

Spotlight

SKILLS / KEEPING PACE WITH A CHANGING WORKPLACE

Baroness Corston / John Stevenson MP / Will Butler-Adams OBE



Engineering education needs a new approach

The UK needs an extra 69,000 new engineers per year to meet the demands of industry.

Stephen Tetlow,

chief executive of the Institution of Mechanical Engineers, says that the solution begins at school

Children's education should reflect the world around us. It should enable them to become good citizens who are capable of contributing to modern society. While languages, arts and humanities are all key parts of that education, engineering and technology are unavoidable features of our lives. In the era of smartphones and driverless cars, tomorrow's citizens will need to learn just as much about our manufactured world as previous generations have needed to know about the natural world that surrounds them.

The current reality is different. In the UK, the average person is largely unaware of the extent to which engineering benefits almost every aspect of daily life, and those pursuing technical study are in the minority.

The findings of the Institution of Mechanical Engineers' latest report, *Big Ideas: the Future of Engineering in Schools*, are based on the views of leading engineering education experts as well as employers, parents and pupils. The findings are clear: society is changing, but education is not changing with it. With a rising demand for engineering skills, we need to increase the number of young people choosing engineering careers, to help schoolchildren make informed choices and better understand the world they live in.

The report recommends that engineering should be explicitly taught, as part of existing lessons, from primary level upwards. It also highlights the importance of

maintaining a broad curriculum until the age of 18, to prevent pupils giving up subjects before they've had time to really understand them. Many leading educators, politicians and learned bodies agree that specialisation is routing young people into either arts or sciences too soon, preventing them considering an engineering degree or apprenticeship before they have really grasped what engineering is. The same is true for other subjects, of course, but for engineering the problem is particularly acute: according to the latest EngineeringUK data, we have an annual shortfall of 69,000 engineers.

Looking at school-leavers, more universities should emulate the entry requirements from progressive engineering courses by having more flexible entry requirements. Engineering is a hugely creative subject; art and design students, who could have lots to offer in engineering, are missing out on potentially rewarding and fulfilling careers. It is also vital that we do more to promote non-traditional routes into engineering, such as on-the-job training. Apprenticeships can be more affordable than university degrees, and offer practical skills that are typically more transferable in the workplace than pure academic qualifications. These skills could be anything from assembling car engines to installing telecommunications systems.

Engineers solve problems. They create the technology and innovations that shape our world, and our future. We need to inspire more young people about engineering by making the subject more visible in the UK school curriculum and facilitating school-leavers to consider it as a career.

The education system has a duty: children need to understand the world in which they live so that they can make truly informed choices about the subjects they study and the career paths they pursue. With the changes occurring today in our society, this can only be done if engineering plays an integral part in every child's education.

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The changing face of work



It takes 47 hours of practice, on average, to pass the UK driving test. With 200 hours of experience, you can get a commercial pilot's licence. After a thousand hours, most people can confidently speak a foreign language. Human beings are hard-wired to accumulate new skills; people can transform themselves at any age, in relatively small amounts of time. In the 1,600 hours that British people spend working, in the average year, there should be space, even for busy and experienced people, for extensive learning and development. A person's work – how fulfilling it is, how well they do it, how free they are to experiment and learn – is one of the most important factors in their happiness and health. It is for this reason that one of our contributors, Baroness Corston, describes the need for a well-trained, fulfilled and ambitious workforce as one of the great imperatives of our age. Yet it is hard to find consensus on how to achieve this. Under the last Labour government, the number of university admissions rose by 23 per cent; the current Conservative government aims to create three million apprenticeships by 2020. But as contributors to this report point out, school-leavers form only one part of this hugely complex puzzle. For Baroness Sharp, further education – for all ages – offers both a social good and a vital boost to productivity, while Will Butler-Adams, head of the British-built success story Brompton Bicycle, values formal training less than the freedom to experiment. In workplaces that are being remade by technological and social change, the raw talent that makes for a skilled workforce needs increasingly diverse and inventive support. In this special report, you'll find solutions and insights from some of the people best placed to answer this hugely complex question.

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The paper in this magazine originates from timber that is sourced from sustainable forests, responsibly managed to strict environmental, social and economic standards. The manufacturing mills have both FSC and PEFC certification and also ISO9001 and ISO14001 accreditation.

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Welcome to the age of apprenticeships

Used in the right way, the new Apprenticeship Levy has plenty to offer your business. **Petra Wilton**, director of strategy and external affairs at the Chartered Management Institute (CMI), explains how to make the levy work for you

The new Apprenticeship Levy was a striking part of the Chancellor's Autumn Statement. Any company with a payroll over £3m will pay 0.5 per cent of its wage bill, but levy payments can be recouped (with a 10 per cent top-up from the government), as part of a plan to boost skills and help provide the three million new apprentices promised by 2020.

Attitudes to apprenticeships are changing. A CMI white paper recently found that 61 per cent of parents would prefer their children to take a high-quality degree apprenticeship with a major company over a traditional degree from Oxford or Cambridge. We are entering what the CMI chief executive, Ann Francke, calls an "age of apprenticeships", and businesses must now capitalise on these changes.

Hatching a new generation of professionals

One opportunity is the Chartered Manager Degree Apprenticeship. Developed by a group of 40 employers and universities, led by Serco and supported by CMI, the new Chartered Manager Degree Apprenticeship mixes on-the-job training with world-class academic tuition.

Apprentices receive both a degree and Chartered Manager status upon completion of the course. For businesses, Degree Apprenticeships create new generations of highly trained professional managers.

Tom Banham, head of talent acquisition at Nestlé, which is among

the first group of participating organisations, says that the Degree Apprenticeship programme is vital to staying current.

"At the moment, Nestlé is relying on an ageing workforce; we don't have enough talented individuals coming through and driving our organisation into the future," says Banham.

About 15 per cent of Nestlé's skilled manufacturing team is coming up for retirement in the next 15 years.

The benefits for students are also clear. "They get a Degree Apprenticeship from Sheffield Hallam University, and at the end of the three-year programme they get a permanent opportunity at Nestlé, a degree and they become part of CMI."

Not just for school-leavers

Barclays is using the Chartered Manager Degree Apprenticeship programme not just for students, but for managers and graduate trainees.

"Every day, these individuals are learning how to lead people," says Mike Thompson, who leads Barclays' apprenticeship programme. "Historically, we've focussed on new recruits into our organisation; now we're looking to invest our levy allowance into our existing workforce."

Time to act

With the introduction of the levy and increased funding from government, there has never been a better time for businesses to hire an apprentice, or to use apprenticeship to increase the skills of employees.

"Businesses with an eye on the future must realise the value of increasing the skills of their managers. There may be some grumbling in boardrooms about this new levy but it's time to rid ourselves of any apprenticeship snobbery," says Francke. "High-quality professional managers don't come for free."

Find out how you can use the Apprenticeship Levy at managers.org.uk/degreeapprenticeship

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Make skills reform make a difference

The government is launching significant reforms that will affect the skills of the workforce but **Neil Carberry**, director for employment and skills at the CBI, says it needs to meet business halfway



Skills are the currency of the 21st-century labour market. With ever higher demand and ever larger shortages in the UK for graduate-level skills and skilled technicians, those who care about economic and social prosperity are focussing on the issue.

And demand is rising fast. We are close to the point where half of all jobs will require higher skills, while the digital revolution will change the types of jobs and sectors we work in. Training, and retraining, are the critical tools to ensuring the UK can compete in this environment, supporting the growth of new sectors, and helping whole communities adapt to changing times.

As a nation, we already spend a lot on training. Despite some claims to the contrary, British businesses spend more than many of our competitors – over £45bn a year – on workplace training, while government has a commitment extending to billions of pounds itself.

And our universities are a world-leading source of competitive advantage.

That said, when you move beyond input measures such as cash, the story is less rosy. Much of what we deliver today is not well targeted. How we use people's skills in firms could be improved, as UK Commission for Employment and Skills (UKCES) data shows. And our system of vocational education, the routes we offer to most young people, aren't well aligned with their needs or those of business. As the CBI has shown, we have some sectors where skills achievements outweigh the number of available jobs, while in others – including important sectors such as automotive – the opposite is true.

So how do we change this? We need a new focus on outcomes for learners. And we need to care as much about the young people we send on to higher skills through colleges and apprenticeships as those who go on to university. For businesses, this will mean being more than a reluctant customer of the skills system. More of us need to roll up our sleeves and follow many of the great firms that are already working in partnership with the system to improve it for learners and for companies.

There are roadblocks in the way, however. There are three in particular that government must address if we are going to deliver truly great training and get businesses involved – many of which are sceptical of government promises.

First, make offering quality apprenticeships easy, and discourage poor ones. At the Confederation of British Industry we aren't interested in just three million apprenticeship starts – we want three million great careers. However, the new Apprenticeship Levy gets in the way of this.

A levy is just a way of funding skills, of course, and while the CBI would have preferred another route, what really matters is how it works. At the moment, much of the investment in apprenticeships cannot be met from the levy. As one managing director put it, the levy “penalises people doing the right thing”, because it will become more expensive for firms to provide quality ▶



Youngsters entering the world of work need a clear and relevant training path

► programmes than to pay the levy and do nothing. That's what economists call a "misaligned incentive".

Many CBI members have already told us, with the heaviest of hearts, they will have to cut back the quality or volume of apprenticeships – the exact opposite of what the levy is supposed to do. One engineering firm we talked to – a committed employer of apprentices – has a £2.5m total training budget. Its levy contribution will take a quarter of that. To find the savings to pay it, the firm is having to reduce the number of apprentices by one-third.

It's important to say that cost is not the only issue. But the current design is being driven too much by the government's need for fiscal savings – not creating great careers. A wider definition for levy spend and an allowable expenses regime would help change this.

Second, open the paths to great college and apprenticeship routes at school. The CBI stands with Lord Baker on this. Our curriculum for 14-to-18-year-olds lacks choice, alienates many, and funnels young people down an academic and exam-heavy route, assuming that

a vocational system must be poorer-quality. The work of Lord Sainsbury and his colleagues to address this by simplifying the vocational system is welcome. But it will be a bolt-on unless we do more to redesign the path people take from age 14, and offer them a choice of rigorous, demanding options linked to real-world outcomes and careers advice. It is time for a change of tack.

Finally, many young people need a second go at the leap into work, and many more people need to top up their skills to stay and develop in work as times change. Our further education system matters because of this, and ensuring it is delivering is vital for economic growth and social cohesion. Ensuring that devolution deals and the area reviews of provision work with local enterprise partnerships to deliver provision matched to local needs will be vital. There is no doubt that business and government need to step up on skills if the UK is to prosper.

The business community is looking for a real partnership for change, which will require some reforms from government, too.

Quotes in context

● “HALF OF ALL JOBS WILL REQUIRE HIGHER-LEVEL SKILLS”

According to the most recent report (April 2016) by the UK Commission for Employment and Skills, 46% of all UK employment will exist solely within highly skilled occupations (defined as occupations that fall within Standard Occupational Classification categories 1-3). The report also estimates that over 70% of all newly created jobs in that time will be highly skilled.

● “LORD SAINSBURY AND HIS COLLEAGUES ARE . . . SIMPLIFYING THE VOCATIONAL SYSTEM”

The former minister of science and innovation leads a panel of independent experts investigating ways to improve vocational education. The panel includes Professor Alison Wolf, author of a highly influential 2011 report on vocational education. Following the Wolf report, the government removed over 3,000 courses, including qualifications in marzipan modelling and balloon artistry.

● “IT WILL BECOME MORE EXPENSIVE FOR FIRMS TO PROVIDE QUALITY PROGRAMMES THAN TO PAY THE LEVY AND DO NOTHING”

The Apprenticeship Levy will be a 0.5% charge (from April 2017) on the wage bill of any company paying over £3m in wages, minus a £15,000 allowance. For employers close to the £3m watershed the levy may be cheaper than the £18,000 cost of a typical higher-level apprenticeship – levy payments are also deductible from corporation tax – but on the other hand, the government will make some apprenticeships much cheaper by using the levy to subsidise them.

More skills, more growth: the proof is in the data

By taking eight years of data on how advertising agencies train their staff and analysing it against their growth, the IPA has been able to prove which skills are most relevant to the advertising industry and which training makes the most difference.

Patrick Mills, the IPA's director of professional development, explains how they did it

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This is an interesting time for advertising. Like many professions we've recruited graduates, often with arts degrees. They represented the sort of person who tended to be curious, and that's what agencies based their businesses around – a curiosity about how things worked, an ability to see brands differently and to communicate in an interesting way. But the world has changed, and the skillset that's required for advertising has changed with it: there's now a massive need for people who can use data effectively, and there's an even greater need for digital expertise. We're looking for people who might not, in the past, have considered a career in advertising.

At the IPA we began offering Continuous Professional Development (CPD) 16 years ago, but our training has changed, too: it's now informed by the data we collect. At first, our feedback was solely on the quality of our courses, but in 2008 we began investing in more sophisticated measures to prove the true impact of training. This evidence-based approach is very important to agencies that are lean, in terms of people and resources: if they're going to spend on training, they need to know it works.

That's why we introduced a gold standard of accreditation. We know there is a group of agencies that invests a huge amount of time and effort in training. Part of the gold accreditation involves submitting quantitative data, to prove the links between business success and training. So, for eight

years, we've been gathering data from the best training agencies.

We had a well-informed hunch: that agencies which invest more, grow more. So last year, we compared the gross income of these agencies with their investment in CPD training. We looked at the data between 2010 and 2013, splitting groups into small, medium-sized and large agencies. This is just Year One of a longer and more sophisticated research programme, but we did see a clear correlation across all agency sizes: those that invested more in CPD training through the IPA have higher income growth.

We're also broadening the sort of people we recruit. We've invested a lot in apprenticeships, most of which are Level 3, so we're taking in people before they go to university. We're also driving diversity, so we have a richer culture in our agency businesses – evidence suggests that a more diverse workplace is a richer one, in every way.

Our qualifications programme has become an industry benchmark, with nearly 14,000 people qualified in 12 years. With that in mind we're launching a personal accreditation, which will be based on the achievement of a certain level of qualification and the completion of three years' CPD.

There will always be a demand for graduates, but this personal accreditation means there's now a distinct alternative. A year's apprenticeship, combined with IPA qualifications and three years of CPD training, creates a path to being professionally accredited at manager level. One of our members who invests a lot in CPD took on an apprentice four years ago, and this year he'll be the first apprentice to achieve this accredited level. He left school, went straight into an agency and he's now – at graduate age – an account manager running a portfolio of clients.

We like to think that it doesn't matter where you got your education. If you have the skills, the curiosity and the enthusiasm, you're set fair.



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Are we heading for a “hollow” workforce?

The House of Lords select committee on social mobility found that university students receive £6,000 more funding per year than those in vocational education. **Baroness Corston**, committee chair, says this could be disastrous



If there is one statistic that boils down the divide between academic and vocational education that concerns the social mobility select committee, it is the difference in funding that these two types of education receive. At university level, students are funded at an average of roughly £8,400 per student per year, while full-time students in further education colleges receive about £2,150 per year. “We spend £6,000 a year less on each student in further education than we do on those going to university,” explains Baroness Corston.

“Schools focus only on A-levels and university; their funding depends on their keeping children in school. And I don’t quarrel with that, but it ignores a very considerable cohort of young people, many of whom follow that route because they think they’re supposed to. We waste £800m a year on young people who start courses for which they’re entirely unprepared, and they drop out.

“There are alternatives to A-levels and university, and they are credible alternatives. But they should be coherent, accessible and business-friendly,” says Corston. The entrenched progression from A-levels to university to a graduate job is far easier to understand than the bewildering complexity of the UK’s 19,000 vocational qualifications. “For every one GCSE, there are about eight vocational qualifications, and for every A-level there are about six. Young people are navigating a very complex network of qualifications that aren’t understood by employers – organisations told us they often didn’t understand what level they [BTECs, NVQs, GNVQs and VCEs, to name a few] were, or what they were.”

Corston says the most fundamental skills for entering the workforce are being ignored. “Life skills are the skills which employers tell us they want the most. I have been a passionate devotee of life skills education for 20 years, because it gives people confidence, it makes them better citizens, it teaches them to co-operate, it teaches them time management and to respect other

There are eight vocational qualifications for every GCSE

people, and to be ambitious. When we were in government, some of that life skills education did have GCSE equivalents, which I know from my own experience in Bristol [Corston was the MP for Bristol East from 1992 to 2005] did engage some of those – particularly young boys – who were hard to reach. That was all abolished by Michael Gove, at the stroke of a pen.

“Skills,” she says, “are important – we want people to be able to make things. So many people have been saying to me in ▶

► the last 20 years that we're a knowledge economy. If we're all knowledge workers, we won't be making anything; Dyson and Rolls-Royce won't be able to find people to make things. What about plumbers, builders, bricklayers? We need these people, and if we're inviting them into our homes to do a job, we need to feel that they're qualified."

The highly skilled vocational training that is in such demand at the moment is no cheaper or less difficult to provide than university education – in some cases, quite the opposite. "University is no more expensive than a Rolls-Royce apprenticeship. Rolls-Royce has to employ people to train these young people. They don't just stand there, watching someone who's a skilled engineer. They have to be taught."

With vocational training lacking funding and proper organisation, Corston says there has been a "hollowing out" of the workforce, as the gap between unskilled workers and highly qualified graduates widens. Intermediate roles, she says, can help bridge the gap. "When we were in government, we started giving nurses intermediate roles doing jobs that were previously done by doctors. We recruited teaching assistants, who didn't have teaching qualifications but who supported teachers.

"We introduced the notion of Police Community Support Officers, who didn't have the same powers of arrest as a police officer, but were in a supportive role. It's fair to say that those professions were at the time resistant to those changes, but they now accept them completely. There are now, particularly with the growth of information technology, fewer of those intermediate roles available. So [with] the young people coming out of school without relevant qualifications, who don't go on to university – if they don't have family connections that allow them to do decent work experience, or if their parents don't have business contacts that help them to get a job... it's no wonder that, as it was reported two weeks ago, upwards social mobility has gone down in the last few years from 17 per cent to 15 per cent."

THE NUMBERS

Skills and social mobility

The House of Lords select committee on social mobility found that:

47% of graduates were employed in jobs that do not normally require higher education qualifications
532,300 people entered higher education in the UK in 2015, the highest number ever recorded
There are 19,000 regulated adult vocational qualifications in England
6% of 16-to-19-year-olds started an apprenticeship in 2014/15
35% of 18-year-olds applied for university in the same period
£2.73 is the hourly minimum wage for apprentices. The National Minimum Wage is £6.70 an hour
30% of UK students take vocational training; 75% of German students take vocational training

The committee also heard from hundreds of young people about their experience of apprenticeships. The evidence they gathered, Corston says, left her "truly shocked. My dad left school getting on for 100 years ago, and his apprenticeship was for five years. I grew up in Yeovil, in Somerset – young boys of my generation went to do apprenticeships at Westland Aircraft, for four years. So I had in my head the notion that an apprenticeship really was a training for a craft, or a skill, or engineering. And then I met these young people: there was one girl who told me that she had done apprenticeships, each of which lasted six weeks. One was an apprenticeship in wrapping vegetables. One was arranging flowers into bunches for a supermarket. One was working in a stable, where she swept the floor, and one was working in an office, where every single employee apart from the managing director was an apprentice on £3 an hour. Now, to me, that is massaging employment figures: it is not apprenticeship."

The situation is changing, she acknowledges, with the imposition of the Apprenticeship Levy to create longer, higher-quality apprenticeships. "But at the moment, we're starting in some cases from a very low base."

What's needed, says Corston, is a more flexible school system that allows people to begin experiencing relevant, work-based training from the age of 14. She points to the example of her own grandson, who – on her advice – left school at 16 to do a furniture-making course. "It was two days a week, for two years. What does he do for the other three days a week for two years? Hang around the streets? Wouldn't it be better if he could spend the other three days a week for two years improving his academic education, which he would be very happy to do, because it would be alongside learning a skill which he wants for life?"

It is currently possible for school pupils to engage in "day-release schemes" with companies such as Rolls-Royce, she says, "which obviously motivate and interest young people. They might decide that they are going to focus for the rest of the week, because it's running alongside something that is going to prepare them for the world of work." Only in these instances does Corston see the highly trained skills that businesses need being given equal footing with A-levels in academic subjects.

Overall, she says, ensuring that we have a well-trained workforce is "one of the great imperatives of our age. When we came to power in 1997, the proportion of people going to university in this country was lower than that of South Korea. That Labour government really tried to do something about that, by encouraging kids from communities where no one had been to university to do so, and it was wonderful.

"Now, the time has come where we say that we don't neglect those young people, but we don't focus exclusively on them. There are other things we will need in the modern world besides university graduates."

It's not where you're from, it's where you're going

Emma Codd, managing partner for talent at Deloitte, explains why her company is committed to pulling the plug on privilege

In the UK, if you're born into a low-income family, you don't have access to the same opportunities as someone born into wealth, regardless of your talent or hard work. We live in one of the least socially mobile countries in the developed world: a Sutton Trust study found that 71 per cent of barristers, 61 per cent of doctors and 51 per cent of journalists were privately educated. Deloitte, one of the government's Social Mobility Business Compact Champions, believes this matters to both our economy and our society, and is leading the way with an innovative social mobility strategy. Greater mobility is not just morally desirable; more socially equitable businesses have been shown to be more profitable. For example, an article by Lindsay LaVine for Fast Company entitled "The case for women on boards" showed that companies with a greater proportion of women and ethnic minorities at the top outperform their rivals.

There's the skills gap, too. Without enough people with the right skills to do the jobs available, productivity suffers and businesses are less able to respond to change. A well-trained workforce is good for business, and it also makes more people more employable, enabling them to move up the social and career ladder.

For Deloitte, fostering social mobility helps it attract and retain talent. With its focus on solving complex business problems through collaborative working, Deloitte needs people with unique life experiences and different

perspectives, who can think creatively and add value for clients.

So, how does the firm compare? More than half (51 per cent) of 1,000 Deloitte employees recently surveyed were the first in their family to attend university, and 43 per cent went to a non-selective state school. Almost one in ten had received free school meals.

David Sproul, senior partner and chief executive of Deloitte UK, says: "We chose to publish Deloitte's social mobility to dispel this myth [of a closed shop]. It also showed us that we have a lot of work to do before we reflect the clients and communities we serve."

Through groundbreaking education programmes such as Access, Aspire and the BrightStart Apprenticeship scheme, Deloitte is opening doors to professional careers that would otherwise be closed. These programmes provide personal development for school-age students, from mentoring and enterprise competitions to employability skills training, while the flagship BrightStart Scheme offers a non-graduate route into professional services.

For Daniel Clarke, who left school with one GCSE above grade C, these programmes can make all the difference. Daniel found an early business placement gave him the confidence to achieve; it was "the catalyst in getting me here, something I would never have thought possible". Daniel now has a first-class degree, as well as a successful career in Deloitte's consulting team.

Deloitte is also working towards an impartial recruitment process. Last year, it introduced school and university-blind recruitment, as well as contextualised academic data to allow for more informed decisions about candidates. It's soon to go further with name-blind recruitment.

Deloitte believes it's not where you're from, it's where you're going. Businesses cannot afford to ignore talent from all social backgrounds.

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With local businesses in need of skilled workers and constituents in need of training, the MP for Carlisle, **John Stevenson**, saw an opportunity to bring the two together

“My proudest achievement for the city I care about”



A question I’m often asked by my constituents is: “What is the best thing that you have done so far as an MP?” My response? Simple: the Carlisle Skills Fair.

The idea of a skills fair came from a meeting I had with a local engineering forum. There, the majority of the manufacturing firms told me that it was difficult for people in Carlisle, especially young people, to find out about the careers and training opportunities they were offering. They told me that there was a willingness and ability among local companies to train a new generation of Carlisle youth – but that it was difficult for the employers to find a setting that would allow them to engage with those young people.

It got me thinking that even in this digital age there does sometimes have to be a physical meeting for connections to be made – especially for young people who aren’t sure exactly who they want to work for. In Carlisle we have a number of excellent training providers, a strong and successful manufacturing base, and a stable workforce. But with very little face-to-face interaction, there wasn’t a lot of relevant advice for school-leavers who were deciding on careers.

So, with a lot of support from the local training providers, I decided to organise and host the first Carlisle Skills Fair in 2014.

The plan was simple but effective. I booked a large venue in which employers and training providers who



had vacancies for apprenticeships, employment or training could exhibit. Then I invited all those interested in a new career or in new qualifications to come and talk to the employers.

The fair would be open to secondary-school students looking to get information about careers, jobseekers, and those already employed who were considering a career change. It would be supported by sponsorship from training providers, businesses and the Skills Funding Agency.

The first event was a huge success, and the Carlisle Skills Fair has now entered its third year, growing stronger and larger each year. This year 85 employers and 15 skills providers took stalls, seeking to attract and retain the talent of the future

in Carlisle. The employers included international businesses such as Nestlé and Pirelli, growing national companies such as Story Homes, and local enterprises such as Print Graphic – all of which make a significant contribution to our economy.

Public-sector organisations that also rely on a skilled workforce took stalls, including the hospital, police, fire service and the armed forces. Further support from the newspaper, schools and colleges, along with the Jobcentre, all helped to make this year's event a great success, attracting about 3,000 attendees. The event is about creating opportunities for people to find employment, apprenticeships and training opportunities, but it also

about helping businesses, organisations and the community.

A small city like Carlisle needs to be able to retain and attract talent to succeed. To create a prosperous and successful city, the one key ingredient we need to get right is the skills mix. It is only by ensuring that we have the right skills – and, crucially, the right mix of skills – that our business sector will be able to grow and succeed. I am most proud of the fact that the event is funded entirely by sponsorship from business and training providers, because I think this demonstrates the value that employers are placing on the fair.

The fair brings together the already existing offer of Carlisle's businesses, and the potential of its people. It provides a connection that was previously missing. But I do think it has created an energy of its own – and it is part of a solution to ensure that our part of the world has the skills and businesses it needs to compete in an ever-changing and ever-diversifying world.

Over the past three years I have heard many success stories of people finding apprenticeships or jobs with business through the fair. The stories are always encouraging and really demonstrate the value of the fair at a personal level. For example, this year I spoke to a young woman standing at a stall enthusiastically encouraging the next generation to get involved and seek career opportunities. She was pleased to tell me that she had come to the first skills fair as a young student, and had met an employer who offered her an apprenticeship.

Three years later, here she was, not only qualified, but representing the company she had joined. I still get a huge amount of pleasure hearing from constituents who tell me their son or daughter got an apprenticeship from the Carlisle Skills Fair.

The fair isn't just the answer to a question about the best thing that I have done as an MP: it is my proudest achievement for the city I care about the most. I am pleased to say that I will be hosting the fourth Carlisle Skills Fair next year on 26 January 2017.

Transferable skills benefit everyone

With member companies in a broad range of sectors, the Engineering Construction Industry Training Board is a leading authority on training for transferable skills, says **Chris Claydon**, chief executive of the ECITB

A mobile, flexible workforce in which workers can transfer their skills to different companies and sectors is a prerequisite of a modern, dynamic economy. It also makes the economy more resilient: demand for people and skills increases and decreases with the upturns and downturns in different sectors. The more flexible the workforce, the better equipped it is to cope with change.

Between now and 2020 – and beyond – an estimated £411bn of public and private investment is planned (according to *The National Infrastructure Plan for Skills*, September 2015) for infrastructure in the UK, including transport, energy, communications and environmental networks. More than half of this investment, about £240bn, will be in energy infrastructure. This huge investment plan foreshadows an equally huge demand for skills. Government and industry will need to work together

to ensure that these programmes have access to the right people.

This is the work of the ECITB: to help employers identify the skills they need, and to source and develop the training required. With many large employers, each working in a number of different sectors, the ECITB's focus on transferable skills helps to make large sections of industry more flexible.

Avoiding duplication in training

Government and industry alike are aware of the shortfalls in the existing skills system. No one wants to add cost to operations, especially through duplication of training, and nowhere is this more evident than in the oil and gas sector, which is already suffering the effects of a sustained downturn in global oil prices.

Since the price of oil began to fall, operators have been looking to simplify and standardise their skills agendas, and the ECITB has been working to help them address this. The requests by individual asset owners for retraining and requalification of the core and construction workforce has highlighted

Why retrain someone who is already qualified?

some significant cost-inflationary behaviours: some main contractors reported to the ECITB that they had to retrain hundreds of workers in the same skills to meet client requests.

Why retrain someone who is already qualified? There is clear direction at a national level, through the National Infrastructure Plan for Skills, identifying transferability of the workforce as a key component in delivering productive infrastructure

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projects. This does not, however, appear to be a priority in all areas of skills reform.

At the ECITB, we look to support transferable skills development and training to maximise the use of the collective investment made by industry through the Industrial Training Levy. This collective approach focused on occupational standards means that employees can be trained to a common standard, and their skills can be applied across a number of sectors.

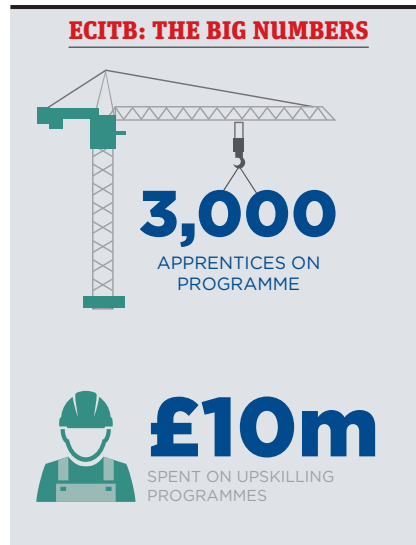
Barry Taylor, commercial director for ECITB member company Blackrow Engineering Ltd, has highlighted this issue. Blackrow specialises in the manufacture and installation of bespoke systems, and is a leading provider across several industrial sectors, including renewable energy, power generation and the food industry.

Through the use of the Industrial Training Levy, the ECITB has supported the development of skilled people within Blackrow to work across all the sectors in which it operates. The use of the levy to provide skills that are transferable has helped deliver skills efficiently and at a low cost.

Taylor said: “The ECITB provides us with a solid platform upon which our skills and development can flourish. It has supported the growth of our business from apprenticeships and technical qualifications, right through to developing our management team. The entire range of skills utilised by our business on this project are harnessed within the portfolio of the ECITB.”

Building in transferability **... in project management and project control**

An adequate supply of project managers and project control professionals is key to meeting the needs of future infrastructure development. The ECITB is working with the Association of Project Management (APM) and with various energy sectors, from upstream oil and gas to nuclear energy, to develop a structured programme that will give existing project managers Registered



Project Professional (RPP) status. The cross-sector oil and gas RPP programme was launched in summer 2015 to encourage the recognition of those managing complex oil and gas projects, with a pilot scheme of 19 senior project managers.

The programme requires competence in 29 areas, and is assessed by the APM. Following the success of the initial scheme, the ECITB has introduced this programme into the nuclear industry, where 18 candidates are currently taking the nuclear RPP programme. The ECITB Certificate in Project Controls is another example of cross-sector usage: it's used in areas from upstream oil and gas to the shipbuilding sector, and since its launch, almost 400 learners have qualified for the certificate.

... in technical competence

Training in Mechanical Joint Integrity, too, has benefited from a focus on transferable skills. Developed initially for the oil and gas industry, this expertise is now benefiting the wind power industry, where it helps to secure the bolted joints used on wind turbines.

In 2012 the ECITB launched the Mechanical Joint Integrity (MJI) Initiative and Small Bore Tubing (SBT) courses with Step Change. The numbers

speaking for themselves: since the launch, the ECITB's approved training provider network has trained over 12,000 workers in MJI and 5,500 workers in SBT. Approved providers have delivered over 8,000 technical competence validation tests in MJI or SBT, with an average pass rate of 80 to 90 per cent in the tests. These technical tests are key to confirming an individual's competence at a pivotal stage in their career, and they help to ensure that after the initial three-year period of training, their skills continue to be exercised and maintained.

... and in apprenticeships

Where the ECITB is engaged with Apprentice Standards development groups, we aim to bring a range of employers to the table to ensure that the high standards we achieve can be applied across many different sectors.

This can be seen in the ECITB's collaboration with EUSkills and GE Energy, which have developed a cross-sector apprenticeship standard that will enable seven pathways for training multi-skilled technicians. A learner going through this apprenticeship standard completes their apprenticeship with a broad range of opportunities in a number of different sectors.

The ECITB is keen to ensure that apprenticeship standards for technical trades are not drafted too narrowly, and that they apply to a number of different sectors. Our experience has shown that to do otherwise simply builds in cost. In many areas, such as maintenance, there are common skills underpinned by core technical knowledge. It is better to view people who train in these areas as an occupational community, rather than sector-specific workers.

For the future, the ECITB plans to map the outcomes of the various apprenticeship standards, and of the existing frameworks which the devolved nations will use, to ensure that there is consistency and standardisation across the multi-sector, multinational engineering construction industry.

www.ecitb.org.uk

You don't know the skills your employees need – but they do



Since **Will Butler-Adams OBE** took over Brompton Bicycle, its turnover has increased 17-fold. Butler-Adams, who trained as an engineer, says an open-handed approach to skills is the key to Brompton's success

First principles

There's a weird cultural convention within business that if you're the boss, you tell people what to do. I'm not sure I agree. If you're the boss, and you need to grow your business, as we've done with Brompton, you need skills that you don't yourself have. So, for example, you need someone who is very good at marketing, and someone who's an expert at 3D design.

So, you're recruiting people who have skills that you don't have, and then the day that they arrive, you start telling them what to do; that seems bonkers to me. Because you don't know what it is they're going to do. What you need to do is tell them what you want to achieve, and then give them the tools and the resources they need and leave them to deliver. That's how we've succeeded at Brompton, and this applies to everyone in the company: employ people who are better than you, and allow them to do their job.

That's the starting point, but it's very important. If you have that approach, your employees tell you what they need to do their jobs. And inevitably, one of

the main things they'll need is to acquire more skills. If you have a culture where you're delegating, where you encourage people to take responsibility, then personal and professional development becomes so much easier. You're not deciding that you're going to send everybody on a management training course – you're giving them the skills they actually need. And the interesting thing is, you've got to trust them on that. There will be skills they need which will be good for you, and there will be skills that will be good for them, for their career development – and you shouldn't shy away from that.

Too many companies get caught up in the idea that if you're in the same sector, you're competing, but in fact, if you stand back, you can see that we're in a globalised economy. Yes, people do tend to move around within their sector, but anyone that works for you is probably not going to emigrate outside the UK.

So, if you train somebody and give them skills, it benefits everybody in the area. It's not about you versus the factory next door: it's about the UK competing with the rest of the world.



“It bugs me: engineering and ‘creativity’ are seen as separate”



Open-source expertise

In the past, we had formal training sessions where people came in, they spent a day training everybody, there was a ridiculously easy test and at the end of the day everyone got some sort of qualification. It didn't do much for us.

What we've found to be truly effective is to say, let's go and visit Herman Miller chairs, or Triumph, or the shirtmakers Charles Tyrwhitt. What do shirts have to do with Brompton? Charles Tyrwhitt is a £140m business, with shirts distributed from one hub in the UK to places all over the world. The logistics are breathtaking; all of their sales, apart from a handful of shops, are online. So, we took our head of online retail and our head of logistics to see them, because that knowledge is invaluable. We created a relationship, because there will be things we do that they'll learn from, and vice versa.

That inter-company network is really powerful; if you're going to operate in the UK, you need it, because we're not a cheap place to operate.

People are often interested in looking into their own sector for best practice. If you do that, you will only get as good as the best that there already is in your sector. If we want the best training for a 17-year-old to deliver amazing service, we don't go to another bike shop. We go to the hotel industry, because they are brilliant at training people in that area.

Learning as a constant

When it comes to skills, I've got a few hats: I'm a commissioner on the UK Commission for Employment and Skills, I'm a trustee of Investors in People, and I was also involved in setting up the Education and Employers Taskforce, a charity that sends volunteers into schools to let pupils know about the world of work. I love going into schools and talking to teens. They're all very cool, and they're thinking: "Here's this bloke with a naff fold-up bike." They don't really want to be there. Then I talk about our business, how much it's grown, how much I earn – they always want to know that – and they start listening. Then I say, "Who do I want, from you lot? I'll tell

you who I don't want – the trendy bunch, the cool kids. Because you're all the same. You're normal. I want the outliers, the oddballs, the freaks, the ones who don't fit in. Because in business, if all I get is the same as everybody else, how am I going to innovate? How am I going to create anything but the same that already exists?" I need people who think of the world differently, because innovation is the thing that means you're still in business in five years' time. And the skill of your workforce is the most important factor in staying ahead on innovation.

That's why it bugs me that engineering and "creativity" are seen as separate in schools. When I was at school, I was good at maths and terrible at English. So, off I went to do engineering. If you were "creative", you went into a different stream, and you talked about imagination; if you did engineering, you talked about differential equations. That is such tosh. You've got people who sit in front of screens all day who are seen as doing something cool, because they sit on different coloured beanbags, but those jobs are boring compared to what we do. We create real things that affect people's lives, and we can make anything – we've got 3D printers, we've got amazing modelling software. If you can imagine it, we can prototype it.

Engineering is such a fun career and yet, somehow, through school, the talent is not aware of what a fun industry it is.

We have plenty of talented people at Brompton, and my challenge is to give them the space to innovate, to test themselves and to make mistakes, because they learn from that. Learning isn't just a course or a visit; it happens daily – if your staff are stretching themselves by experimenting, learning and making mistakes. At Brompton we have a system to ensure this: we have our homework, which is our core business, which has to be done and delivered, and then we have the wild stuff. The wild stuff is small but fun, and because it's small, we can afford to fail.

The key is to ask not what would happen if it goes wrong, but what would happen if you don't try.

An engineering problem with a £27bn price tag

More than £450bn of the UK's GDP relies on engineering. More investment in skills is needed to feed this huge sector, say AWE's **Paul Sagoo** and **Victoria Edwards**

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While the UK has experienced one of the largest increases in Europe in its total of higher education graduates in the past two decades, there is still a shortfall in graduates and apprentices entering the engineering industry. According to EngineeringUK's report *Engineering UK 2016*, doubling the number of engineering graduates and apprentices will generate an additional £27bn per year from 2022 for the UK economy. So, are UK businesses doing enough to encourage young people into engineering?

"It is so important for businesses to create career opportunities for graduates and apprentices," says AWE head of profession for mechanical engineering, Greg McNally. "Appropriate and relevant career progression within the business is vital to the growth and sustainability of a highly skilled workforce."

AWE is one of the UK's leading defence-sector employers, and more than 30 per cent of its workforce is dedicated to engineering and science. AWE supports young people by providing entry opportunities through its graduate and apprenticeship schemes. We recruit about 45 apprentices and 50 graduates each year, and over 95 per cent of these are in Stem-based roles. In our close work with education providers, we promote Stem subjects as careers with exciting opportunities. This is key to our talent strategy, as is creating diversity in our workforce. Bethan Girling, an engineer who joined AWE 16 months ago, says:

"I chose engineering, as maths and science were my strongest subjects and I liked the idea of being hands-on and being able to build and break things. I took the graduate route. As my degree and the PhD I am currently doing cover completely different areas of engineering, I wanted the chance to experience different areas of the business. AWE is a great place to work, with so much opportunity to do different things. The engineering is truly cutting-edge, innovative and every day you get to meet inspiring people, which helps with my career development and learning."

Currently, only 9 per cent of the UK engineering workforce and just 15.8 per cent of engineering and technology undergraduates are female, according to statistics from the Women in Engineering Society. Since 2013, AWE has supported WISE (Women in Science and Engineering). We proactively encourage women into the business, and aim to dispel the myth that engineering is only available to men by actively encouraging young women to consider Stem subjects through our education programme. The proportion of young women joining our engineering apprenticeship programme has risen to 13 per cent in this year's coming intake – an increase of 4 per cent on the previous year.

Engineering drives productivity and generates £455.6bn GDP for the UK, according to EngineeringUK. But there is more to do: research predicts that each year to 2022, engineering companies will need 182,000 people with engineering skills, hence the need to double the number of both graduates and apprentices entering the industry. Coupled with the continuing upward trend towards graduates from higher education, should engineering businesses be focusing their attentions on whether they have the capacity to support a growing, highly skilled workforce, or whether attracting and retaining a more diverse workforce is a more balanced strategy?

www.awe.co.uk/careers

The skills to look beneath the surface

The CSTA has created qualifications and standards that are raising the skills of large portions of the construction industry, says training operations manager **Steve Walker**

If you've ever drilled into a wall and hit a pipe while doing DIY, you'll know the chaos it can cause. Now imagine hitting a gas main that feeds a town. There are an estimated 60,000 service strikes per year, and each can result in a serious injury or even death. The result is more often a loss of service, but this disruption can cost 29 times as much as the original work to repair. To address this problem, the Construction Skills Training Academy (CSTA) has developed qualifications and set standards for what was, in effect, an unregulated industry.

A new standard

The key skill that's in demand is underground utility detecting and mapping: high-specification services, using technologies such as electromagnetic location and ground-penetrating radar, which assist a surveyor in building an accurate map of what's underground before digging begins. For these relatively new skills there are nationally recognised QCF (Qualifications and Credit Framework) qualification levels in Utilities Mapping and Surveying. These help survey practitioners and major construction companies to recognise the skills of individuals they employ to carry out this safety-critical work. The standards support a range of training options, from a basic Level 2 QCF qualification award to an advanced Level 6 QCF Diploma, and along with the introduction of the new PAS 128:2014 specification for underground utility detection,

verification and location, they've helped bring a new level of reliability and expertise to the industry. The value of these skills becomes apparent when you see the benefits it offers to the CSTA's clients, which include major rail, air, highways, utilities and construction companies. Even at Heathrow Airport, a heavily surveyed area, improvements in locating underground utilities have been made.

"Heathrow is known throughout the industry as having excellent records about the locations of buried services," says Andy Rhoades, Heathrow's head of service protection, "and since the introduction of PAS 128 there has been a 25 per cent increase in the services located over just 8 per cent of the airport."

Next-generation training

The CSTA's trainers are experienced utilities detection and mapping professionals, and its methods are informed by listening to our clients' individual needs. With multiple levels of qualification, the CSTA offers professionals the chance to add another string to their bow, while school-leavers and apprentices can now follow defined career paths, starting with a Level 2 QCF Award in Utility Location and Avoidance (CAT and Genny) through to a Level 6 QCF Diploma in Utilities Mapping and Surveying. This path can also lead the individual to potential membership of professional institutions such as the Chartered Institution of Civil Engineering Surveyors, and employment by accredited members of the widely respected TSA (The Survey Association).

Young people with no experience can now look to a route into senior positions within construction via continual development through the utility surveying industry. The CSTA will continue to assist in facilitating the introduction of young people into surveying, while providing those with experience a path to recognition and career progression.

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Wanted: five million workers, all ages accepted

Baroness Sharp of Guildford, vice-chair of the all-party parliamentary group for skills, is one of the most active advocates in the Lords for skills, training and lifelong learning



With a career that spans six decades so far, the 77-year-old Baroness Sharp exemplifies the ideal of a long and varied working life. From her early life in the civil service to her work as an economist at the London School of Economics and Political Science to her central role as a Liberal Democrat policymaker and peer, Sharp has spent 56 years “constantly trying to upgrade” herself. As people work longer in life, changing careers more often, and as technology remoulds the workplace, Sharp explains it’s not just school-leavers and graduates who need the right skills: it’s the entire workforce.

“We have 12 million people retiring in the next ten years,” she explains, “and only seven million coming into the workforce. The Home Office is making it more difficult for people to come into this country as migrants, so where are we going to get the people we need from? Older people are going to have to fill those slots, for a number of reasons – not least because their pensions are going to be insufficient and they’re going

to have to stay on working – so we’re going to have to have a huge programme of upgrading skills.”

As an experienced policymaker in science and technology, Sharp is keenly aware that many jobs could soon be automated, but maintains a pragmatic position, observing that “jobs come and jobs go”. Specifically, they will go from manufacturing: “If you look at a lot of the motorcar industry at the moment, robots have taken over a great deal, but there are still quite a lot of men and women on the production line. But I think that increasingly these [production lines] will be completely robotised. Similarly, if one looks at accounting and legal work, jobs that have required people are going to become automated.” Part of the answer, she says, will be to insist on more skills in the areas where people are needed.

“One area that is expanding very fast is the care industry. Going into this industry are people who, in many cases, have relatively low skills – they’re often put through little more than a basic health and safety course. And then you look at a country like Finland, where you’re not allowed to teach in a nursery school unless you’ve got a Master’s degree. There are skills that are needed in these sectors, if we’re going to provide the level of care that we want for people.

“There will be new jobs,” she says, “but it’s much, much easier to predict where the jobs are going to disappear than it is to say where the new jobs are going to come from.”

Plummeting numbers in adult education

With tighter household budgets and a lack of funding, Sharp says the number of people retraining and improving their skills later in life is plummeting.

“The old route for doing [higher-level training] was going along to night school, where there were subsidised classes. You paid something, or your employer paid something, but the government also chipped in something. On the whole, the government has put all its money into the apprenticeship system, and taken the money out of the adult skills system.

So if you look at the numbers in FE colleges doing HNDs and HNCs, it's just disappeared more or less completely. A quarter of a million people have dropped out of part-time higher education.

"Partly to blame is the rule on ELQs, or Equivalent Level Qualifications. "If you've done, let's say, an English degree, and you decide to study sociology to become a social worker, you can't [because you've already taken out a student loan for your first degree]. And this is absolutely mad. They've overturned it for the Stem subjects [science, technology, engineering and mathematics], and I'm glad, but we need much more flexibility. People complain about media studies, but the creative industries, the combination of media studies and digital skills, are areas of huge expansion at the moment."

At a time when the more senior end of the workforce is in particular need of new and more advanced skills, Sharp says the emphasis has overwhelmingly been on getting students and school-leavers to take out student loans.

"The government has done a very good job indeed of selling the whole system to 18-year-olds. I remember at the age of 21, joining the civil service and being talked to about my pension, and it was such an enormously long way away that I thought well I really don't care very much about this. And I think they have much the same thing. Everybody is taking on student debt: the notion that when you come out and you earn £25,000, it's only going to cost you £10 a week. That's three Costa coffees, it's not that much. What they don't think about is that it goes on for 30 years, and that once they start earning £35,000 to £40,000, it's a 9 per cent surcharge on top of their income tax.

"Older people who are already budgeting are aware that they can't afford to take on these extra debts, because it will cut their disposable income."

As an economist, Sharp sees the skill level of the modern workforce as being inseparable from its productivity. She points to the insistence on high skill levels in other countries – particularly Germany – as the reason the UK lags

“We have 12 million people about to retire”

behind in productivity, with the most recent ONS figures putting the UK a full 36 percentage points behind Germany in current-price GDP per hour worked.

"Germany has a much more regimented economy than ours. For traditional skills, there is what's called a licence to practice: they regulate entry into the industry. It's a combination of better equipment, better-trained people, and patient capital. If you're going to be using very fine equipment, you have to have people who understand that equipment and who can work it appropriately."

What's more, Sharp explains that this is not a new phenomenon.

"We were looking at German and British productivity in the 1980s: we were using exactly the same machines as the Germans, but productivity was 50 per cent of German productivity. The reason was that the [British] machines were out of action half the time, because these metalworking machines were worked flat out: nobody cleared up the filings that built up, and eventually they just went down. In Germany, the apprentices . . . would stop on a Friday afternoon, strip the machines down, clean them – and the things worked. They knew how to repair them. In Britain, [the machines] were . . . being used by semi-skilled workers who had no idea how they worked, and when they broke down, they had to send for the engineer.

"I think this illustrates quite well the problems that we face in modern Britain: we've obviously moved forward from that age, but it's still a very similar issue. Those working with the robots don't have much understanding of the underlying principles. They're trained

to do the minimum that is required."

Despite her concerns, Sharp remains optimistic that we will adjust to a more technologically advanced workplace. "Part of the answer to this is what we're already trying to do. If you look at the computer studies courses, they're trying to move away from just teaching people how to use existing programmes, and teaching them how to do the programming underlying that."

Skills: a health issue

While much of the skills debate revolves around careers, productivity and profit, Sharp says skills and training have more than simple financial value. Training, even of the most basic kind, can have a positive effect on lives, and for this reason she is a devoted advocate of community adult education.

"People who carry on doing things lead a fuller, happier life and are healthier than others. The need for community provision is vital, so that there are activities for them that are available outside the home. And not just for the middle classes; the middle classes are very good at looking after themselves. Places like Cambridge and Guildford are full of these things, but you need them as well in places like Bolton and Rotherham.

"Given the pressures that are going to be on people to work later in life, we need to be able to retrain. But also people who are retired, mums who don't work, and so on – some people go in [to community education] just for fun, and then they go on to do GCSEs and A-levels and access courses, and in some cases they then go on to university.

"I gave an award at NIACE's Adult Education Awards to a lady who had been a belly dancer, who had ended up getting a PhD in education and was teaching teacher training courses.

"Second-chance education is one aspect of it, but it's also about fulfilment. Even if it's only cake-making or belly dancing, people get a sense of achievement from going to these things. There's research that underpins this – they live longer, and are less of a burden on the NHS. They're healthier and happier."

We're bringing logistics and transport to life

To give school pupils a headstart in a career in logistics and transport, the Chartered Institute of Logistics and Transport (CILT) is offering free teaching resources.

Helen Gallimore, associate lecturer at the University of Derby and board member of the CILT, explains how

From filling supermarket shelves to ensuring hospitals are supplied with medicines to recycling, the modern world runs on transport and logistics, and in the transport and logistics profession there are huge opportunities for school-leavers. The opportunity to make a difference, to be part of something big; to progress in a genuinely rewarding career. The CILT wants to bring this broad and fascinating field of work to life for a new generation of young people.

The CILT and the Geographical Association have produced a suite of logistics and transport resources for use in schools. The resources address a number of pressing issues through engaging questions that explore a range of aspects of transport and logistics. The resources help to develop greater geographical knowledge, but they also show students that their new-found expertise could have applications in the real world.

Geography lessons – and schools in general – are a great place to talk about how logistics and transport improve or challenge our daily lives. Yet all too often adults (teachers and parents) are oblivious to the wide-ranging opportunities available; and even if they do have some knowledge, putting that across to the students in an engaging, relevant and appropriate way can be a daunting prospect.

For this reason, the activities the CILT and the Geographical Association have designed are fun and interactive, addressing a number

of pressing global issues and engaging the students to explore the profession. Through student participation in the sessions, not only do they learn about their world, but the nature of the classes leads them to improve skills that are important in the workplace: communication, numeracy, IT, problem-solving and teamwork.

These resources have been developed so that anyone, whether they know about transport and logistics or not, can deliver the sessions successfully. The resources contain everything needed to run the session: background, weblinks, resources, handouts, presentations and further reading. Each session ends with a careers focus, so students who have enjoyed the activity can see how the skills they've learned could lead to fulfilling employment.

The resources are web-based, and can be easily updated to reflect current events and challenges, or even the local area where students are based. The process of embedding these resources into educational establishments has begun in conjunction with schools, Local Enterprise Partnerships, employability units in councils, 3PLs and with professional bodies.

We need your help to engage with the wider audience. In particular, we need young people from your organisations to take these resources to local schools, perhaps even to deliver a few sessions with them. Maybe your business already has links with local schools; with our free resources, we can make sure no student leaves secondary education without being aware of this rewarding profession.

Commenting on the launch, Kevin Richardson FCILT, chief executive of the CILT, said: "These resources will enable us to promote the vast and varied opportunities available in the logistics and transport profession to the younger generation and encourage more young people to choose a career in logistics and transport."

To view and download the resources, visit: <http://ciltuk.org.uk/Careers/CareersInformation/ForTeachers>

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**The Chartered
Institute of Logistics
and Transport**

Engineering needs a rebrand for the next generation

If the UK is to meet its huge demand for engineers, we will need to find new ways of talking about engineering as a subject and a career, says **Naomi Climer**, president of the Institution of Engineering and Technology (IET)

There has never been a better time to be an engineer; graduate salaries are competitive and the career prospects are fantastic. And yet there is a huge shortage of engineers, and the proportion of women working in UK engineering has remained at less than 10 per cent during my three decades in the industry.

Engineering “celebrities”

The lack of young people – and particularly girls – coming into engineering is contributing to skills shortages that are damaging the economy. We need to think differently about how we engage with young people. In California, engineers are held in the same regard as actors and rock stars. We could attract more young people into engineering careers if we gave engineers in the UK the same “celebrity” status.

The physicist and TV presenter Brian Cox agrees. “Ironically, we used to be pretty adept at this. Back in the 19th century, Michael Faraday, the British chemist and physicist whose work led directly to the modern electric motor, generator and transformer, and Humphry Davy, the Cornish chemist and inventor who discovered calcium, potassium and sodium, were well known for their lectures at the Royal Institution.

“But since then, we seem to have grown more reticent about being evangelists for science and engineering. British engineers – and scientists – sometimes seem to be shouting about what we’re doing as a

bit vulgar, and not terribly British. But we are making the world a better place through science and engineering.”

Engineering Open House Day

In a bid to inspire the next generation of engineers, the IET has launched an Engineer a Better World campaign, which aims to encourage young people and their parents to think differently about engineering. This July, as part of the campaign, the IET will be holding its second annual Engineering Open House Day, which will see 20 venues across the UK, including the BBC, ITN Productions, Sky Television, Caterpillar, and the Victoria and Albert Museum, throwing open their doors to highlight the range of exciting engineering careers on offer.

IET Junior Board

As part of the campaign the IET has also set up its first Junior Board, which brought together nine children aged 12 to 17 and the IET’s Board of Trustees. The idea is to understand from young people themselves what can be done to make engineering careers more appealing. With a group of enthusiastic young STEM advocates to consult, the IET is set to launch a number of new initiatives in the coming months.

Engineering as “the place to be”

The UK’s engineering and technology potential, making engineering a career that is seen as cool, exciting and “the place to be” is absolutely essential. The UK may not be the birthplace of the likes of Google and SpaceX, but we have an amazing heritage of technology innovation – and we have every chance of punching above our weight in the future if we can continue to play on our classic British strengths of coming up with new ideas, tackling problems in new ways and having highly trained engineers with a world-class reputation. Now we just need to get better at making the British public – and particularly young people – more aware of what we do and how influential it is on all their lives.

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