could do not only makes their decisions more relevant, but it also makes them more open-minded, and brings a more diverse mix of young people to every area. This is vital across all sectors but particularly in engineering, in which only nine per cent of the workforce is female. We will only draw more young women into this exciting and rewarding profession if we

Experience is vital for career decisions

empower them to make open-minded decisions at school, and work experience is perhaps the best way to do this.

Many senior engineers and academics have told the IET that work experience was crucial in both preparing them for work and in giving them the confidence to choose the career that was right for them. Marie Emerson, of the University of Manchester's School of Chemical Engineering and Analytical Science, said work experience "helped me to discover what science looks like beyond the classroom, and it also helped me to decide that I wanted to be an engineer".

In a climate of rising fees, it is now more important than ever that students feel that the degree they have chosen will take them somewhere they want to go. Theoretical education, while very important, can feel distant from the future in which that knowledge will be applied, but work experience is an unbeatable demonstration of the value of a degree. Speaking of her own students, Dr Kate Sugden of Aston University told the IET that they "come back with a much better idea of why what they're being taught is important, and also a much better idea of what jobs are available to them when they graduate. That really helps in terms of their motivation. Since we've started increasing the number of [work experience] placements that we have, we've seen a higher retention of students."

Andrew Peters, managing director at Siemens, told the IET that work experience is especially good at addressing regional differences in training and the availability of skilled workers, because in many cases it applies to young people when they are still living in their home towns. "Quite often, young people coming into employment are not as mobile in their early years. So, if you can identify young people who may be doing an apprenticeship or further education, their first opportunity is likely to be somewhere that they live – they're not independent adults yet – so regional work experience is really important."

So, what can policymakers do to

encourage companies, schools, universities and individuals to take part in this valuable process?

The first and most important recommendation the IET can make is for the government to create a national framework that gives education providers the tools to build work experience programmes with businesses of any size. If this framework was flexible enough to be applied locally across the country, it could form one of the most productive elements in the UK's new industrial strategy.

The next most important thing policymakers can do is to help maximise the opportunities for work experience. Local partnerships between universities and industry can be very effective in giving students the chance to experience the real environment for which they are training, and this is especially true of engineering, where hands-on experience with certain kinds of equipment is impossible to come by outside of a workplace. In creating these partnerships, industry should also recognise that students may need help meeting the costs involved so that a student's current financial situation is not a barrier to their future career.

Finally it is vital that work experience is offered earlier on. A student should not have to wait until the third year of their degree before they can experience the career for which they are being educated. One- and two-year degrees are beginning to emerge as a faster route to work for some students, but for highly qualified engineers, it would surely be preferable to begin work sooner, while their education continues.

The UK's economic future depends, in part, on an increased supply of engineers in the future. And only with direct exposure to the workplace can we give young people the experience they need to develop the right skills and appreciate how rewarding and fascinating engineering careers really are.

For more information on the IET's Engineering Work Experience For All campaign, visit workexperience.theiet.org

Facing up to the hourglass economy

Andrew Stanley, head of education policy at the Institution of Civil Engineers, says the UK must make sure that when it comes to upskilling the workforce, no one gets left behind



It is no secret that the United Kingdom's construction industry is facing a significant skills gap, threatening to limit not only the growth of the profession but that of the wider economy. Construction provides 7 per cent of the UK economy's GVA and six per cent of UK jobs. There is a risk that projects like HS2 will Hoover up existing talent, and an ageing workforce poses additional challenges. Engineering UK's 2017 report forecasts a "sizeable replacement demand" for retiring employees, and a "strong expansion demand" for the sector.

Added to this, leaving the European Union is likely to exacerbate the skills shortage. Employers have long had to depend on recruitment from outside the UK to make up for the shortfall from our education and training system. Competition for UK-based students and apprentices is likely to be fierce post-Brexit, with tighter migration targets, EU students presumably charged

overseas fees, and proposed surcharges for employing overseas nationals. At the moment, nearly 40 per cent of students on undergraduate and post-graduate civil engineering programmes are from the EU or are classified as overseas students. Training the next generation of skilled employees and professionals is now of paramount importance.

But the pipeline from schools and further education is worrying. The increase in numbers taking A-Level maths may be about to end – a result not only of students being put off by new GCSE specifications, but also because a funding squeeze post-16 seems likely to result in fewer AS-Level courses, especially as they no longer contribute to the A-Level grade. This coupled with historic shortages in those entering teacher training for maths and physics will exacerbate the situation. The most recent figures show that maths recruitment has steadied but still needs to grow. Meanwhile, physics and design

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technology numbers are falling. The fall in numbers wanting to teach DT – a subject omitted from the favoured EBacc list – is particularly serious. Design subjects are a popular third or fourth A-Level choice for civil engineers and for many, the creative subjects are a gateway into the profession.

With the apprenticeship levy coming into effect this year, employers and ICE have been developing apprenticeship pathways, both for general civil engineering and specialisms such as rail

“We must improve an ageing workforce”

design and transport planning. These typically start at Level 3 in England, Wales and Northern Ireland, and are aimed at those with good GCSEs, or who have had a re-think after starting on an A-Level pathway. In Scotland, typically students will start after taking Highers at SCQF Level 6/7. The employers’ groups, supported by ICE, are now developing degree apprenticeships starting in September, to enable progression from professional qualification as engineering technician towards chartered engineer status. ICE, WISE and SEMTA have also collaborated to launch a new toolkit for employers to recruit more young women into engineering.

The apprenticeship levy has been a game-changer for training, and its introduction has focused employers on growing their own workforces. Payable by employers in the UK at 0.5 per cent of paybill, all employers will receive an allowance of £15,000 to offset against payment of the levy. This effectively means that the levy will only be payable on a paybill of over £3m per annum.

This represents a very positive development but there are challenges as well. While the newly set-up Institute for Apprenticeships (IfA) will be operating the levy in England, skills policy is devolved to the four nations. Scotland, Wales and Northern Ireland will have their proportion of the funds raised made over to them via the Barnett Formula to spend as they see fit. Early indications are that Scotland, Wales and Northern Ireland are likely to be much more flexible in their use of funds, using them to upskill and reskill the existing workforce, as well as for apprenticeships. Upskilling an ageing workforce should be a priority to counter the development of the “hourglass economy”, where demand for highly skilled and lower-skilled jobs increases at the expense of those stuck in the middle.

In England, however, all the levy funds must be spent on trailblazer apprenticeships with none available for upskilling and reskilling. The lack

of flexibility in part seems to have arisen from the 2015 election bidding war to set apprenticeship targets, currently at three million.

There are also concerns that despite increased regulation by the IfA, many of the new apprenticeships will be of low quality and may not result in permanent employment for apprentices. Recently *FEWeek* (19 June 2017) reported a five per cent fall in completion rates for apprenticeships, and questions have to be asked about this. Young people would do well to avoid any apprenticeship that pays only the apprenticeship minimum wage. Would-be apprentices should only apply for those that offer at least two years’ training, a nationally recognised qualification underpinning the apprenticeship standard, a realistic salary and a permanent job contract, subject only to successful completion.

However, no matter how many apprentices and undergraduates are trained, there is a lag between starting training and qualification, and developing as skilled and experienced specialists. The labour market has to respond more rapidly to short-term fluctuations in demand. Engineering is a global profession, with an international pool of experts who will always move across national boundaries to work on projects. Following the closure of the UK Commission for Employment and Skills in March this year, and the Regional Development Agencies before that, there is a dearth of reliable labour market information, including that needed to inform requirements for A Tier 2 visas for workers from overseas. Solid information regarding skills gaps remains crucial.

Despite these challenges, the engineering profession is upbeat, with employers committed to developing their workforces. The good news for prospective undergraduates and apprentices is that the engineering employment landscape is likely to remain a sellers’ market for some time.

James Daunt took on Waterstones when it was an ailing high-street chain and turned it, within seven years, into a profit-making operation. He tells Will Dunn the secret of his success: giving staff freedom to use their expertise

How skills saved Britain's bookshops



Most people are not fully aware of how close Britain came, in the autumn of 2011, to losing its bookshops. After fixed prices for books were abolished in the mid-'90s more than 500 independent stores closed, unable to compete with the discounts offered by supermarkets and internet retailers. Long-established chains such as Dillons and Ottakar's foundered and were subsumed. In January 2011 Waterstones, the only remaining chain devoted exclusively to bookselling, closed two bookshops. The following month, it closed nine more. Waterstones teetered on the brink of administration.

"At which point," says James Daunt, "it would have disappeared, as Borders did. A closing-down sale of ten days, and then 280 bookshops disappear. It would have been catastrophic for physical

bookshops. I remember when there weren't bookshops," he says of the days before big chains made bookselling a mainstay of the high street. "It would have been very depressing. These great metropolitan bookshops... once you lose those sites, they never come back."

Daunt describes what followed as "a miracle". The Russian billionaire Alexander Mamut "very correctly observed that Fernando Torres cost more than Waterstones", he laughs, adding that for Mamut, "there was a lot more benefit investing in Waterstones than in Fernando Torres". Daunt, who had founded what he calls a "tiddly" six-shop chain, Daunt Books, was appointed as the Waterstones' new managing director.

A second miracle would be needed, however, for what was to come next. "We underestimated the scale of the



difficulty,” Daunt explains, and when he says “difficulty”, he means Amazon. In 2012, Amazon launched a redesigned version of its Kindle e-reader, called the Paperwhite. Waterstones even helped to promote the device, launching it from its stores. “At that point,” Daunt remembers, “the most pessimistic publisher was Gail Rebeck at Random House. She was way out on a limb, saying that ebooks might go up to as much as nine per cent. Two years later, they were at 25 per cent. We lost £100m in sales.”

The memory is clearly not a pleasant one for Daunt, who describes the measures he took to cut costs at that time as “brutal”. “There is simply no figleaf you can put on cutting costs; it’s sacking people. We dropped the number of people we employed by 25 per cent, very, very quickly.” But the lowest point in

Waterstones’ history was also the point at which Daunt became free to rebuild the business. With a reduced workforce that was significantly less top-heavy (“half our managers left,”) he began to reinvent the way Waterstones worked.

The thinking behind Daunt’s plan was simple, and seems at first glance so obvious that it could almost be taken as a platitude. “The only thing that could save us,” he says, “was if we had better bookshops.”

Every cost-cut during this time was measured against this idea. Daunt says assessing decisions in this way was “tricky... because you’re often saying things like, ‘well, how does having three booksellers rather than five make it a better bookshop?’ To which I would say, well, you have to run around like a blue-arsed fly if there’s only three of you, and that brings energy and pace. Also, you drive out the useless things that customers don’t value.”

It was in going through this process that Daunt discovered the change that would make perhaps the single greatest difference to Waterstones’ future. When he refers to “useless things”, Daunt is really talking about one thing: returns.

Returns are unsold books. Roughly one in four of the books printed and delivered to bookshops sit on the shelves for a few months before being repacked into boxes and sent back to their publishers. “WHSmith still operates at around that level,” explains Daunt. “So does Barnes and Noble, so does every chain bookshop in the world. But if you don’t take those books in, you don’t have to process them, shelve them, pick them and send them back out. Roughly half of your work is removed.”

The problem was that Waterstones, like other chains, bought its books centrally. Deals would be made with publishers – “effectively driven by the amount of money that publishers would pay you to take a book,” says Daunt – and every branch would be loaded up with the same titles. To create better bookshops, Daunt realised that he had to stop allowing publishers to buy space in them. “We said no, we won’t be paid a penny, which we’re not, now.” It was

not, however, a penny that Waterstones was being paid by the publishers; some estimates put the figure at £27m per year.

It was a considerable sum, but for Daunt it bought something more valuable: autonomy. From his experience of running an independent bookseller, Daunt knew that independents do well because they only buy the books they think they can sell. “At Daunt Books, we ordered our own books. And because it’s your own money, if you’ve bought hundreds of copies of books that you can’t sell, it takes money out of your bank account.

“If you’re sitting centrally and you send out the same books to Middlesborough as to Hampstead, you’re going to have an awful lot of books in the wrong shops. If you let Middlesborough order what they want and Hampstead order what *they* want, they will be dramatically more accurate and nuanced. “What’s more, says Daunt, “they have the responsibility for selling the books. So if they’ve ordered in ten copies of your new biography, they put it front and centre and they sell the thing.” Each branch of Waterstones was now, to some extent, an independent bookshop.

It was not easy for Daunt to persuade his centralised management to relinquish control over what was sold in their shops. “To marketeers, it’s a heresy to let every bookshop do absolutely whatever it likes.” To illustrate the difference it makes giving autonomy to booksellers, Daunt opens his tablet and finds a recent email from a publisher whose daughter recently started working at Waterstones. The young woman is sat at her kitchen table, hours before she is due to begin work, hand-painting pieces for a window display. “A chain retail marketeer would have blue-eyed fit about that,” chuckles Daunt. “If Boots allowed staff to sit at their breakfast tables, painting things...! But in a bookshop, that would make the shop more fun, more vibrant. And clearly the bookseller is invested in selling that book. They are only selling that book because they love it.

“But, and it is quite a big but, there +

➤ is accountability. You can do whatever you like, but it's got to be friendly, positive, and it's got to work. If you start doing pretentious, convoluted, awful, ugly, we'll knock on the door." When employees were simply told what to do, says Daunt, their working lives were both easier and less interesting. Now, his booksellers are forced to ask themselves "what am I supposed to do?". The answer, he says, is "Whatever you like – but it's got to work."

This means training staff is also both more difficult and more interesting. "In the old days, there would be very much a template of what a good bookseller was," he says, but point out that Waterstones shops are hugely varied. "We're in shopping centres, metropolitan cities, the smallest villages, the high streets of Middle England. What you need in each of those is bespoke to that shop."

Daunt says Waterstones has had to "break a culture" of mass training initiatives that he describes as "the most counterproductive, dispiriting, inane, generic things", and to replace them with "very specific, modular training for the individual skills we think each of our booksellers need. We've invested initially in training the trainers, making sure that the person who trains in children's books or history knows what they're talking about, and really loves that bit."

This cultural shift had to take place, however, to allow a high-street chain to do what Daunt describes as "very unusual things; I can't think of any other retailer where the pricing of what's in the shops is left entirely to the individuals in them. A book doesn't cost the same everywhere in Waterstones. The discount varies by shop, and it's entirely at the discretion of the booksellers. I don't think that in Boots they say 'price the Timotei any which way you like'."

Often, giving booksellers autonomy to run their shops as they please delivers unexpected results. "The one my colleagues struggle with most is those shops that you go into which are, on any empirical examination, awful. They've got the wrong books on the table, the wrong juxtapositions, they've put plastic



Uniquely for a chain, window displays are chosen and created by Waterstones staff

flowers in the middle of a table. It's just all awful... and yet the shop's brilliant. It has energy. There's a mad bookseller in there who's got no visual sense at all, but the whole place is infused with energy. It's full of customers, and everyone's enjoying it. A chain finds that very difficult, because it's a mess. There's stuff falling down in the window. But it has that very difficult alchemy of what makes a shop work. What we do much better now is to say 'we don't understand why this shop works, but it does, so let's leave it alone.'"

Daunt is, for the head of a retail organisation, exceptionally frank about pay and progression. Three times during our interview he affirms that the basic pay on the shop floor is "awful". Again, autonomy and accountability are the solution, because they increase both job satisfaction and productivity. While he acknowledges that low by-the-hour pay is a fact of life in modern retail, he plans to move longer-term, dedicated, creative Waterstones staff to salaries – and in return, to make them more accountable.

He also acknowledges that part of this more intelligent approach to retail involves managing good people out of the business. "A part of my workforce are not with me for very long. If I take some

very bright, ambitious kid just out of university, they may just be with me for two or three years. And that's the deal we're doing, because they want to be, say, a journalist. So we look at individuals who need to go on and out, and how we help them do that. One of the things I want to be judged on, in ten years' time, is what the alumni are up to. How we developed them, and what they went on to do. Certainly at Daunt Books, we've had some astonishingly capable people through, and I hope that we gave them years of real development before they went on and conquered the world."

For now, however, there are two numbers upon which this skills-based approach can be judged. It's possible that Daunt, as a bookseller, takes the most satisfaction from his rate of returns: 97 per cent of the books on shelves in every Waterstones in the country are bought by customers. His employer is probably more interested in operating profit, however, which reappeared for the business last year for the first time in seven years. For many businesses, skills such as self-determination and freedom of expression are woolly concepts, unrelated to the bottom line. At Waterstones, they are worth tens of millions per year.

The apprenticeship levy: time to get to work

As the levy kicks into gear it is crucial that employers see apprenticeships as part of a wider skills strategy, writes the Chartered Insurance Institute's Daniel Pedley

After extensive consultation and lead-up, one of the more controversial recent pieces of skills policy has now come into effect: the apprenticeship levy. Any company with an annual payroll of over £3m is now obliged to pay an extra 0.5 per cent to HMRC, and receive an allowance of up to £15,000 for taking on apprentices. The larger the company, then, the greater the financial impact the levy represents.

This is not, however, the only problem with the levy. At the Chartered Insurance Institute (CII), we have warned of the “spectre of unintended consequences”. We suspect these may include the redirection of money away from existing successful employer programmes by creating a skills fund that can only be spent on one form of training. Additionally, prior to the election, the target of having 3,000,000 new apprentices by 2020 ran the risk of making apprenticeships a numbers game, when we would suggest that quantity over quality is not productive when it comes to skills training. It is likely that many of the employers now moving to offer apprenticeships will not have considered them as a means of training in the past, and will have no experience of developing a programme.

That said, this doesn't mean the levy is a negative development, or that its aims aren't relevant. It was introduced with the admirable aim of dramatically increasing the number of apprenticeships available and encouraging employers to invest in training, with the intended consequence of boosting skills and productivity. Indeed, focusing minds and

resources on training is crucial. Last year's CII annual skills survey found that three quarters of employers were suffering from skills shortages. Apprenticeships are one way of correcting this imbalance.

But in order to embrace the opportunity that the levy offers, firms need to consider apprenticeships as part of a broad, all-encompassing approach to talent development. The policy focus on training should prompt senior managers to take stock of company skills distribution, and take the time to consider successful recruitment, development and progression throughout their business. One helpful way of doing this is to undertake a skills audit. With this self-analysis, a firm will be able to understand more clearly their progression routes, and where further planning and talent pipeline development is needed.

Apprenticeships are not only about attracting young people fresh out of education, although this is an important use for them. They can also be directed at existing staff across all levels of a company. Recruitment is critical, but so is upskilling: apprenticeships used efficiently and intelligently will become an important tool for developing the existing workforce. In a similar vein, an academically qualified individual could become an apprentice and be reskilled, as long as it is clearly demonstrated that the training they receive is materially different, and practically applicable.

It is not effective, however, to consider apprenticeships in isolation; they are one tool, and fixing the skills shortage takes a whole toolbox. Their value lies in smart deployment. For example, as new standards continue to be introduced by employers for employees, new qualifications are created in each sector, and apprenticeships can be the mechanism by which employees attain these standards. Apprenticeships in themselves are not the answer, but they certainly form a key component in the development of future skills. The apprenticeship levy is therefore a step in the right direction – but still, as yet, a step.

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Upskilling the UK's creative industries

Seetha Kumar, CEO of Creative Skillset and a member of the London Mayor's Skills Taskforce, outlines a plan to support Britain's internationally renowned creative talent



The creative economy employs one in every 11 people working in the UK, and contributes almost £90bn to the economy. Between 2011 and 2015, employment in the creative economy grew by 20 per cent, compared with just over six per cent in the wider economy. Exports in film, TV, radio and photography grew by almost 10 per cent from 2009-2014, generating over £4.7bn, and 2016 saw a new record in international inward investment in UK film and TV production of over £1.8bn. This country's content, crews, production services and locations are in demand around the world, and our creative industries are thriving.

This growth is great news for the economy, but it comes hand-in-hand with a rapid increase in the demand for skills and talent. Skills needs are changing both in traditional roles, such as art direction and costume design, and in new areas such as graphics design and

motion capture – and there are major pinch-points. The British Film Institute recently highlighted a range of key skills gaps in areas such as costume design and production accounting. Skills gaps vary across the UK, reflecting specialist regional production clusters such as high-end drama in Northern Ireland and Wales, animation in Bristol and the South-West, and film in the South-East.

The creative sector also has to compete for skills with other industries as many valuable skills are transferable, from specific abilities in digital technologies and project management to more loosely defined skills such as creativity. As a result there is a competitive international market for creative skills and talent, and some of the UK's screen-based sectors have developed significantly international workforces. For example, 43 per cent of the visual effects workforce is from outside the UK and Ireland. British companies already face stiff global

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competition for the skilled people they need to help maintain their creative competitive edge, and a Brexit that includes immigration controls would exacerbate this challenge. Over 75 per cent of employers in creative businesses employ EU nationals, and 66 per cent believe these individuals fill roles that could not currently be taken up by British workers.

It is also true that “who you know” remains a major factor in the creative industries. This can be a significant barrier to entry and progression among those from under-represented groups, or those without the right contacts. Guidance on entry routes and career progression remains inconsistent, and many talented individuals are unable to make the most of their skills.

To be effective and employable, people joining the creative industries need a combination of digital, creative and project-related skills in addition to any specialist job-related experience.

However there is evidence from creative businesses that education and vocational training aren’t adequately preparing young people for working in a film, TV or related production environment. Criticisms include new entrants’ lack of work-readiness and their inability to cope with project-based creative working environments where over 40 per cent of creative industry employees operate flexibly, often as freelancers.

For those already working in the creative sector there are reskilling and upskilling challenges as the industry – and digital production technologies – evolve. It can be hard to find the time and money to invest in professional training, especially for the high proportion of freelancers and micro-businesses in this sector.

Patchy accreditation of courses, from education through to workplace training, means that individuals and employers can’t easily decide on what will best meet their skills needs. Creative industry employers are keen to see a simple ‘quality mark’ approach across courses and training providers so that everyone can make appropriate choices about skills development.

In the past, UK policymakers have not fully taken into account the cyclical and project-based freelance employment patterns traditional in sectors such as the construction and creative industries, even though flexible working and the ‘gig economy’ are increasingly widespread. Relevant skills policy and investment are essential to support growth in sectors that work in this way. Industry, educators and government need to work together on an ambitious blueprint for next-generation skills – balancing national and regional needs, reflecting project-based working, addressing future skills shortages, and tackling barriers to entry to improve workforce diversity.

One example is the London Mayor’s “Skills for Londoners” initiative, which is developing a new skills agenda so that Londoners will have the opportunity to train in the skills that the capital’s

economy needs. Taskforce members include business leaders and employers, skills and education experts and London government representatives in order to ensure a citywide strategic approach.

Already we have seen encouraging signs that UK workforce policy is evolving in response to industry skills needs. The general election does not seem to have derailed initiatives such as the new ‘T-Levels’ resulting from Lord Sainsbury’s review, designed to improve vocational skills training from age 16 through annual investment of £500m in technical education. The restructured apprenticeship framework, too, remains intact, and new industrial strategy proposals, including a skills and talent strand, are still in progress.

Against this backdrop, organisations like Creative Skillset – the skills body for the UK’s screen-based creative industries – continue working with industry partners to tackle skills priorities. Together, we have endorsed the following plan to develop the skills our creative industries need:

- **Forecast skills needs:** data on current and predicted skills needs will allow educators, employers and policymakers to plan effectively for next-generation skills needs.
- **Improve guidance:** deliver better advice on the skills those considering a creative industry career, and those already working in the sector, will need.
- **Broaden entry routes and ensure entrants are ready for work:** develop inclusive vocational training opportunities and relevant degree-level learning to improve diversity and work-readiness.
- **Support continuing professional development:** target training at skills gaps so that those working in the industry remain employable through reskilling and upskilling.
- **Strengthen course and trainer accreditation:** extend a ‘quality mark’ system for practitioner-approved courses, from education through to employment, and for training providers, to ensure that all learning and skills development meets industry needs.

Cyber skills are now a universal requirement

No business can afford not to train its staff in information security, writes PGI's **Stephanie Perry**



As one hard-hitting headline after another details the targeting of our public and financial services, it is becoming painfully clear that cyber insecurity is one of the greatest threats we face as a nation. It is something that affects society at every level, from small independent firms to large corporations, and even parliament itself.

The UK economy, like much of the world, is becoming increasingly digital. The Tech Nation 2017 report found that the UK digital economy was growing at twice the rate of the non-digital economy, and had a turnover of £170bn in 2015. Businesses of all sizes are realising how important it is to get online; according to the Federation of Small Businesses, “Almost all (99 per cent) of the UK’s 5.4 million small firms rate the internet as being highly important to their business, with two in three (66 per cent) offering, or planning to offer, goods and services online”.

This enthusiasm for digital benefits

can come at a heavy price: a report published in April by the Department for Culture, Media and Sport found that nearly half of all UK businesses were victims of a cyber attack or breach in 2016. Of the findings, Ciaran Martin, Director of NCSC, stated that “businesses must treat cyber security as a top priority if they want to take advantage of the opportunities offered by the UK’s vibrant digital economy”.

In March, the former director of GCHQ Robert Hannigan predicted a “huge skills shortage ... People will look back in 10 years time and ask: ‘Why did we not do something earlier?’” Unfortunately the UK is already experiencing a severe shortage of cyber skills, which has led to a number of worrying outcomes. Organisations are finding a huge inflation in rates when trying to hire experts and the spectrum of skills and candidates is simply too narrow to fill every role. Crucially, companies are unable to acquire

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employees with the skills to defend them against emerging threats.

As a result of this shortage, many firms are finding that upskilling their existing employees through external training programmes is an attractive option. Cyber security is now one of the fastest-growing sectors in the IT industry, and supplementary training is an excellent opportunity for IT professionals to gain desirable new skills.

PGI launched its Cyber Academy in 2014 with the cyber skills gap squarely in its sights. As an educational facility, it draws on PGI's considerable experience in retraining individuals to become effective cyber security professionals. Delegates have included law enforcement, the military, and personnel from both the UK and international government departments. The Academy's trainers come from a similarly high-level and diverse background, having worked in government, the military, law

enforcement, the intelligence services and corporate backgrounds. Alongside their teaching they are active in penetration testing, digital forensics, incident response, Security Operations Centre functions and information security consultancy.

Training in teams has proven to be a successful model with which to transition a workforce from multiple technical disciplines to specialised cyber security roles. A team comprised of multi-functional, diverse skillsets can identify each other's strengths and areas for improvement, which in turn helps to develop soft skills such as leadership, people management and communication. Teams that train together will generally be much more effective in dealing with cyber security incidents.

As the cyber systems and needs of each company are unique, it is crucial that cyber skills training is delivered using tailored practical learning. For this reason, PGI's security training

consultants will conduct training needs analysis with clients before training starts, to acknowledge current skills and discover learning objectives and other aims. This process allows them to put together a programme of courses to suit the specific needs and objectives of the business.

PGI's Academy has developed workforce growth and transformation programmes to give government and commercial clients the ability to build, sustain and retain workforces. The Academy understands how delegates learn effectively and, using its virtual cyber range, allows trainees to demonstrate their skills in an environment which is free from the worry of disruption to live operations or risk to sensitive data. Programmes offered at PGI's Cyber Academy have produced significant numbers of professionals with the practical skills to start work quickly and effectively within the cyber security workforce. They provide the capability to transform a workforce to defend, consult or implement cyber security measures quickly and affordably.

Industry surveys and experience all highlight a major lack of global cyber security knowledge. Indeed, the skills gap is evidence that workforces are largely unaware of cyber security vulnerabilities. This has sadly resulted in an unnecessarily large number of avoidable and damaging incidents requiring costly response and reparation. At CYBERUK 2017, Ciaran Martin warned that if "we don't get cyber security right, the fundamentals of our economy and our way of life could be challenged" and urged companies to adapt quickly.

The cyber threats faced by companies of all sizes are very real, and as attacks become increasingly common and complex in nature there has never been a more pertinent time to shore up defences. By equipping employees to understand, prepare for and respond to possible attacks, companies can significantly reduce their cyber insecurity, and risk of potential loss.

Learning on the job

John Baumback, group managing director at Seetec, reflects on his career and how early faith and freedom through an apprenticeship unlocked so many doors



When John Lennon was five years old, he was asked by a school teacher: “What do you want to be when you grow up?” The youngster responded: “Happy” before being told he didn’t understand the question. Lennon sniped back: “I’m not sure you understand life.” And the prodigious sass of a veritable music icon still has resonance today.

Education and academia aren’t the same thing. The idea that you can’t learn outside of academia is fundamentally misguided. Yet, somehow, we’ve got it into our heads that pieces of paper and letters after your name are guarantors of capability and success. Apprenticeships or more vocational routes into any industry are too often viewed as an easier option, but this just isn’t the case.

In fact, there is no set way of doing things. All routes have their merits, but apprenticeships are struggling to overcome a stigma they don’t deserve. For every person for whom a degree does suit, there’s another for whom it

doesn’t. Coming to terms with that is a challenge society needs to tackle fast, or risk perpetuating a needless stand-off.

When I was 11 years old, I spent all of my savings on buying my first computer. As a wide-eyed boy from Essex, I dreamed of being a computer programmer. While I’d shown an aptitude for maths at school, by 16 I was growing disillusioned with the rigidity of the comprehensive system. My family was struggling to make ends meet and I signed up for an apprenticeship, earning just £26.25 a week.

The decision was initially decried – my friends thought I was mad – and I was implored to go and find a ‘proper job’. The thing is: I had. I joined Seetec, a young company with just six employees based near my Canvey Island home and offering training in COBOL programming for business use.

Big companies carry a notion of stability, granted, but I would say that being nurtured and tutored so closely in a small team not only helped me to

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hone my skills quicker but also made it easier to stand out. Nine months after joining as an apprentice, I successfully applied for a permanent job as an admin assistant and became the company's seventh employee.

Since then, Seetec has expanded in the UK and Ireland, employing some 1,250 staff and has an annual turnover of £85 million. The company, though, retains its head office in Essex where I started my apprenticeship – a seminal reminder that small companies have the potential to get bigger.

A close-knit team at Seetec forced me out of my comfort zone – it wasn't enough to be a face in a crowd – and I was given more responsibility because

there was more to be shared out among a smaller group. After about a year, I became an assistant trainer on the COBOL programming course and by the age of 18, I was teaching my first adult group. This was a daunting but immeasurably rewarding experience.

When the company branched into writing its own software for business clients, I developed a programme for doctors' surgeries which was soon being sold nationwide. I was then promoted to sales and development manager. The rapidity of this advancement was facilitated by learning on the job, adapting accordingly while being afforded a freedom that might not have existed if I'd had to commit years to one programme of study – which ran the risk of not necessarily being related to what I wanted to do. That's not to diminish the merits of degree courses, but I want to highlight that I was able to instruct my own future a lot more flexibly.

When New Labour introduced its 'New Deal' programme to tackle unemployment, Seetec won its largest-ever contract to provide the service in Birmingham. The company's expansion out of Essex had begun, and it closed its commercial side to concentrate on employment and skills. Crucially, Seetec practises what it preaches, and continued to take on significant numbers of apprentices, many of them building their careers within the company. The current Group Infrastructure and Corporate Services Director also joined as a trainee, and one of Seetec's technical consultants was in the first adult group I taught in 1986. Another former trainee is now one of Seetec's IT engineers.

When you take on an apprentice, you mould them to the culture and ethos of your organisation. If you treat

them well and give them opportunities, they will always be loyal. It's their first engagement with working life, and you can see the advancement they're getting, and watch them growing in front of your eyes.

At Seetec, we've been helping people from all walks of life to grow through apprenticeships for over 30 years. As an industry leader, we've continued to adapt our services, catering for a diverse range of sectors to provide as much choice and opportunity as possible. Our high-quality apprenticeship programmes have helped employers and individuals alike for many years.

Second chances are in short supply nowadays and we've got to work hard to move away from this one size fits all approach. Since becoming group managing director at Seetec, I have been committed to making the company the highest quality skills provider in the UK, and creating a more diverse range of opportunities for young people. Seetec currently recruits up to 150 apprentices a month across the UK for organisations it works alongside but, with the government's introduction of the new Apprenticeship Levy, the new goal is to grow this to between 500 and 1,000 a month.

An apprenticeship isn't a signal for settling or an acceptance of second-best, let's not forget that apprenticeships are not just about gaining low level qualifications, with level 7 qualifications which are degree equivalent; it's simply a chance to do things differently. Plenty of people are suited to classrooms and lecture theatres, but there are plenty of people who aren't. An apprenticeship is a chance to work in an environment tailored to the way you learn and to improve the unique skill-set you and you specifically can offer.

SEETEC APPRENTICESHIP FIGURES



Selective state schools continue to dominate national league tables. Is it simply a case of being able to cherry-pick the brightest pupils, or is something more complex at work? Rohan Banerjee asks the educators

What's good about grammar schools?



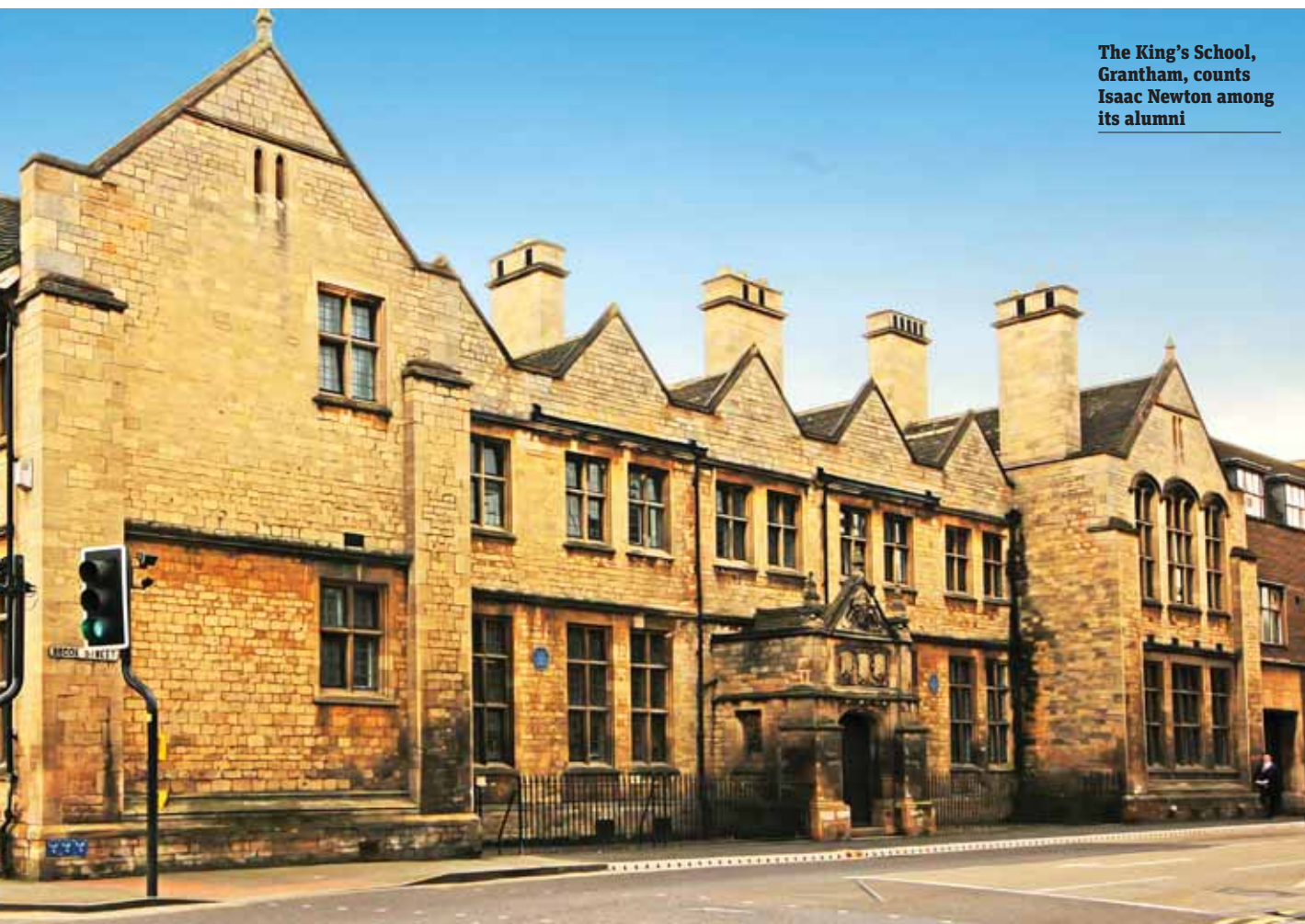
State education's perennial hot potato has been back on the menu this year, and while the question of new grammar schools was dropped from the Queen's Speech, it will be only a matter of time before the subject bobs to the surface once more. The reason selective schools remain in the news is that they promise impressive results. Of the 163 grammars that remain in England, 47 achieved a 100 per cent rate of pupils earning at least five GCSE grades at A* to C in 2016. At A-level, meanwhile, 42 of the top 50 performing state schools last year were grammars.

Is their success simply down to the fact that grammar schools can select the brightest pupils within their catchment area? It certainly looks that way, at first glance. The majority of Local Education Authorities (LEAs) across England no

longer have a grammar in operation. Of the 3.2 million pupils in state education nationwide, just 5.2 per cent are selected for grammar schools. But is it as simple as that? Is the way grammars teach as important as who they teach?

Geoffrey Wybar, headmaster at Gravesend Grammar School in Kent, says teaching style has more of an impact than critics of grammar schools give them credit for. Wybar puts his school's success down to its "stretching" of the curriculum, blending similar subjects together while offering a wide range of extracurricular activities. "We are able to offer an appropriate curriculum. In a selective environment, you've got people working with people of broadly similar ability and this also leads to both competition and mutual support amongst the youngsters." That like-

**The King's School,
Grantham, counts
Isaac Newton among
its alumni**



mindedness, Wybar adds, is crucial. “Where grammar schools may have an advantage over other settings is that they are often attractive to individuals who have deep subject knowledge and a passion to share it with others.”

Matthew Williams, head of mathematics at a comprehensive in Gateshead, Tyne and Wear, says

“We are able to offer an appropriate curriculum”

comparisons with grammars are moot. He explains: “They’re expected to do better, because they have the advantage of selecting the cream of the crop in the first place. The challenge for many comprehensives is that we are pressured to make sure we meet a standard, so while they get students who come in already with the expectation they’re going to pass or excel in their exams, we have to commit our time and resources to just making students pass, full stop. So grammar schools get more time to explore the wider curriculum, while we’re focused on meeting standards in the core subjects.”

Williams also points out that social background makes its way into the selection process. According to the Sutton Trust, less than three per cent of those educated by a grammar school are

entitled to free school meals. In comprehensives, this figure rises to 18 per cent. Grammar schools are also typically located in more socially advantaged areas – nearly half are based in London and the south-east. “If you consider that most grammar schools are in the south,” says Williams, “you’ve got more families who have stable jobs and lives so they can support their kids. In areas like the north-east, you often get pupils coming from backgrounds where life isn’t always stable at home, and so the comprehensive schools have to offer an extra branch of support.”

But Gareth Sturdy, an ex-grammar school pupil himself and now a physics teacher at an east London comprehensive, believes the issue of social mobility in the grammar schools debate has been overblown. “I think focusing so much

“Different people learn at different paces”

“on social mobility,” he warns, “sort of misses the point. Education is about more than exam results. I think if you want to understand the secrets of success behind grammar schools, you’ve got to look at the ethos that they foster. When I talk about ethos, I’m talking about that traditional subject knowledge. That deeper, wider knowledge about each subject; so that means learning things by heart and every possible aspect of a subject, rather than gearing your learning towards a mark scheme.”

Sturdy says the scope of grammar schools’ teaching provides a more effective cultural context for what is being learnt. “If you want to go to Cambridge to study English, at a grammar school you might be told to read John Milton’s *Paradise Lost* as ‘further reading’. But at a comprehensive, the kids could be told that Milton isn’t relevant to you, because it’s not on the curriculum.”

Sturdy says a grammar school education is also defined by factor that could seem superficial. “I don’t think that the cosmetics of grammar schools – the uniforms, the discipline and whatnot – should be overlooked. What you tend to find is that a lot of the more successful comprehensives also adopt these things. If you look at Mossbourne, which was a failing school in Hackney, that got turned around when [former head of Ofsted] Sir Michael Wilshaw came in and introduced a strict uniform code and a zero-tolerance attitude towards bad behaviour. You’ll see a lot of the comprehensives in the east end of London now are starting to make their students wear smart blazers and ties, because it works.”

There is a curious trend that a lot of modern grammar school advocates appear to credit little of the schools’ success to their entrance exams. In fact, some even criticise it. Jonny Symaka, a newly qualified history teacher due to start at independent school in Canterbury later this year, completed placements at one “heavily mixed ability” comprehensive and one grammar school over the course of his

training. He thinks that the Eleven Plus could do with a revamp. “No matter how good grammar schools might be, you’re always going to come back to this issue of selecting at the age of 11. There’s a real racket for private tutors and if nothing else, you run the risk of actually missing out on some late bloomers. Does an 11-year-old’s ability to recognise certain patterns or shapes effectively tell you how they might perform later in life? There must be some better way of getting the primary schools to help inform selection over a period of time, rather than in a one-off exam.”

Still, Symaka explains that setting according to ability is also quite common in comprehensives nowadays, and is helpful for students and staff alike. “I think it’s quite clear that different people learn at different paces,” he says, “which is why, when you have a class that’s totally mixed, it becomes difficult to satisfy everyone’s needs properly.”

Symaka draws further parallels with the private sector. “I think if you want to understand why grammar schools do so well, you need to look at why the private sector does so well. It’s nonsense to talk about it purely in terms of funding. Obviously the private sector has more money, but grammar schools don’t get more funding than other state schools. That grammar schools adopt similar structures to private schools is important. The enrichment activities on offer mean that kids get a chance to try their hand at lots of different things. Having a competitive house system adds another layer to that.”

It is now almost half a century since the Labour Party’s 1964 manifesto curtailed the number of grammar schools in England. However, it should also be remembered that it did so on the condition that comprehensives would keep the cosmetics and style of grammars, but not their selective intake processes. Whether their teaching methods – not to mention their ties and houses – can survive in a non-selective environment is a question the education system is still waiting to answer.

Apprenticeships have never been so important

Britain's ability to compete post-Brexit will rely more than ever on homegrown skills says Petra Wilton, director of strategy at the Chartered Management Institute

The fallout from the vote for Brexit has brought into sharp relief the professional skills shortages endemic to UK employers. Under freedom of movement, UK organisations have been able to pick and choose from the cream of the EU's talent to plug their home-grown skills gaps. Yet in spite of this unfettered access to skilled European workers, we still haven't solved the productivity puzzle. Our productivity rate still lags, on average, 18 points behind other G7 nations – and it's hurting the competitiveness of UK business.

As we head towards Brexit, we'll need an internationally competitive economy built on world-class skills. This is why apprenticeships have never been so important. Apprenticeships have been radically overhauled in the past few years through the creation of a new breed of employer-designed, trailblazing higher apprenticeships. These have been backed by a new means of funding – the apprenticeship levy – and are helping to make apprenticeships a route for employers to professionalise their workforces, from entry level to developing and upskilling those already in employment. Management apprenticeships for team leaders and operations managers, the Chartered Manager Degree Apprenticeship, and the forthcoming Senior Leaders Master's degree apprenticeship are great examples. They provide a seamless progression route for professional development for upskilling at all levels, which benefits both employees and employers.

While the apprenticeship levy involves a not insignificant charge of 0.5 per cent

on all payrolls over £3m, it will give all employers the opportunity to invest in upskilling their workforces. All funds can be reinvested back into an organisation's own workforce through apprenticeship programmes.

The benefits are not just for large firms. Employers with an annual payroll of less than £3m won't have to pay the levy. The Government will cover 90 per cent of the costs of their apprenticeship programmes, and for micro-businesses apprenticeships will be fully funded.

We are urging businesses to seize this opportunity. See it as a "skills investment plan" that can be used to fund management development programmes both for school leavers and existing employees. Businesses disputing the need to invest in professional training must realise that the true tax on jobs is the low productivity of managers already in the workplace – according to research by Investors in People, this costs the UK £84bn per year. Investment to upskill and bring on the next generation of homegrown managers through higher and degree-level apprenticeships will be more than repaid by the productivity gains they deliver.

As part of the CMI's Management Manifesto, we are calling on the government to back the expansion of high-quality apprenticeships through maintaining a strong commitment to the new trailblazer apprenticeships and the apprenticeship levy. This will create certainty and confidence in the new system for employers, providers and indeed the apprentices themselves.

We will continue to work with employers, education providers, schools and Government to promote the value and prestige of these new professional apprenticeships. Employers need to rid themselves of misconceptions about apprenticeships being a "second-class choice", and understand the opportunities that they present to fill the skills gaps in their organisations.

To start your management apprenticeship programme, visit www.managers.org.uk or call 0333 2200 3149.

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Building a better future

A career in construction is a chance to shape society, write CIOB's chief executive **Chris Blythe** and deputy chief executive **Bridget Bartlett**



Brexit in many respects highlights the certainty that we need to address the chronic skills gap. For too long the issue has been lying dormant, masked by the EU's free movement ethos but now we have the much-needed fresh impetus to modernise our manufacturing and construction industries. If Britain stops building, so does our significance on the world stage.

It's not hard to see why British companies looked overseas to swell their workforces – migrant employees are a relatively cheap option and with a skill-set to fit – but even the softest of negotiations of Article 50 are unlikely to maintain a steady access to this pool. The UK's own pool, meanwhile, has become increasingly shallow, both in academic and vocational spheres. A glance at the OECD's most recent figures for the programme for international student assessment (Pisa) regarding maths and literacy, is pretty

sobering. The UK ranks 27th in the former and 21st in the latter, below Estonia, Slovenia and Poland.

How this translates to a shortage in skills does not require much of a leap. With access to so many courses in engineering and construction requiring a certain level of maths and literacy, that only around 60 per cent of students in England achieve an A* to C grade in these subjects at GCSE is a point of concern. Moreover, the UK seems to have developed a social hang-up about apprenticeships; and the drive to get more people to university has actually resulted in a reluctance towards anything that isn't that. Apprenticeships suffer from a stigma they don't deserve, while a great many degree courses focus too much on theory and don't have enough of a practical element about them. We need to recognise that each learner is different and while some may thrive in a lecture theatre or

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classroom, there are others who will find those settings constricting. Apprenticeships offer an opportunity to be more flexible, skill-specific and against the backdrop of widespread student debt, earning while you learn can help boost social mobility.

The need for greater synergy between academia and industry is clear. The Chartered Institute of Building recommends, therefore, that courses, whether vocational or academic, are instructed by industry

Courses must be instructed by industry professionals

professionals. Integrating some sort of practical experience into any course is surely the way to get students learning ‘hands on’ sooner. That’s not to diminish the theoretical complexities of construction, of course, but rather to ensure that theory and practice work together in tandem. As the world’s largest and most influential professional body for construction management and leadership, and with nearly 200 years of experience, the CIOB is well-placed to instruct how the science and practice of building should be delivered. Our members work worldwide in the development, conservation and improvement of the built environment.

Raising standards, though, is only part of the battle. One of the challenges that pertains within the manufacturing, construction and engineering industries is that which relates to perception. The image problem associated with these industries is largely that they are only suitable for one type of person – middle-aged white men. Consider that women make up 51 per cent of the total UK population, yet according to the Royal Society of Engineering only eight per cent choose to pursue careers involving STEM subjects.

Diversity UK, meanwhile, has found that the UK workforce is more diverse than ever with 12 per cent of the working age population coming from BAME backgrounds. But the most recent Glenigan Construction Industry Performance Report demonstrates an enduring imbalance in the building demographic. It shows that the mean workforce within construction companies is only three per cent BAME. By focusing recruitment and retention of staff on homogenous groups, employers are at a substantial risk of reducing their talent pool and missing out on a huge proportion of society which has plenty to offer. If the UK wants to end its over-reliance on skills imported from abroad, then it must start to look to the patent diversity on offer at home. These are people just waiting to be trained and employed.

Aside from lacking diversity,

construction jobs have also failed to sufficiently inspire and draw new candidates. The marvels of construction are all around us, but somewhere along the line we have forgotten how to convey that. It’s important that we show young people that what they build will have a lasting impact on society – as monuments not only in the physical sense of the word but as representatives of something deeper. Houses, after all, ultimately become homes. A career in construction is a chance to shape the future of the UK while harnessing the advent of emerging technologies. It is also worth appreciating that it is just as important that the UK commits itself to regular audits and upskilling of existing staff as it is that the country trains a new workforce. We should also note that skills acquired in construction are not limited to the world of work. Builders become natural problem solvers, able to offer practical solutions and will understand the feasibility of a project from a financial and man-power perspective.

In the aftermath of the general election, the fate and fortunes of the construction industry and national infrastructure should signify a rare point of consensus among all major parties. The quality of our built environment affects everyone. Construction creates and maintains the places that people live, work and play in, the infrastructure that supports them and the services that sustain them. Whatever the political conditions, it is vital that future governments understand this. The UK deserves a world-class industrial pipeline to reflect its position in global politics. The CIOB wants to see a robust system for training and skills development, a more progressive approach to recruitment and a wider redistribution of investment to different UK regions, thus ending the bottle-necking towards the capital. We have a duty to inspire the next generation of builders while keeping the faith of the incumbent – technology is progressing and we must show people that they can progress with it too.



APPRENTICESHIPS HAVE BEEN TRANSFORMED.




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