



Apprentice recruitment: Accessing untapped talent

**A good practice model for employers
and professional institutions**





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Foreword

As I write this foreword there is a real sense of optimism within the construction community.

The future is undoubtedly looking more positive. However, this optimism is tempered by a concern as to whether we have the right quantity and quality of skilled personnel that we need in order to meet our commitments. Recent forecasts have shown that the highest annual recruitment requirement is amongst professional and technical staff. I can certainly confirm this is the case as far as my own company is concerned and also for most of the companies in the Technician Apprenticeship Consortium. Clearly we, as companies, need to look beyond our traditional recruitment sources and offer more varied and flexible routes into engineering to help meet the demand for skills.

For that reason alone the good practice model you will read about in this document is very timely as it seeks to find ways to attract, recruit and retain the wealth of untapped talent that, to date, is clearly unaware of the exciting opportunities that exist in our industry. Apprenticeships and fair access are also high on the Government's agenda and this project successfully addresses both of them. The model demonstrates what can be achieved through effective collaboration between companies, the professional institutions and the training sector. Together everyone benefits. Companies are obtaining the skills they need. Young people, particularly those from black ethnic minority and socially disadvantaged backgrounds, have an alternative route to a career as a professional engineer. The experience of all of the companies in the consortium is that these young people very quickly become invaluable members of the team through their hard work and commitment.

As you will see from reading the document there are also some significant challenges for everyone involved if we are to make the most of the opportunity open to us to access these young people and convince them to join us as engineers of the future. A major barrier is the lack of effective information, advice and guidance which particularly affects the young people we wish to reach. As companies we need to review our recruitment, training and support practices and the professional institutions need to improve the visibility and attractiveness of their offer to technicians. I remain confident that with commitment and a real drive for action we can, between us, really make a difference to our industry and to the lives of many young people.



Graham Nicholson

Executive Managing Director,
Tony Gee and Partners

Chairman, Technician Apprenticeship Consortium



Key messages

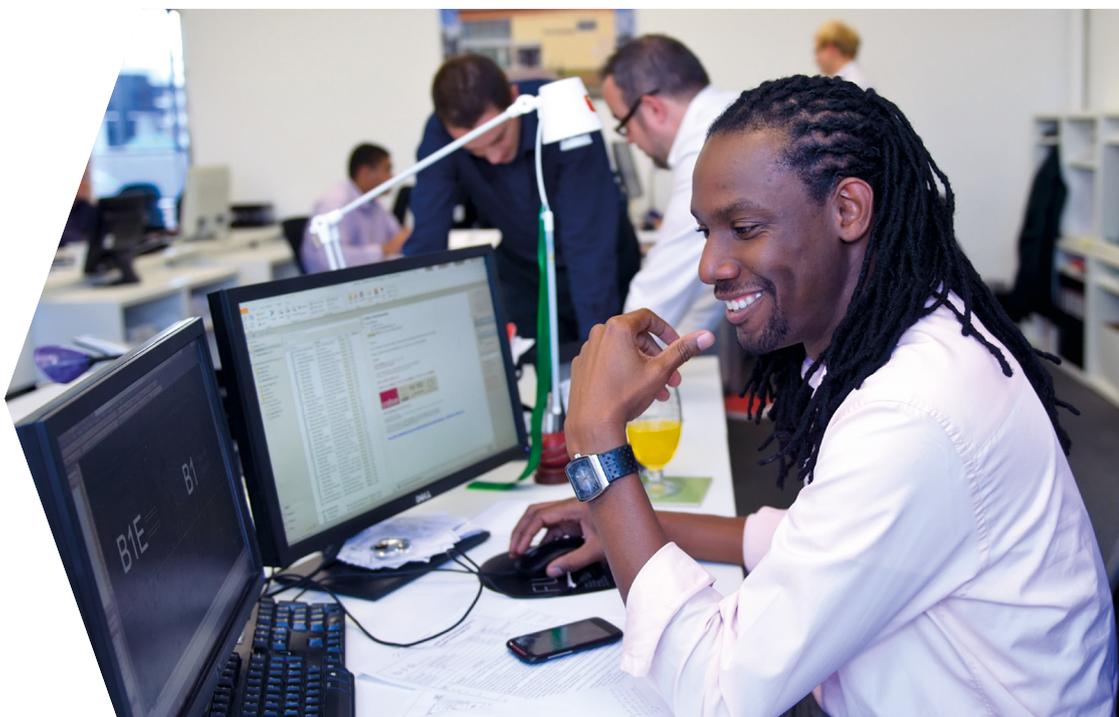
Engineering underpins the UK's success in all areas of the economy.

If this is to continue we must ensure a sufficient supply of people with science, technology, engineering and mathematics (STEM) skills¹. A growing concern about the availability of people in the UK with these STEM skills means that there is an immediate and practical need to attract talent from all sections of society to help meet demand. To do this engineering businesses must look beyond their traditional recruitment sources, offer more varied and flexible routes into engineering and maintain professional standards.

The purpose of these key messages is to offer advice and guidance to companies, professional engineering institutions and other organisations wishing to increase and broaden the skill base in the engineering community. They are based on the findings of a Royal Academy of Engineering project undertaken by Mott MacDonald, on behalf of the Technician Apprenticeship Consortium (TAC), and the Institution of Civil Engineers. The project set out to investigate whether apprenticeship recruitment is an effective way of enabling young people from non-traditional groups to access careers as professional engineers.

OVERARCHING KEY MESSAGES

- There is a strong political, economic and social business case for attracting and retaining talent from all sections of society to help meet demand.
- Improving the diversity of the workforce cannot be done in isolation. To make a difference requires the delivery and support mechanisms for the recruitment and training of apprentices as a whole to be of the highest quality.
- One of the biggest barriers to accessing and recruiting untapped talent is the lack of appropriate, well-informed and widely-available careers advice and guidance.
- This is compounded by the perception of apprenticeships as being for trade occupations and the invisibility of engineering disciplines within the built environment sector. These two factors make for a toxic mix and a further barrier to attracting talent into the industry.
- For progress to be measured it is important that everyone involved collects data in a way that is comparable and allows improvements to be measured and celebrated.



Emile Williams, Senior Engineer & Apprentice Mentor Crofton Design

¹ Jobs and Growth: The Importance of Engineering Skills in the UK Economy, RAEng 2012

KEY MESSAGES FOR EMPLOYERS

- Review recruitment and training practices to ensure that they are appropriate for the age, experience and backgrounds of the young people. This includes the support mechanisms in place for both apprentices and their line managers/mentors.
- Sell the benefits of a company approach to technician apprenticeships, ideally giving someone overall responsibility for all aspects of the apprentice programme.
- Encourage the apprentices to support each other through various means of communication.
- Develop the technician apprentices as ambassadors so that they can tell their story to future recruits. This is particularly important for those from the non-traditional groups.
- Provide case studies and good news stories that can be used on the company and other external websites.
- Include technician development in your conversations with the professional engineering institutions.
- Seek to establish or join a consortium of like-minded companies, as the benefits have been demonstrated to be considerable.

KEY MESSAGES FOR PROFESSIONAL ENGINEERING INSTITUTIONS

- Review the offer to student and technician members. To what extent does it offer them what they need at the particular stage in their career?
- How well are apprenticeships/technicians represented through role models, case studies for those visiting the institution's website?
- If it doesn't already exist, consider developing a technician apprenticeship framework mapped to UKSPEC to increase the opportunities for young people to access a career as a professional engineer.
- Review the relationship with further education colleges. How much do the staff and students know about the institution and what it has to offer? How much encouragement and assistance is offered for apprentices wanting to apply for Eng Tech registration?
- If not already done, consider signing up to the Engineering Diversity Concordat.
- Review data collection within the institution and consider whether it is sufficiently comprehensive and comparable with other similar data sets.



William Harvey Hospital, Ashford © Crofton Design

Introduction

A MODEL FOR GOOD PRACTICE

The purpose of this document is to provide employers, professional bodies and other potential stakeholders with the means to:

- Make the case for action – political, economic and social.
- Better understand the issues that need to be addressed if there is to be an improvement in the diversity of those working, in this instance, in engineering.
- Identify possible solutions and recommended actions that make the most of the opportunities to attract young people to join the engineering profession.

Based on the experience of the pilot project, this document identifies a comprehensive set of actions that key players can adapt or adopt to attract, train and retain a more talented and diverse workforce.

THE TECHNICIAN APPRENTICESHIP CONSORTIUM

In 2010 Mott MacDonald, having been selected for the TfL Engineering and Project Management Framework, was exploring ways of meeting the Transport for London Strategic Labour Needs and Training² targets for recruiting apprentices which themselves were in response to the Project Brunel study³. Over a number of years, Mott MacDonald, in common with other engineering consultancy practices, had focused on graduate recruitment and did not have a structured approach to recruiting and training technician apprentices nor to progressing technicians through from professional membership at Engineering Technician level to Incorporated or Chartered Engineer.

In response, in March 2010, Mott MacDonald was instrumental in establishing a consortium of 6 major engineering consultancy practices to develop and deliver an Advanced Technician Apprenticeship in Civil Engineering, supported by ICE and the National Apprenticeship Service. The initial issues that needed addressing were:

- The lack of a suitable competence qualification to complement the technical certificate.
- The lack of further education civil engineering provision within the M25.
- The fact that none of the civil engineering practices had, on their own, enough numbers to form a viable cohort for a given college – a situation repeated across the UK regions.

After a period of intense activity – with support from ICE, ConstructionSkills (the Sector Skills Council), Pearson/Edexcel (the Awarding Body), and the National Apprenticeship Service – the first 8 apprentices started in September 2010 at South Thames College in London.

Over the next three years this award-winning consortium has grown to over 30 companies working with 10 colleges across the UK to recruit and train over 400 apprentices. A second apprenticeship framework in Building Services Engineering is now being delivered with one for Transport Planning Engineering at the development stage. All of these frameworks are mapped to UKSPEC requirements for Eng Tech and so provide a first step on the ladder for young people wishing to pursue a professional engineering career.



Apprentice Induction Day

² www.tfl.gov.uk/assets/downloads/skills-employment-strategy.pdf

³ Project Brunel: Industry Study 2008

Making the case for action

GOVERNMENT PRIORITIES – THE POLITICAL CASE

Apprenticeships and fair access are high on the Government agenda to the extent that addressing both is beginning to appear as a pre-requisite within public procurement contracts. As such, companies are looking for ways to meet these contractual conditions that make business sense.

In 2009, the Panel on Fair Access, chaired by the Rt Hon Alan Milburn MP, published its report on fair access to the professions. *Unleashing Aspirations* concluded that the UK professions were increasingly closed off to people from non-privileged backgrounds. In May 2012, Mr Milburn reported on progress made since *Unleashing Aspirations*. The report, *Fair Access to Professional Careers*, stated that the professions sat at the heart of the social mobility agenda for change.

In 2012 the entrepreneur Doug Richard published his independent report on apprenticeships. In the report he calls on the government to improve the quality of apprenticeships and make them more focused on the needs of employers.

“There is much to be proud of in apprenticeships. Apprentices are employed in more sectors, with more employers and at more skill levels than ever. Apprenticeships deliver excellent returns, enjoy a profile and status not seen for many years... High quality apprenticeships offer a powerful tool to help individuals to progress and succeed; they help businesses create the skilled workforce needed to compete, and equal any in the world...”

Matthew Hancock, the Minister for Skills, writing in the Foreword to *The Future of Apprenticeships* – the Government’s response to the Richard Review

THE NEED FOR HIGHLY-SKILLED TECHNICIANS – THE ECONOMIC CASE

The Construction Skills Network in its 2013–17 Blueprint⁴ reports that the highest annual recruitment requirement is amongst professional and technical staff, with UKCES reporting critical skills shortages⁵ in associate professional (technician) roles (19%) and professional roles (34%). More than half (53%) of employers in the construction sector reported skills shortages in professional or associate professional occupations.

Employers are stating that these shortages are leading to increased costs, delays, inefficiency and lost business and that the lack of capable people is likely to become more of a challenge, with implications for sector competitiveness. Neither of the reports referred to above makes reference to the impact of building information modelling so the situation could well be worse than stated.

Finding a solution to the technician skills shortage is therefore urgent and requires a well-coordinated industry and nationwide response. Add to this the uncertainty over the effect on undergraduate recruitment of tuition fees and associated debt and the case for companies to ‘grow their own’ is even more powerful.

“It is clear to me that the optimism of ACE member companies, large and small, is tempered by a concern that they are finding it difficult and expensive to recruit and retain the highly skilled staff they need to deliver their projects. With an ageing workforce and a potential shortage of graduates the situation is only going to get worse. The sector as a whole urgently needs to find new ways to access and train the next generation of professional engineers.”

Nelson Ogunshakin OBE
Chief Executive Association
for Consultancy and
Engineering

⁴ Construction Skills Network Blueprint 2013–17

⁵ Sector Skills Insights: Construction, UKCES (2012)

IMPROVING THE DIVERSITY BALANCE – THE SOCIAL CASE

Engineering underpins the UK's success in all areas of the economy. If this is to continue we must ensure a sufficient supply of people with science, technology, engineering and mathematics (STEM) skills⁶.

A growing concern about the availability of people in the UK with these STEM skills means that there is an immediate and practical need to attract talent from all sections of society to help meet demand. To do this engineering businesses must look beyond their traditional recruitment sources, offer more varied and flexible routes into engineering and maintain professional standards.

There is a long history of an underrepresentation of females in both engineering and construction. The situation is improving at higher education level where 17% of civil engineering students are female. Since many of these young women go into engineering consultancy practices, the ratio is, in a few instances, close to 50% – which is very encouraging. The figure for female apprentices in construction and engineering is much lower at 5%.

There is a pool of untapped talent which through lack of awareness of the opportunities available and a lack of social capital are not accessing professional jobs. The young people often do not have the parental contacts to gain relevant work experience or the background to fare well at interview. Their decision to not go to university is usually a rational financial calculation which without the opportunity to progress via a work-based route removes the ability to access a career as a professional engineer.

“No one should be prevented from fulfilling their potential by the circumstance of their birth. What ought to count is how hard you work and the skills and talent you possess, not the school you went to or the jobs your parents did.”

Opening Doors, Breaking Barriers:
A Strategy for Social Mobility⁷



Ariel Carter, Civil Engineering Technician Apprentice

⁶ *Jobs and Growth: The Importance of Engineering Skills in the UK Economy*, RAEng 2012

⁷ *Opening Doors, Breaking Barriers: A Strategy for Social Mobility*, HM Government, May 2012

Towards a good practice model

The focus of the pilot project was to find ways to access untapped talent in order to meet the business needs of industry. When undertaking the research it was clear that there were a number of wider issues that affected the offer to these young people of a valued route to a career as a professional engineer. Tackling diversity cannot be done in isolation – it requires the whole system to work well.

It is worth noting that the actions identified in this section resonate with different levels of the Fair Access Escalator developed by the Royal Academy of Engineering and the effective business practices highlighted in the Social Mobility and Child Poverty Commission report *Business and Social Mobility: a Manifesto for Change*, published in October 2013.

COMPANY CULTURE AND PRACTICES

The TAC members are, in the main, engineering consultancy practices with predominantly graduate populations. This means that all of their recruitment and learning and development systems have been geared heavily to supporting these graduates both in a technical and pastoral sense. The evidence from the project shows that many companies were unprepared for the level of support the apprentices needed in the early stages of their career. In addition, the research showed that outdated perceptions of apprenticeships as being ‘for the construction trades’ were prevalent. Apprentice recruitment in the early days was *ad hoc* and not part of the main recruitment timetable. Learning and development occurred at a local level with no overall strategy or monitoring of progress. Whilst many of the companies had training agreements with the major professional engineering institutions they were rarely implemented at technician level. In terms of equality and diversity, all of the companies have an equality and diversity policy and many, due to the global nature of their business, have a multi-cultural workforce.

ACTION

Companies need to review their recruitment and training offering to apprentices, ensuring that processes and practices take into account age, experience and background.

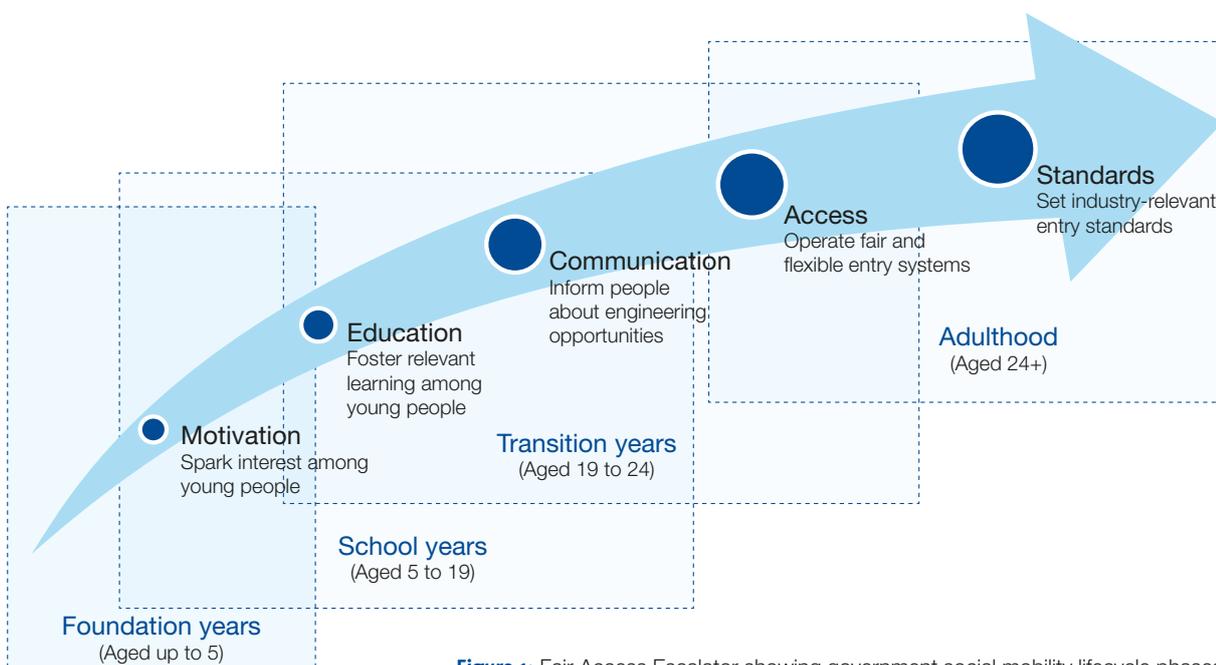


Figure 1: Fair Access Escalator showing government social mobility lifecycle phases

CAREERS ADVICE FOR YOUNG PEOPLE

There is an extensive body of evidence as to the poor state of much careers advice and guidance in schools. Two in particular are referenced here – one through project research, the other a recent Ofsted report.

- Interviews carried out with over 70 apprentices as part of the project demonstrated that a lack of information and guidance linked to the poor image of engineering and apprenticeships made for a toxic mix. In the main these young people were self-starters, motivated, enthusiastic and articulate. They had mostly found the apprentice opportunities themselves but admitted that they had little prior knowledge of what was involved or the sector in which they were applying to work. Their views now that they have started their apprenticeships are very positive and many are acting as self-appointed ambassadors amongst their friends and in the schools they previously attended.
- The project findings were backed up by the recent Ofsted report *Going in the Right Direction*, published in September 2013, which found that the arrangements for careers guidance in schools are not working well enough. Three quarters of the schools visited for the survey were not implementing their duty to provide careers advice effectively, nor had the skills and expertise needed to provide a comprehensive service. With little parental knowledge of the sector, the young people targeted as part of this project were more reliant than most on the availability of good careers advice, which was usually not forthcoming.

The engineering community has, over the years, worked hard at trying to mitigate the failure in careers advice and guidance through initiatives such as Tomorrow's Engineers, STEM Ambassadors, and the Big Bang Fair. However, the feedback from the apprentices and the participants in the Budding Brunels pre-apprenticeship programme shows that it is still a drop in the ocean and many young people, their parents and teachers are still unaware of the opportunities on offer.

ACTION

Companies should work with others to coordinate a programme of activity targeted at young people, schools and parents to raise awareness of the apprenticeship route into professional engineering careers.

TREND AND MONITORING DATA

When attempting to increase diversity by changing practice it is important to be able to measure whether or not you are making a difference. It is also important that the data sets used for the measurement are robust, consistent and comparable. The project accessed data from a number of sources but very little of it gave the team exactly what they were looking for. The types of data sets which contribute to impact measurement are:

- A breakdown of apprenticeship recruitment by sector, gender, ethnicity and social background so we could see how well we were performing against the national picture. The National Apprenticeship Service provides this data but in broad sectors, so it is difficult to extract information that gives a meaningful comparison.
- Demographic data on the apprentices recruited by the consortium at colleges around the UK. The consortium, working with the colleges has now produced a demographic questionnaire which is completed by all apprentices at their college induction. This will give longitudinal trend data on the diversity of the apprentice intake.
- Information on the success of different groups when it comes to applying for and securing an apprenticeship. This is much more difficult to acquire as there are several routes by which people can apply for the apprentice places. Given that over 700 applications were received for 60 places in London the scale of the task is evident.
- Data on the diversity of professional engineering institution membership, particularly at technician level. This data is beginning to be collected by some of the institutions as part of their commitment to the Engineering Diversity Concordat.
- Data from the professional engineering institutions on the conversion from student member to EngTech, IEng and then CEng as a measure of progression. Also the number of student members that are on accredited apprenticeship programmes.

ACTION

All companies and organisations should gather diversity data as a starting baseline and to inform ongoing monitoring against which to measure progress.

TECHNICIANS AND PROFESSIONAL ENGINEERING INSTITUTIONS

The analysis of data from a variety of sources (FE STEM data study, Labour Force Survey, Engineering Council Annual Statistics) provides the following picture of technicians:

- Approximately 112,000 people achieve relevant engineering Level 3+ vocational qualifications each year, of which approximately 20,000 have achieved a relevant advanced or higher apprenticeship.
- It is estimated that approximately 1,000,000 people are working at Skilled Trade or Associate Professional level in engineering and construction and the built environment roles and hold relevant Level 3+ qualifications.
- 14,000 people are registered technician members (EngTech) of professional engineering institutions meaning that the absolute number of registrants only represents just over 1% of the potential market.

The recent Technician Recruitment and Membership (TRaM) project undertaken by Engineering Council and funded by the Gatsby Charitable Foundation, carried out research which concluded that “whilst ‘more of the same’ current initiatives to boost EngTech registrations may continue to deliver incremental improvements, a step change in numbers will only come through a change in culture and attitudes driven by the leaders of the profession...” accompanied by “A commitment to identify and deliver significant improvements to the value offered by the EngTech ‘product’ to technicians and their employers...”

ACTION

Professional engineering institutions should ensure that the drive to improve the offer to technicians includes outreach to those who are from the non-traditional backgrounds as highlighted in this pilot project.

APPROPRIATE APPRENTICESHIP FRAMEWORKS

The remit of the TAC and the purpose of this project are, in both cases, to offer young people an apprenticeship which they see as a valuable route to a career as a professional engineer. For the consortium this meant an apprenticeship which clearly leads to a professional qualification such as the advanced technician apprenticeships for civil and building services engineering which are currently being delivered and are mapped to the EngTech requirements of the Engineering Council UKSPEC. The attractiveness of such apprenticeships is the ability to ‘earn while you learn’ through a combination of a structured programme of work-based competence development and a college day release course. With such qualifications in place the perception of apprenticeships has been challenged and the first step on a progression pathway to a professional career is now available to a much wider market

ACTION

Where appropriate, and feasible, the possibility of developing an apprenticeship framework linked to EngTech should be considered by professional engineering institutions.

A TRAINING PROVIDER NETWORK THAT CAN DELIVER

In order for the apprenticeship programmes initiated by the TAC to grow and thrive, offering young people across the UK the opportunity of a career in engineering, they need to be supported by a well-resourced and capable further education sector. This applies to the quality and appropriateness of both the classroom teaching and the work-based assessment. The experience of the consortium has been patchy, with some examples of outstanding performance, and it is working hard at a national and local level to achieve a common high standard of delivery and customer service. Of particular concern is the need for:

- Lecturers and assessors with an understanding of the engineering design environment.
- Experience of working with the professional engineering institutions.

The experience of the TAC is that the apprentices are best served where there is a strong active partnership between a group of employers, a college and a professional engineering institution.

ACTION

Work needs to be done to ensure that a strong and active working partnership is developed and maintained between relevant employer(s), college(s) and professional engineering institution(s).



Technician Apprentices outside No10 Downing Street with Prof Barry Clarke, ICE President

TAC case study

PILOT PROJECT

Within the context of the TAC Apprenticeship Programme, a pilot project funded by the Royal Academy of Engineering was set up with the aim of investigating whether apprenticeship recruitment is an effective way of enabling non-traditional entrants to the professions to access careers in civil engineering. With a focus on a combination of factors including socio-economic status, gender and ethnicity, this document is based on the outcomes of the pilot. The project took place at a time when there were a number of similar initiatives looking to tackle the issue of the role and status of technicians in the workplace and that of improving fair access to the professions; in particular the work being done by E4E and the Engineering Council. The cross-fertilisation of ideas and findings was of immense benefit to this project.

The project was delivered between May 2012 and September 2013, involving a number of partners including Mott MacDonald, on behalf of TAC, and the Institution of Civil Engineers. Sheila Hoile managed the pilot project in her capacity as project manager for TAC. The Construction Youth Trust (CYT) also made a significant contribution in delivering the Budding Brunels Pre-Apprenticeship Programme which attracted sponsorship from the Royal Academy of Engineering, National Apprenticeship Service, Transport for London and the Gatsby Charitable Foundation.

The pilot project was delivered in three phases. The first phase produced a report setting out the starting position with reference to baseline data, existing processes and organisational culture. This was important as it provided the means to assess whether or not the targeted interventions and other activities were making a difference. The report provided a context for the project and the likely drivers for change in the recruitment and training of technician apprentices. The second phase was a programme of qualitative research using focus groups and questionnaires to look at the perceptions and experiences of apprentices, students, employers and professional bodies. The third phase comprised a series of targeted interventions working with schools, employers and professional bodies. The purpose of the interventions was to test ways in which access to apprenticeships, which provide a starting point to a professional engineering career, could be improved, with a particular emphasis on approaches that increased the proportion of ethnic minorities, women and socially disadvantaged young people.

The delivery of the pilot has been an integral part of TAC's planned growth and development. As such it is still work in progress and the consortium is keen to build on the lessons learned to improve its ability to access, recruit, train and retain the wealth of untapped talent uncovered by the work done over the past 18 months.

A CONSORTIUM APPROACH

The role of TAC and its partnership model has been crucial to the success of the project. The consortium approach makes a difference because it:

- Has enabled companies to share good practice and as a result improvements have been made to recruitment practices and apprentice support mechanisms within the member companies.
- Has enabled conversations between employers, colleges and professional engineering institutions which have increased the likelihood of apprentices achieving EngTech registration. The TAC has developed a service level agreement which sets out the roles and responsibilities of the employer, the college and the professional institution in offering the apprentice the best possible education, training and support.
- Has the collective 'clout' to get things done.
- Works for companies of all sizes.
- Facilitates data collection and longitudinal tracking of apprentices.
- Proved to be essential for the delivery of significant stages of the Budding Brunels pilot programme such as the launch day and the work shadowing.
- Will maintain the momentum initiated by the project as part of its planned development and growth including the roll-out of the Budding Brunels programme beyond London.

BUDDING BRUNELS FOR TECHNICIANS

The Budding Brunels Pre-Apprenticeship Programme was borne of a desire to increase the ethnic, socio-economic and gender diversity of apprentices recruited by TAC in London as well as delivering broader industry-led careers guidance and employability for all participants. The consortium worked with the CYT to adapt the trust's highly successful Budding Brunels programme to make it suitable for the purpose of recruiting technician apprentices. As a first step, the trust delivered face-to-face outreach to 500 pupils at 10 schools across London. Additionally, 35 schools were sent detailed project information, and referrals were accepted from other community partners. Students were accepted onto the programme using diversity and socio-economic criteria. The key events that the young people participated in were: a launch day at the Building Centre attended by a number of employers; visits to South Thames College; work shadowing opportunities with consortium companies; additional numeracy classes; and an employability workshop. The young people that successfully completed the programme were guaranteed an interview with one of the consortium companies recruiting in London.

The key outcomes of the pilot were:

- 96 students participated at various stages in the programme, of which 50 were involved throughout.
- 32 students attended interviews with consortium companies, with 15 (47%) subsequently offered positions.
- 3 female students enrolled on the programme, of which 1 has been recruited as a technician apprentice.
- 24 students entered other education, employment or training opportunities.
- 75% of participants, and 67% of those offered positions, were from BAME backgrounds.
- 80% of those recruited were from the most deprived London boroughs.

The feedback from the young people was very positive, with all of them saying that they now had a better idea of the opportunities available within engineering and more confidence to go forward to apply for jobs in the future.

CASE STUDIES

Endrit Badallaj

Endrit applied to join the Budding Brunels pre-apprenticeship programme with very little knowledge of engineering and apprenticeships. He participated in all of the events on the programme including a 1-day work-shadowing placement at Atkins, where his ambitions to become an Engineering Technician Apprentice were confirmed. After submitting a strong application to Arup he was interviewed and offered a position as a Structural Engineering Technician Trainee.

"When I found out I had been offered a position at Arup I was so excited and overwhelmed. Budding Brunels definitely helped me through, offering various events such as an employability workshop and a day of work shadowing, which was my favourite part of the programme. I think Budding Brunels was the most important thing in helping me to secure a position with Arup. I don't think I would have made it without this support."

Alexandra Ayres

"My father was my inspiration to study a construction course at college as he has worked within the industry his whole life. As I was unsure of which profession I wanted to pursue within the construction industry, I choose a course that would cover a range of different roles such as surveying, architecture and project management. During this time I was also doing on-site work experience with a management team. In November 2012 my college introduced me to Budding Brunel's where I did a 3 day course in London which involved meeting different companies, practising interview techniques and going on site. After this I was told about the opportunity to take up an Engineering Apprenticeship. This involved meeting a number of Structural/Civil Engineering companies and applying for one of their apprenticeship places. One of the ones I applied for was at Hyder Consulting which I was lucky enough to get. Without Budding Brunel's I wouldn't have considered training to be a fully qualified Civil Engineer or through the route of an apprenticeship, and therefore would have missed out on many of the opportunities that I've been given.

Within my role now at Hyder Consulting I am attending college one day a week and working the other four days. This is one of the reasons I enjoy the apprenticeship route because the real learning and experience comes from inside the work place. No day is the same at work, my day could involve modelling junctions, surveying and/or checking reports and drawings. I love what I do as I am able to see changes being implemented which I have been a part of. I am looking forward to finishing my apprenticeship and becoming a qualified Civil Engineer in the future."



The companies were also impressed with the programme

“The Budding Brunels pilot provided WSP access to a new pool of students from a range of diverse backgrounds which, due to skills shortages facing our sector, is crucial. The scheme enabled students to explore engineering career routes while also demonstrating their commitment to the process by giving up their personal time to contribute. This was important to us as a business because it meant we were interviewing candidates that had already shown a drive to succeed. The launch day was a fantastic opportunity to show potential recruits the passion we have for the sector, for WSP and for the role individual engineers play – and hopefully instil some of this in them as well! We are very much looking forward to welcoming a Budding Brunels student in September recruited through the scheme.”

Mel Clark, UK Learning & Development Advisor, WSP

“Mott MacDonald was keen to participate in the Budding Brunels pilot in order to provide opportunities for young people, and to access a more diverse pool of applicants who may not have otherwise entered the industry. We were very impressed with the programme and the quality and enthusiasm of those who came along to our work shadowing day. We have been really pleased to be able to invite four Budding Brunels to join Mott MacDonald and look forward to seeing what they bring to the team.”

Nicola Todd, Graduate and Apprentice Advisor, Mott MacDonald

The ingredients that contributed to the success of the Budding Brunels programme were:

- The consortium as a group of employers used to working together.
- Finding the right partners with the experience, networks and capability to deliver.
- Good organisational skills and perseverance.
- Clear roles and responsibilities working in a collaborative environment.
- Commitment, by all parties, to deliver.
- Clear aims and objectives – impact and outcomes are measurable.
- Choosing schools that offered the best opportunity to reach the target groups of untapped talent.
- Face-to-face involvement with the young people.
- Offering a programme that met the young people's needs and gave them the tools to move forward confidently in the labour market.



122 Leadenhall © Arup

COMPANY POLICY AND PRACTICE

A recent review of consortium companies shows that, over the period of the project, progress has been made in both the recruitment and training of technician apprentices. This has often been achieved through sharing experiences and good practice at consortium meetings and contact between companies. Improvements include:

- Many companies have now appointed people with overall responsibility for the apprentice programme with a view to bringing in company-wide policies and practice as opposed to a regional and divisional *ad-hoc* approach.
- In most companies apprentice recruitment is now included alongside graduates within the annual recruitment request for new entrants.
- Recruitment processes have been reviewed to ensure that they are appropriate for the age, experience and backgrounds of the young people concerned.
- Better support mechanisms have been put in place for both apprentices and their mentors/line managers. This is in recognition of that, particularly in the early days of their employment, the apprentices need a lot of support acclimatising to the work environment and balancing the demands of work with those of college.
- Giving the apprentices the opportunity to share experiences both internally and as ambassadors in local schools.
- The relationship with the professional engineering institutions with which the companies have training agreements now includes discussions with regards to the development programmes and progression opportunities for the technician apprentices.

TECHNICIANS AND THE PROFESSIONAL ENGINEERING INSTITUTIONS

The Institution of Civil Engineers (ICE) was the first professional engineering institution to work with the consortium. The involvement of the institution has been a crucial to the success of the consortium in meeting its objectives for these reasons:

- It became actively involved in the development and approval of the work-based competence qualification which is at the core of the apprenticeship framework.
- It has developed a good working relationship with the colleges that deliver the technician apprenticeship –
 - Wherever possible attending college network meetings and local employer consortia meetings.
 - Managing the completion and analysis of the demographic questionnaire completed by all apprentices at their college induction.
 - Through the college, getting all apprentices to sign up as student members of the ICE. This is free for the ICE but not the case for all professional engineering institutions. This is a key action as it allows the institution to track the apprentices, know when they are close to completion and so provide encouragement and support to apply for Eng Tech registration.
 - The Membership Development Officers make regular visits to the college to meet the apprentices and the college staff.
- It has developed a suite of brochures aimed at encouraging young people to become technicians and apply for registration as Technician Members of ICE. One of those brochures explains the benefits of the apprenticeship route (for copies of the brochure see *Useful links*).
- Its team of Membership Development Officers now have targets related to recruiting technician members of the institution. The data from the colleges means that when they go into companies they know if the company has any technician apprentices. If so, they ask to meet them, if not they use the visit as an opportunity to talk about the benefits of employing a technician apprentice. If the company shows interest they can put them in touch with a consortium member who can provide encouragement, advice and guidance.
- The institution has signed up to the Royal Academy of Engineering's Engineering Diversity Concordat. The Concordat outlines principles and objectives that all professional engineering institutions can sign-up to, and commit to, in taking action to increase diversity. For those institutions and organisations interested in increasing diversity there is a Concordat Resource Guide, compiled by the Royal Academy of Engineering in consultation with a number of professional engineering institutions, which offers useful information for working on diversity (see *Useful links*).

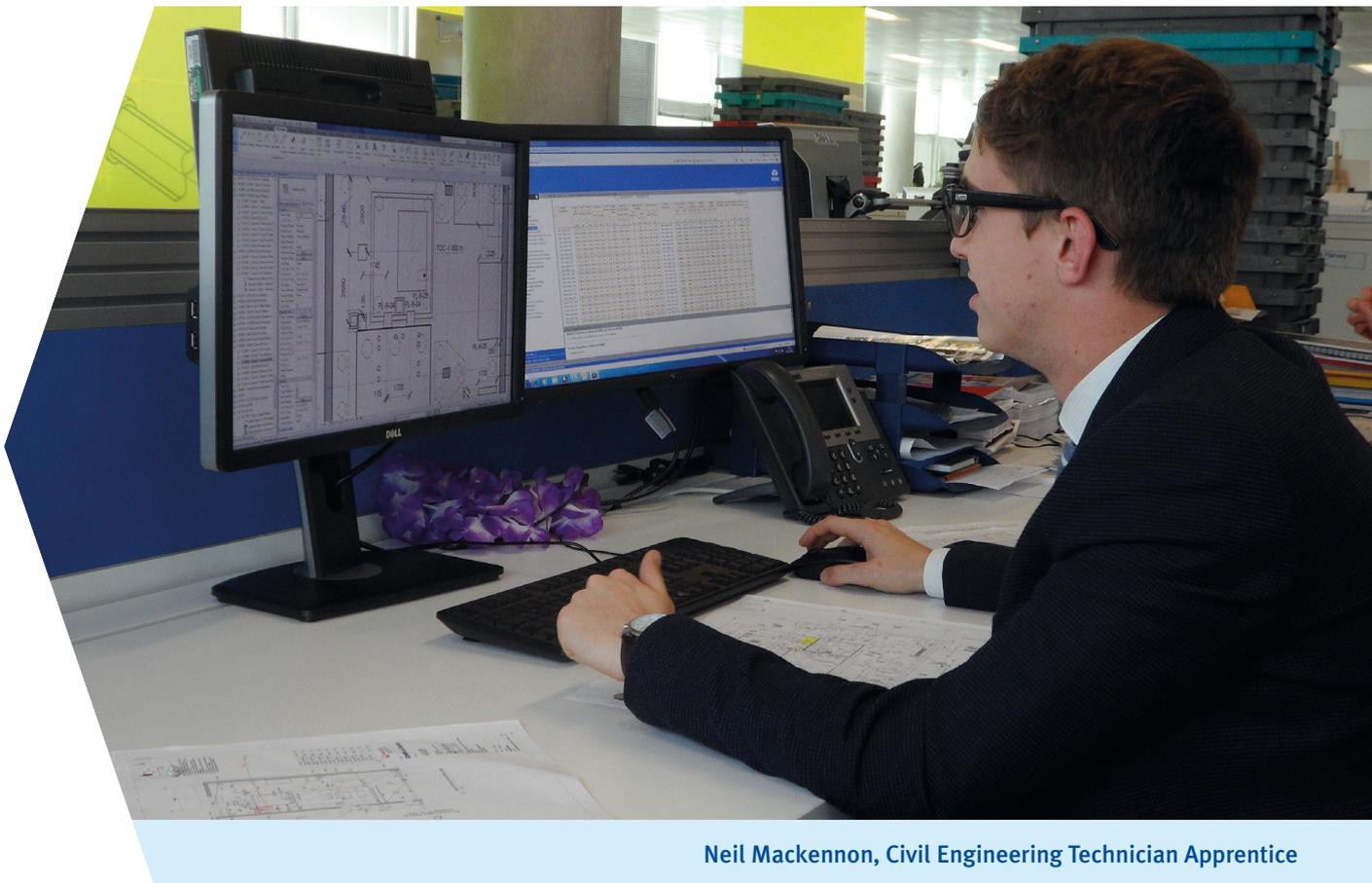
DATA COLLECTION AND ANALYSIS

For progress to be measured it is important that everyone involved collects data in a way that is comparable and allows improvement to be measured and celebrated.

The Royal Academy of Engineering's *Engineering Diversity Concordat Resource Guide* published in September 2013 provides a useful starting point with checklists and sample questionnaires. These are useful examples for both companies and professional institutions and provide the ideal shared base referred to above.

The demographic questionnaire completed by the apprentices contains the data referred to in the *Resource Guide* but also includes information on family background, schools attended and qualifications achieved, as all of these add to the sum of knowledge about the apprentices.

The data supplied by the National Apprenticeship Service is not at a detailed enough level for meaningful analysis to be made with regard to the uptake of technician apprenticeships.



Neil Mackennon, Civil Engineering Technician Apprentice

SUMMARY OF ACTIONS

1. Companies need to review their recruitment and training offering to apprentices, ensuring that processes and practices take into account age, experience and background.
2. Companies should work with others to coordinate a programme of activity targeted at young people, schools and parents to raise awareness of the apprenticeship route into professional engineering careers.
3. All companies and organisations should gather diversity data as a starting baseline and to inform ongoing monitoring against which to measure progress.
4. Professional engineering institutions should ensure that the drive to improve the offer to technicians includes outreach to those who are from the non-traditional backgrounds as highlighted in this pilot project.
5. Where appropriate, and feasible, the possibility of developing an apprenticeship framework linked to EngTech should be considered by professional engineering institutions.
6. Work needs to be done to ensure that a strong and active working partnership is developed and maintained between relevant employer(s), college(s) and professional engineering institution(s).

Useful links

DIVERSITY

Royal Academy of Engineering – www.raeng.org.uk/about/diversity

- Engineering Diversity Concordat
- Engineering Diversity Concordat Resource Guide
- Aspiration and Opportunity – Fair Access to the Engineering Profession E4E (Education for Engineering)

WISE (Women into Science and Engineering) – www.wisecampaign.org.uk

- Information and Guidance on Apprenticeships – www.wisecampaign.org.uk/business/apprenticeship-support

STEM Equality and Diversity Toolkit – www.stem-e-and-d-toolkit.co.uk

Construction Youth Trust – www.constructionyouth.org.uk

APPRENTICESHIPS

The National Apprenticeship Service – www.apprenticeships.org.uk

The Institution of Civil Engineers –

www.ice.org.uk/Membership/Membership-grades-and-how-to-join/TMICE/Apprenticeships

Institution of Engineering and Technology – www.theiet.org/apprentices

Chartered Institution of Building Services Engineers (CIBSE) –

www.cibse.org/index.cfm?go=page.view&item=765

SEMTA Apprenticeship Service – www.semta.org.uk/apprenticeshipservice

CAREERS ADVICE AND GUIDANCE

Tomorrow's Engineers – www.tomorrowsengineers.org.uk

Career Development Institute (CDI) –

www.careermark.co.uk/news/career-development-institute-and-careers-profession-register

Construction careers website – www.bconstructive.co.uk

GOVERNMENT REPORTS

Social Mobility and Child Poverty Commission report *Business and Social Mobility: a Manifesto for Change* –

www.gov.uk/government/organisations/social-mobility-and-child-poverty-commission

Fair access to professional careers: a progress report –

www.gov.uk/government/publications/fair-access-to-professional-careers-a-progress-report

PROFESSIONAL ENGINEERING REGISTRATION

Engineering Council for EngTech and general professional registration – www.engc.org.uk

TECHNICIAN APPRENTICESHIP CONSORTIUM – www.tacnet.org.uk/home

All the above links can be accessed via the Useful Links page on the TAC website

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