
OUR WORK SUPPORTING TECHNICIANS

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GATSBY

TECHNICIANS: THE BACKBONE OF OUR ECONOMY

GATSBY IS A FOUNDATION SET UP
BY DAVID SAINSBURY
TO REALISE HIS CHARITABLE OBJECTIVES.
WE FOCUS OUR SUPPORT ON A LIMITED
NUMBER OF AREAS:

PLANT SCIENCE RESEARCH
NEUROSCIENCE RESEARCH
SCIENCE AND ENGINEERING EDUCATION
ECONOMIC DEVELOPMENT IN AFRICA
PUBLIC POLICY RESEARCH AND ADVICE
THE ARTS

OUR EDUCATION PROGRAMME FOCUSES
ON STRENGTHENING SCIENCE AND
ENGINEERING SKILLS IN THE UK WORKFORCE
THROUGH A RANGE OF INNOVATIVE
PROGRAMMES AND PARTNERSHIPS.

Our country's 1.5 million technicians are the linchpins of the UK economy. Without them, hopes of rebalancing our economy with a renewed focus on science, technology and manufacturing will not be achieved.

They work alongside scientists and engineers throughout many of the high-growth industries; from food and drink to manufacturing and construction. The average technician will work as part of a team, be highly skilled (to around Level 3 or 4), and will apply their knowledge of science, technology, engineering and maths (STEM) in a practical setting. Typically, technicians will be responsible for overseeing production and solving practical problems, but many also work in research and will often help their businesses to develop new products and processes.



Technicians will be integral to overcoming some of the great challenges of the coming years and decades – from updating our transport infrastructure and local internet access, to securing our future energy supplies – yet we are not producing enough people with the right knowledge and skills to fill these jobs.

Official estimates suggest we need around 70,000 newly qualified technicians each year to replace those retiring and to fill the new opportunities opening up.

Companies are already complaining that they are being held back by the lack of technicians. Over a quarter of firms working in STEM are reporting difficulties in recruiting technicians and 35% are expecting problems in the next three years. Furthermore, SMEs in STEM say their growth is being stifled.

The lack of good careers advice in schools and colleges does not help, but this is also symptomatic of a wider, cultural problem – for decades, government and society at large have overlooked how important technicians are to the economy.

At Gatsby, we are trying to help correct these long-standing problems. We are supporting projects and ideas that aim to provide a steady stream of new technicians into the labour market, and open up technician occupations to all young people as they progress through the education system.



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GIVING TECHNICIANS THE STATUS THEY DESERVE

PROFESSIONAL REGISTRATION

The paths that skilled technicians take are extremely varied, but there is one thing that they all have in common – they are individuals with high levels of skills and knowledge. Professional registration is proof that a technician, no matter the route they have taken, is a person that is trusted to do a skilled, important job. We believe that a robust set of professional registers for technicians will help to give technician occupations the status they deserve.

While technician registers have existed in a limited form for a number of years, we are working with professional bodies in science, engineering and technology to expand this activity and make professional registration for technicians the new norm.



WE ARE WORKING WITH PROFESSIONAL BODIES IN SCIENCE, ENGINEERING AND TECHNOLOGY TO MAKE PROFESSIONAL REGISTRATION FOR TECHNICIANS THE NEW NORM



SCIENCE	<p>Technicians have always played a crucial part in some of the most significant discoveries and developments in science – from the human genome project to the development of 3D printing. Today, science technicians can be found everywhere; from water treatment plants and research laboratories, to schools and hospitals.</p> <p>Technicians working in science can be members of a range of professional bodies depending on their experience or sector. As members they can be assessed against criteria to join the registers of Registered Science Technician (RSciTech) or Registered Scientist (RSci).</p> <p>The Science Council owns and upholds the standards of the science registers.</p> <p>Visit www.sciencecouncil.org/professional to apply directly through the Science Council or find out whether a professional body is licensed to register technicians.</p>
ENGINEERING	<p>Professionally registered engineering technicians (EngTech) are the driving force of engineering feats that are changing the world we live in. 'EngTechs' are working on everything from Crossrail to vital systems for the Royal Navy.</p> <p>Engineering is a diverse discipline, and the number of professional bodies that an engineering technician can join reflects this. The Engineering Council licenses 32 professional engineering institutions to assess members for registration as an EngTech.</p> <p>Visit www.engc.org.uk/engtech for more information on professional registration as an Engineering Technician.</p>
INFORMATION TECHNOLOGY	<p>This country's economic competitiveness, productivity and success is dependent on our ability to be at the forefront of digital and technological advances.</p> <p>In 2015, BCS, The Chartered Institute for IT, launched a new register for IT technicians. Registered IT Technician (RITTech) will be key in driving the high standards and skills required in the IT sector if we are to future-proof our economy.</p> <p>Visit www.bcs.org/rittech for more information on BCS and the RITTech register.</p>
THE UNIONS	<p>UnionLearn is working with the unions to promote technician registration in unionised workplaces. Through their negotiations with employers, unions can make sure their technician members have the opportunity to work towards professional registration as part of employers' continuing professional development programmes.</p>

ASPIRATIONAL CAREERS

Our long-term ambitions for a strong and aspirational technician class require the contributions that technicians make to the UK economy to be much better understood and valued by society at large. We need people to understand that these are not just important but also well-paid and interesting jobs leading to fulfilling and rewarding careers.

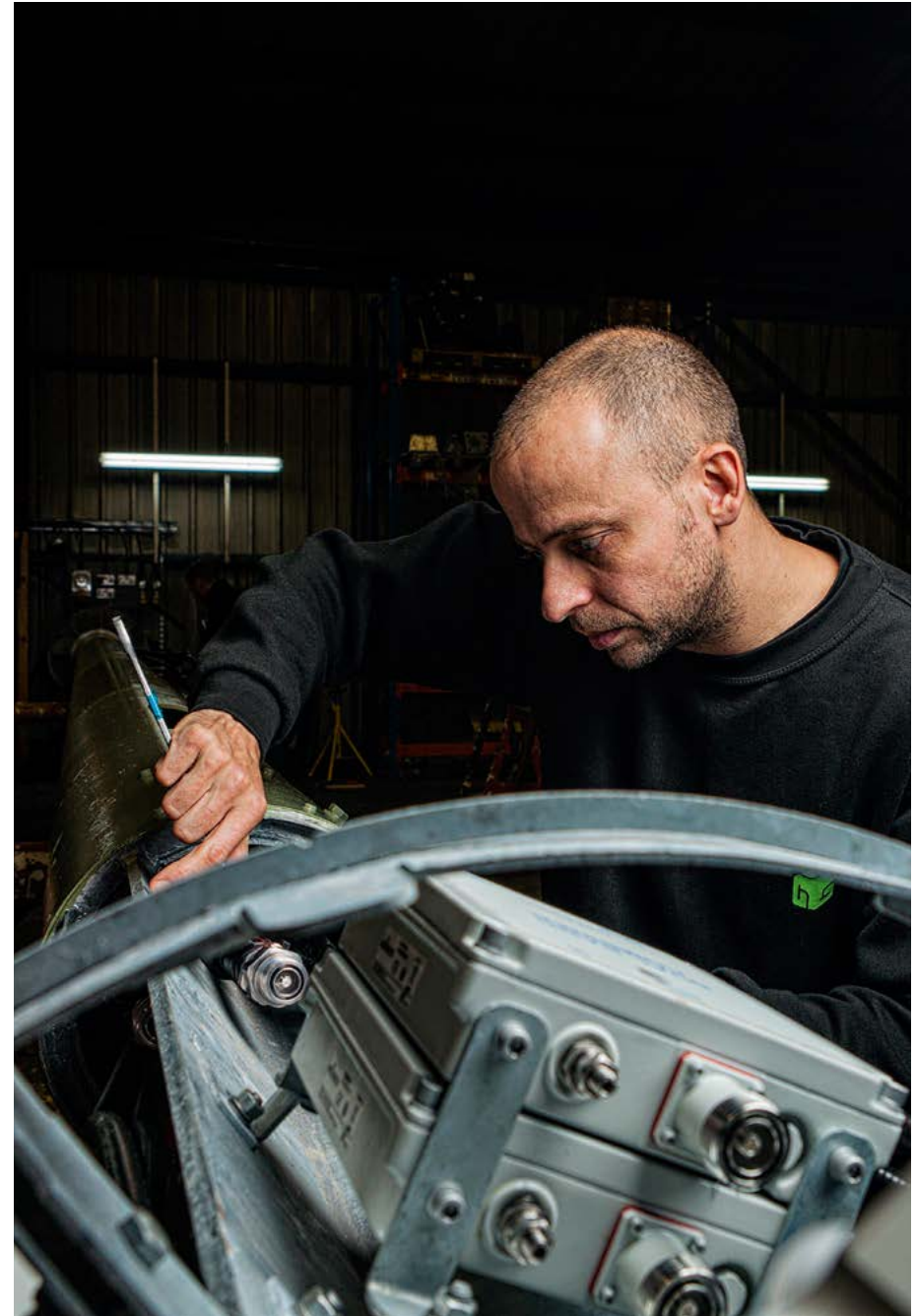
With this in mind, Gatsby is seeking to raise the profile of the contributions technicians make to the UK economy, and the many and varied technician job opportunities that exist for young people.

BUILDING AN EVIDENCE BASE

Gatsby commissioned Dr Paul Lewis from King's College London to examine how employers in five key sectors of the UK economy – Space, Aerospace, Composites, Chemical Industries and Biotechnology – use, acquire, and train their technicians. His research focused on the responsibilities, skills and training of technicians in sectors that will make a major contribution to growth in employment, productivity and output.

Paul's research highlights the critical role that technicians, with their technical knowledge and practical nous, play in these sectors. He also found that across all of the sectors there are very significant difficulties in replacing an aging technician workforce.

bit.ly/drpaulewis



STRENGTHENING APPRENTICESHIPS

Apprenticeships are a key element in helping young people move into technician roles. The government's target to secure 3 million apprenticeships starts in the five years to 2020 is a significant challenge, and it is vital that a drive for numbers is not pursued at the expense of quality. We need a much higher proportion of apprenticeships to be at Level 3 and higher than is currently the case and Government should prioritise provision – whether apprenticeships or other vocational training – that offers highly positive benefits for learners and drives economic growth. Equally, the STEM community must strive to ensure that as many as possible of the 3 million apprentices begin a career with a STEM employer. In this way apprentices will be assured an exciting start to their career with genuine prospects and increased wage returns.

The following is some of the work we are supporting to help increase the number of technical apprenticeship places and the quality of the apprenticeship programme in general.

APPRENTICESHIP TRAILBLAZERS

Gatsby has been supporting groups of employers that are 'trailblazers' for the government's apprenticeship reform programme. As part of the reforms, employers are creating new standards for apprenticeships that are linked to professional standards – this will allow apprentices to register with a professional body when they complete their training.

TECHNICIAN APPRENTICESHIP CONSORTIUM

Over five years ago, a group of engineering consultancy firms came together to design and plan the provision of new technician apprenticeships for their industry. The Technician Apprenticeship Consortium is now a self-financing group within the Association for Consultancy and Engineering, and is responsible for recruiting and training over 400 technician apprentices per year. Importantly, the apprenticeships are designed to meet EngTech standards, which enables all the apprentices to register when they complete their training.

STEM TRAINEESHIPS

Traineeships are an increasingly important feature of the national skills system. Gatsby supported NIACE to explore how the traineeship model might provide a focused pathway to meet current and projected skills gaps. Working in partnership with NIACE, Humber Local Enterprise Partnership (LEP) embedded STEM traineeships into their planning in response to the specific needs of local employers and the local economy. The project demonstrates how traineeship programmes can provide young people with rewarding STEM jobs in industries suffering skill shortages.



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BUILDING AN EVIDENCE BASE

Gatsby has commissioned several pieces of research intended to explore how one might increase the numbers of apprenticeships without sacrificing quality:

- The Institute for Employment Research has looked at the costs of employing engineering apprentices to employers and suggested a range of approaches that could deliver the same high-quality training at less expense to the employer.
- The Social Market Foundation is looking at the productivity gains associated with apprenticeships at different levels in different sectors with a view to influencing where investment in apprenticeships will produce the greatest gains.

bit.ly/SMFreport

- The Professional Associations Research Network is surveying its professional body membership about their engagement with apprenticeships and identifying how more apprenticeships could lead to professional recognition.

bit.ly/PARNreport

STRENGTHENING THE UK'S TECHNICAL EDUCATION

In this country we have long failed to grasp the importance of technical education and, as a result, we have never had a strong technical education route for young people. It is time that a quality alternative to university is developed – one that provides business with a world-class cadre of technicians, and young people with a clear, distinct route from education and into high-skilled, fulfilling technician occupations.

High-quality technical education requires a learning environment with industry standard facilities and expert staff with up-to-date knowledge and skills. It requires investment in partnerships with local employers to understand their needs and create qualifications fit-for-purpose and valued in the labour market. It also needs a straightforward funding system that provides stability for planning.

Gatsby is supporting a number of projects to expand the high-quality technical education in the UK:

LEPs AND LOCALISM

We are supporting several pilot projects with consortia of Local Enterprise Partnerships (LEPs) and FE colleges (where most technical education in England is delivered). These aim to explore how specialisation in the provision of technical education can avoid duplication and gaps, and help colleges build sustainable capacity to respond to employer needs.

SUBJECT-SPECIALIST TRAINING FOR TEACHERS IN FURTHER EDUCATION

Unlike training for school teachers, specialist training routes for FE teachers are only available in a limited number of subjects (notably literacy and numeracy). We are supporting the University of Huddersfield and partner universities to embed subject-specific pedagogy within their initial teacher education (ITE) courses. The project will give ITE staff training and access to appropriate curriculum guidance and resources for training new science, engineering and technology teachers.

UNIVERSITY TECHNICAL COLLEGES

Outside of FE, we continue to support the development of University Technical Colleges, which offer a curriculum for 14-18 year olds that combines employer-led practical project work with rigorous academic study – providing an excellent foundation for a career as a technician, scientist or engineer.

BUILDING AN EVIDENCE BASE

Gatsby continues to commission research looking at technical education provision in FE. In 2015 we supported the following:

- Two reports from Professor Geoff Hayward and Dr Matt Homer looking at the background and experience of STEM teachers in colleges. Both reports highlight the likely future need for additional suitably qualified STEM teachers in order to meet labour market demand for highly skilled technicians.

bit.ly/haywardandhomer

- A report by Professor Baroness Alison Wolf that sets out how the structure of post-19 education funding is squeezing FE at such a rate it may “vanish into history”.



HIGH-QUALITY
TECHNICAL EDUCATION
REQUIRES A LEARNING
ENVIRONMENT WITH
INDUSTRY STANDARD
FACILITIES AND EXPERT
STAFF WITH UP-TO-DATE
KNOWLEDGE AND SKILLS



The report articulates how the current system is already failing to produce enough technicians despite a strong market demand for them.

bit.ly/profalonewolf

- Research led by Professor Andrew Hobson and Dr Bronwen Maxwell exploring the role of mentoring in professional development for FE teachers. The report recommends: teachers have access to a subject-specialist external mentor; the introduction of a national framework and qualifications for mentoring; and greater collaboration between FE providers to ensure better availability of trained mentors.

bit.ly/hobsonandmaxwell

GATSBY SUPPORT OF NATIONAL INITIATIVES

Gatsby supports several national initiatives which seek to enhance and enrich the science and engineering taught in schools and colleges.

Three of the most significant are:

NATIONAL STEM CLUBS PROGRAMME

STEM Clubs act as a focus for teachers to engage in STEM activity which takes pupils beyond the curriculum. Around 80% of UK state funded secondary schools (3,200 schools) currently have at least one STEM Club, with a target to increase this figure to 85% by March 2016. 9 out of 10 teachers said STEM Clubs increased pupils' awareness of the importance and real-world applications of STEM.

NATIONAL STEM AMBASSADORS PROGRAMME

The STEM Ambassadors Programme brings volunteers working in STEM sectors into the classroom to enthuse young people about STEM subjects and careers. There are currently over 32,000 STEM Ambassadors across the UK taking part in around 30,000 activities each year.

Over 40% of Ambassadors are female and over 60% are under 35 years old. 9 out of 10 teachers say pupils had increased knowledge and understanding of STEM subjects after involvement with STEM Ambassador Programmes.

THE BIG BANG

The Big Bang is the largest celebration of STEM for young people in the UK. Through a four day national event – The Big Bang Fair – every March, and a series of regional and local events, The Big Bang aims to show pupils aged 7-19 the wide range of exciting and rewarding opportunities that exist in STEM occupations. 5,500 people attended the first Big Bang Fair in 2009. By 2015, this number had risen to 70,000.

For more information about our technician projects, or any of Gatsby's other work, please visit our website www.gatsby.org.uk/technicians



TECHNICIANS WILL BE INTEGRAL TO
OVERCOMING SOME OF THE GREAT
CHALLENGES OF THE COMING
YEARS AND DECADES



