UK Electronics
Skills Foundation

Connecting with Millennials

How to overcome the graduate recruitment challenge

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INTRODUCTION

Stew Edmondson, CEO, UKESF

The UKESF was set up in 2010 with a clear mission - to encourage more young people to study Electronics and pursue careers in the sector. Since then, we have formed partnerships with major companies, leading universities and other organisations to tackle the skills shortage in this industry.

After I joined UKESF in 2015 as the organisation's first full-time CEO, further progress has been made, with a growing number of activities designed to inspire school children from year 7 upwards, A-level students, undergraduates, teachers, universities and companies within the Electronics sector to boost this industry within the UK.

"While the UKESF's values - to strive for excellence; be collaborative; act with integrity; be passionate; and value creativity - are set, our ambition continues to grow."

Now in 2017 we find ourselves at another milestone - the fifth anniversary of the completion of our first scholarship programme. Since the scheme began, 367 scholarships have been awarded and more than 40 companies have benefited by sponsoring a UKESF scholar. To date, 172 of these scholars have graduated and over 50% have permanent offers with a UKESF sponsor company and, overall, 80% of them are now employed in the Electronics and Technology sector.

While the UKESF's values - to strive for excellence; be collaborative; act with integrity; be passionate; and value creativity - are set, our ambition continues to grow. We have set ourselves the goals of doubling the number of UK undergraduates studying Electronics in the next five years; to increase the number of female undergraduates by 50%; and to help 10,000 children each year to participate in a STEM activity with the UKESF within five years.

Within these pages, we aim to outline the skills shortage in the UK's Electronics sector and its implications; to advise companies in this sector how they can attract the right talent; and to add more colour to the story of the work of UKESF.

THE UK'S SKILLS SHORTAGE

The shortage of graduates in STEM (Science, Technology, Engineering and Maths) is a massive problem for the UK and it is becoming more acute. In 2016, Engineering UK estimated that the shortfall of graduates in Engineering was over 40,000. According to the UK Commission for Employment & Skills, 43% of STEM vacancies are hard to fill.

"The estimated shortfall of Engineering graduates is 40,000"

The UK government is well aware of the importance of producing more graduates in STEM for the UK economy, commissioning the Shadbolt and Wakeham reviews, published in 2016. Both concluded that more needs to be done to make a link between the education system and the organisations that make up the STEM industries.

"In some cases, graduates may be suffering from sub-optimal employment outcomes owing to a lack of awareness and understanding about how the skills and knowledge they have developed during their degrees relate and map onto the jobs market," the Wakeham report states.

The Shadbolt report rightly points out that it isn't just the large STEM companies within the UK that need to play a part. *"In addition to variations across industrial sectors and types of role, the needs of start-ups and SMEs should be taken into account as much as the requirements of large organisations,"* the report states.

It also asserts that more needs to be done to align education and employment in STEM. *"It would benefit all stakeholders, including graduates, if employment outcomes, and employability, were to become a more central part of accrediting a degree programme."*

THE IMPORTANCE OF THE ELECTRONICS INDUSTRY

When it comes to the Electronics industry, the picture is even more bleak. Research from the Institute of Engineering and Technology (IET) found that **69%** of employers in the Electronics sector say that a lack of available candidates is a problem when recruiting graduates.

The UK has the sixth largest Electronics industry in the world, with a **£98bn annual turnover**. There are more than one million jobs in or related to the Electronics industry in the UK, **14 of the world's top 20** semiconductor companies have a design or manufacturing site in the UK. Around **90% of smartphones** contain components designed in the UK and as a whole the sector contributes **6% to the UK GDP**.

The world that we live in is constantly evolving and technology is at the very heart of this change. Only a generation ago you were lucky if your family had a landline phone in their home. Now, everyone has a 'smart' phone capable of incredible things, containing highly complex processors, advanced communications and all packed with Electronics.

Exciting developments in Electronics mean we can develop innovative products and help transform the way we live; from health care and medicine to entertainment. In the future, we will see 'smart' cities with transportation, energy consumption, security and water use all improved through Electronics. Electronics enables engineers and inventors to create solutions that tackle the World's problems and to improve lives.

There's no doubt about the importance of the Electronics industry to the UK, which makes the lack of suitable graduates even more galling. At a time when the UK needs to be economically strong, more must be done to address the issue.

"Electronics is all about using technology creatively to develop innovative products to make people's lives better"

While Electronics is all about using technology creatively to develop innovative products to help solve problems and make people's lives better, this isn't the image that everyone sees. As Naomi Climer, the former president of the IET puts it: *"The UK has an unhelpful national stereotype of Engineering"*. This factor also needs to be considered when addressing the gender imbalance in the Electronics industry and education.

However, there are some bright notes - **84% of female engineers** say they are happy with their career choice. Graduates in Electrical and Electronic Engineering can expect a **starting salary north of £26k** as well as the opportunity to shape the future of world around them, so there should be plenty of incentives for students to get into this area.

But referring back to the Wakeham report, it is clear that more needs to be done by the Electronics industry to ensure that the UK has enough suitable candidates to fill the growing number of jobs it needs to fill.

"It is our view that it is not reasonable to expect that Higher Education alone is well placed to equip students, not only with a robust intellectual grasp of the foundational academic principles of a discipline, but to also impart to them comprehensive knowledge of the world of work. ***Employers need to make sure that they are sharing some of the burden****."*

HOW TO OVERCOME THE GRADUATE RECRUITMENT CHALLENGE

Attracting the most capable graduates to your business isn't easy - there is a lot of competition for the best Electronics brains. While tech giants like Google, Facebook and Microsoft are names that will be familiar to these graduates, your company may not have quite the same profile.

You don't necessarily have to compete on the same level, but take into consideration that millennials are often driven by purpose, challenges and work life balance. However, there are some simple steps you can take to overcome the recruitment challenge and make your company as attractive as possible to the cream of the Electronics graduates.

Here is the UKESF's five-step plan to solving the graduate recruitment challenge:

1. Build a profile

While many companies that undertake PR activities see this as a way of primarily reaching their customers through the media, it is often forgotten that there are other audiences that need to be reached too. Recruitment has to be part of the consideration when it comes to PR.

It is important, then, to identify the best way of reaching the right people. University job fairs are an obvious place to consider attending, but you need to think about how you put out the right message at these events too.

While it's tempting to go down the path of trying to appear 'cool' to attract young people to your business, this is a transparent tactic that can backfire on you. It's better to be honest about your business and focus on the kinds of activities a new recruit would be getting involved in, the projects they would work on, and how their career could progress if they were to work for you. You should also show how the work that your company does fits into the bigger picture - components can be interesting on their own terms, for sure, but it's also vital to contextualise how this enables other companies.

Using social media to build a following is another method of making yourself visible to potential new recruits. Though this can take time, regular engagement with influencers in the Electronics industry and Universities that offer Electronics courses will pay dividends. It is also worth considering running competitions through social channels too, to grow your audience and - depending on the nature of the competition - to identify your brightest and most talented followers.

2. Improve your working environment

You may have seen the inside of one of Google's offices, with colourful sofas, pinball machines, slides, quirky booths for phone calls and meetings, restaurants and even chill-out zones. No one is saying you have to mimic this, but your workplace needs to appeal to new recruits.

In terms of the physical environment, clean, modern and functional is the key. There should be space to think and inspire creativity away from the workstations and practical additions such as secure bike storage, refreshment areas with full-featured coffee machines and healthy snacks on offer. On the other hand, it's important to bear in mind the mental implication of the workspace, namely that the company breeds great and inclusive culture.

There are also other perks and benefits that businesses can use to increase their appeal to new hires. Flexible working hours, generous holiday allowances, as well as cash back and discount schemes with large retailers should be considered. It's also important to review internal systems for reward and recognition, in order to incentivise new hires to perform at their best and inspire loyalty.

If your business is serious about attracting the best new recruits, it should be striving to gain recognition in lists such as The Sunday Times' 100 Best Companies. Cambridge Consultants and Rolls-Royce are shining examples of what Electronics companies should be aiming for.

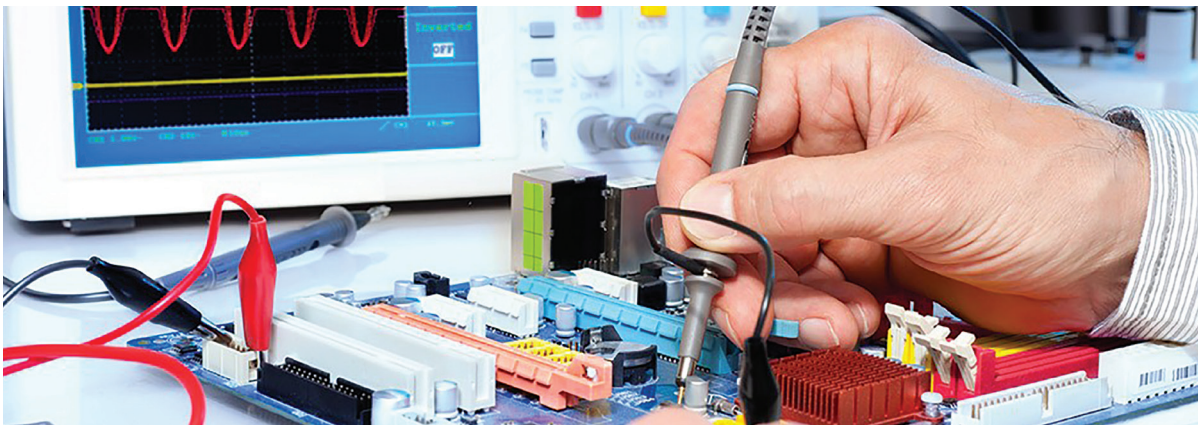
3. Offer challenging assignments

Many companies offer work experience placements and internship schemes. While this is a good opportunity to assess the capabilities of a candidate for a longer-term position, it should also be used to show your company in its best light.

While the days of work experience students and interns being asked to make the tea and perform very basic admin tasks are (hopefully) over, you need to think about how to make their time with you as interesting and challenging as possible. Process-based, low risk test and verification-focused tasks aren't going to cut it. These are bright, capable people, who want to work within confines that enable them to make an impact.

As well as challenging and interesting assignments, these potential new recruits should be exposed to as diverse a range of current employees as possible, including top management. Giving them the chance to ask questions to everyone they encounter will help them to crystallise what it would be like to work for your company on a day-to-day basis.

And while not every work experience student or intern will end up working for you, if they have a good time during the process they will talk about it with their peers, enhancing your reputation by word of mouth.



4. Offer competitive compensation

Salaries in the Electronics industry are unlikely to match up to those offered by firms in the City, nor those in the offshore oil industry. But compensation for employees doesn't need to revolve primarily around the pay-packet.

While we've already talked about other benefits you can offer to staff in terms of the working environment, it should be recognised that graduates aren't solely motivated by money. What they need to see is that they can make progress within your organisation. Think about the entire package you are offering - salary, benefits, opportunities for progress and recognition.

Other criteria that are considered important by potential new hires include paying for professional qualifications and a positive company culture.

5. Build your network

Every company will have an existing network based around suppliers, partners and customers, but to maintain and grow these networks requires a lot of work. However, it is a necessary activity if you want to attract new recruits.

While you obviously need to use social channels such as Twitter and LinkedIn to connect with organisations within your industry, it is worth taking the time to get to meet them face-to-face too. Attend networking events and recruitment fairs not just with the aim of attracting new hires, but getting to know others in your space as well. These events and subsequent meetings can be a great way of getting anecdotal information from others about their own challenges in recruitment and how they have overcome them.

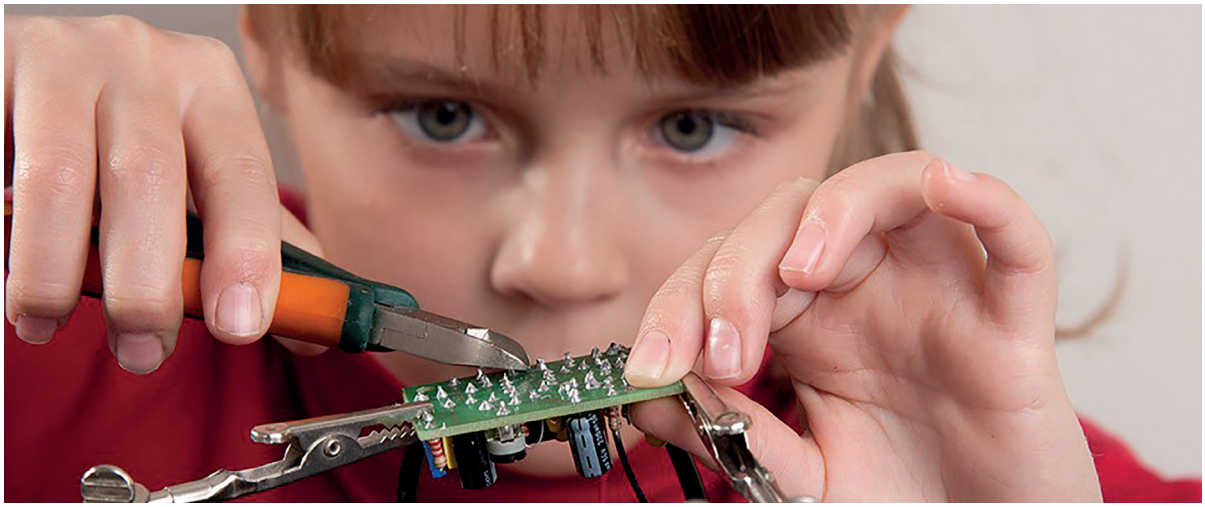
It's important to position your company as part of a community, no matter how seriously you take competition within your industry. Collaborate with as many relevant educational establishments as possible - while there are many Universities offering Electronics-based courses in the UK (83 at the last count), concentrate on those in the local area to begin with.

THE WORK OF UKESF

Through UKESF's established Scholarship Scheme, in partnership with 18 of the UK's top universities, companies in the Electronics and Engineering industry get access to the most capable students; provide work placements; help to develop employability skills and encourage innovation; and additionally provide financial support to students.

"Over 40 leading companies have benefited from working the UKESF"

These students get one-stop shop access to multiple potential employers, with high-quality and relevant experience on offer to ensure they are ready for the world of work. UKESF also has an extensive outreach programme, providing schools and parents with clear and useful advice to youngsters looking to continue their education and embark on careers in the industry.



Scholarship Scheme

UKESF Scholar Dan studies at the University of Leeds and is sponsored by Plextek, a Cambridgeshire-based company that provides electronic design, supply and consultancy from the creation of ideas through to the manufacture of products.

Dan chose Engineering because he had an interest in Electronics and loves to see how things work, but also because he wanted a profession that would offer good employment and earning prospects.

During a 10-week placement on UKESF's Scholarship Scheme, Dan was able to see how a professional working environment operates as well as improve his own skills. More importantly, he also got to see how the theory was applied, helping to put his studies into context.

"The only way to be sure that Engineering is for you is exposure. Show your skills to the companies that are desperately in need for hardworking, capable students and in return they will provide you with the experience. Having now experienced the world of Engineering myself, the only regret is that I didn't do it sooner."

Scholar of the Year

UKESF's current Scholar of the Year, Joanna, is studying for a MEng in Electrical & Electronic Engineering at the University of Bristol. Her sponsor is Imagination Technologies, a company that works closely with leading semiconductor companies and the consumer electronics companies responsible for many of the most iconic and culturally important products of the 21st Century.

Her first placement at Imagination saw her work on power analysis and clock gating inefficient registers. This proved useful in her following year at university where she started studying VHDL. A second summer placement enabled her to get involved with work on integrating a new tool into the synthesis flow.

Joanna also is heavily involved in the University of Bristol's outreach programmes and has recently been elected Outreach and Volunteering officer for the university's Women in Engineering Society.

"I knew wanted to work in the Electronics industry, and the fact that Imagination Technologies was creating cutting edge, power-efficient GPU architectures appealed to me. Fortunately, I have landed a place in a really friendly department, doing work that I really enjoy."

Awareness campaigning

To tackle the UK's skills shortage in Electronics a long-term campaign is required. The UKESF has developed a joined-up programme of focused engagements to inspire students about Electronics at school and encouraging them to pursue STEM subjects through to A-Level. This is being achieved by partnering with established providers of STEM enrichment activities, such as the Engineering Development Trust and the Smallpeice Trust.

"The UKESF has developed a joined-up programme of focused engagements to inspire students about Electronics"

The UKESF sponsors a number of residential courses for 16–17 year olds, which is delivered in partnership with sponsors and speakers from the Electronics sector and academics from leading universities. This gives students a taster of degree study and careers in Electronics ahead of making their UCAS applications. So far,12 participants have subsequently been awarded a UKESF Scholarship.

Teachers, especially Science and Design & Technology teachers, are vitally important in influencing children's interest in STEM. However, the reality is that too few of these teachers know enough about Electronics to effectively stimulate interest and enthusiasm in the sector. The UKESF has partnered with the National STEM Learning Centre on their STEM Insight Programme which supports teachers to take part in week long placements with STEM employers.

The UKESF has also developed, in partnership with the University of Southampton, a CPD course for Physics teachers to increase their knowledge of Electronics and to provide some innovative classroom resources.

ACTION PLAN

The UK's Electronics industry needs to work collaboratively to ensure its future success. Here's how:

- Boost the image of the UK's Electronics industry, highlighting its importance to the UK economy
- Promote the study of Electronics at all ages both inside and out of the classroom, emphasising the message that Electronics is about using technology creativity to develop innovative products to help solve problems and make people's lives better
- Support educators such as physics teachers wishing to increase their confidence and skills in teaching Electronics
- Increase efforts to boost the appeal of Electronics to female students
- Continue to lobby the Department for Education to consider Electronics when updating the National Curriculum
- Create work placement programmes that challenge and inspire talented Electronics students
- Support UKESF in its future activities with resources, ideas and inspiration

"Moving beyond talk, to take positive action to tackle the skills shortage is what the UKESF is all about"

Stew Edmondson

THE UKESF

The UKESF is an educational charity, launched in 2010. It operates collaboratively with major companies, leading universities and other organisations to tackle the skills shortage in the Electronics sector. The UKESF's mission is to encourage more young people to study Electronics. As well as working with schools, the UKESF helps undergraduates and prepares them for the workplace.

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