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Education and skills

Skills for the new industrial revolution

Suffolk has the best opportunity in a generation to boost the region's economy: energy (renewable and nuclear), advanced manufacturing, high technology. But it also has a desperate shortage of the right skills, while its young people face rising unemployment. In this special skills section **Jane Chittenden** finds out what can be done to address the critical issue of mismatch in skills and opportunity.



The new industrial revolution

The world of manufacturing is being shaped by a new industrial revolution, according to the Financial Times – the most important change since the original industrial revolution that started in northern England around 1780. It's all about harnessing advanced technologies in new ways. And Norfolk and Suffolk are uniquely placed to benefit.

There's a huge opportunity. Whether it's power generation – nuclear power or renewable energy – a lot of it has to be done on the coastline. Nuclear needs water for cooling; wave power and offshore wind all has to take place on the coastline. So there's a great opportunity for us to be a clean energy capital.

Acute lack of skills

But we have far too few people with the right skills. SEMTA (Sector Skills Council for Science, Engineering and Manufacturing Technologies) calculates that in the East of England we already have a shortfall of around 40,000 engineers and skilled technicians. To be competitive, our region's industry needs to recruit new talent and reskill its existing workforce. We need to act fast or we'll lose out. If we don't resolve the shortfall, others will step in.

Why aren't young people going for these opportunities?

Do they see the science-related subjects as too risky in terms of getting good grades? The House of Lords Science and Technology Committee certainly thinks so, in a recent report: "There is good evidence that students are opting for 'easier' A-levels over the sciences and mathematics, a problem which is compounded by the specialisation forced upon students by the A-level system." Or are they simply not considering other options, such as apprenticeships? In Germany two-thirds of young people take up apprenticeships, which are highly regarded, but is there an image problem here in the UK?



The good news

Iain Dunnett (Suffolk Chamber of Commerce) is co-ordinating the work of the Green Economy Manifesto for New Anglia LEP, which shows government and businesses how our region's excellence in the 'green economy' can be implemented across the rest of the UK. He says there's plenty of good news about funding to develop the skills we need. There's the Coastal Communities funding (which will benefit the whole region's supply chains, not just the coastal belt); the Growing Places fund; regional growth funds. "They're starting to support things we've been talking about for some time – low carbon jobs, green economy jobs, energy jobs. The timing is very good, because we published the Green Economy Manifesto in June, which showed that these sectors have got huge potential in Norfolk and Suffolk."

Raising awareness about the challenge

If this is the biggest opportunity for the local economy in many years – and it really is a new industrial revolution that will transform the region – why don't more people know about it? It's happening now, all around us, but people don't seem to realise just how big it is. Iain agrees: "We have fantastic levels of expertise in our region – such as UEA and the port of Felixstowe – but we need to do more about the connectivity between them, to tell the story more clearly to businesses, schools and communities. And we must learn lessons from North Sea oil and gas forty years ago, when Aberdeen grasped the potential much better than we did. Let's not do that again; let's make sure this time that the response to renewables in Norfolk and Suffolk is *big*."



Andy Wood and Antony Howell
at Hethel Engineering Centre

Antony Howell, Business Development Director at Active Technologies, and **Andy Wood**, CEO of Adnams, met at Hethel Engineering Centre to talk about the skills challenge. **Jane Chittenden** joined them.

New Anglia and the skills challenge

AH: Andy is the chair of New Anglia LEP and I'm the chair of NAAME (New Anglia Advanced Manufacturing and Engineering) with a focus on skills. Andy and I work very closely together on trying to improve the careers guidance in schools, with an ultimate aim of supporting economic development.

JC: I'm hearing that so many young people are going down career paths such as media, or hairdressing, because that's what they know. But there are so few jobs in those sectors. The real opportunities are in advanced engineering – the low carbon economy.

AW: That's certainly where the opportunities lie – and where the skills shortages are most pronounced. As a business community we need to do more in communicating to young people what great careers they can have in manufacturing and in engineering. They need to know which skills they should learn and how they could stand them in good stead for many years.

AH: That's why it's so important for young people to be aware of the types of jobs they could be doing, and to be inspired. We are so well placed here in Norfolk and Suffolk, with cutting-edge industry and so much potential. And once they get the exposure to what's possible, coming in to work experience with us, we find that they are encouraged to move away from what they know. That exposure is what's lacking. It's holding them back from making informed choices.

AW: I think it is. You have some young people who choose to leave school and go into the world of work. Some choose to go into further education and some will choose to go into higher education. They complete that process, but I don't think enough of them are being equipped with enquiring minds.

So I'm not sure that the learning continues when they get in the workplace, unless they are on a specific programme that enables that development. I guess that the three of us, who have been round the block a few times, recognise that we learn something every day. Above all, what we've got to do is to bring out young people with enquiring minds, asking questions such as: how does that thing work? why does it work that way? How can it be improved? so that they continually learn throughout their careers.

Getting them into the world of work, whether they're coming from school, FE or HE, and saying to them: "Actually, this is about continual learning," is vitally important, just as much as teaching them the specific skills.

AH: It is. And it's a struggle for schools. We had some young people here on work experience just recently, who are doing eleven (or ten and a half) GCSEs. These students have too little time to enjoy a study section within that; it's all so intense. But as employers, when we look at their school results, are we going to say: "Oh, yes, you've done really well in ten or eleven GCSEs"? Or are we going to say: "Oh, you've done pretty well in maths and English and so on; yes, that looks good. Now what experience have you had? What have you done in volunteering?" But schools are focused on these ten GCSEs; they can't afford them the time to come out into the workplace, or employers to come into schools – there's a real problem there.

JC: I'm told that employers want four things: literacy, numeracy, attitude and values. The attitude and values can't be formally taught in school; it doesn't happen like that. So one of the things we need to look for is the role models, the inspirational people they can look up to.

We are blighted by a notion that divides academic and vocational into first and second class educations, while non-cognitive abilities, the ingredients that make up employability, are an 'extra' instead of an integral part of learning.

In Scotland, by contrast, the Curriculum for Excellence teaches skills for learning, life and work, trying to help young people to be self-aware, adaptable, resilient and determined – in or out of employment. These skills are gold.

The Observer, 2 February 2012

Raising the Bar Suffolk County Council's Raising the Bar is a joined-up response to tackle local skills shortages in some sectors, as well as improving the employability of Suffolk's young people. It is about raising attainment and aspiration across the whole age range from early years to further education in Suffolk. It is also about linking the jobs on offer in Suffolk with the skills needed by improving connections between employers and schools and colleges in Suffolk. It was launched at a conference attended by education, business and community leaders at Trinity Park on 14 June 2012. Further events are planned for later in 2012.

www.suffolk.gov.uk/your-council/plans-and-policies/raising-the-bar-briefing

AW: Yes, that's true; however some of the problems that we find ourselves with now are because of attitude and values – by having the wrong incentive plans in place by taking a short-term perspective. We need to reset the dial on all of this. That's why Antony and I are working together, because a million 18 to 24 year-olds out of work is an absolute tragedy. And yet the opportunity is there – it's there now and it's coming down the tracks, and we need to sweep away all the cynicism around this Green agenda. There are going to be great opportunities in renewables, in greening the economy, in developing our engineering businesses, and we need to understand that. We can't just say: "We don't have the young people to do that at the moment". If we don't take action, young people in Norfolk and Suffolk will lose out and young people from Denmark or Holland will be shipped in to do the work or the work will be shipped out...

AH: To India or Brazil, or wherever.

AW: There's an initiative in Suffolk called *Raising the Bar*, which is about raising young people's aspirations. It's chaired by Matthew Taylor, CEO of the RSA, and it's being sponsored by Suffolk County Council, and supported by New Anglia LEP. This is where a number of business people are coming together to see what they can do about raising aspiration – again, critically important.

I'd like also to return to this issue of careers advice that you've touched on. It's about getting greater alignment between business and schools. While teachers are doing a sterling job – and a difficult job – they've not got the time to give careers advice and in many cases they've not got the experience to give careers advice. Business people want people coming out of schools with numeracy, literacy, the right attitude and values... all the things that we've talked about – but there's a mismatch between the education system and business that we really need to close. And teachers and business people need to find a common vocabulary, so that we talk about young people and their advancement and opportunities in the same language.

AH: A step towards that has been this move to talk about destinations, so that schools are measured on the destinations of their young people, rather than simply their exam results and whether they are going into sixth form or university. When you ask young people what they are thinking of doing, every one is talking about A-levels and sixth form and then university. For some young people that's exactly what they should be doing. But it's not for everybody. And that's where that switch has happened. You can see it in the data, and now with the tuition fees increasing, that will turn people off. All of a sudden they've got nowhere to go in terms of that HE/FE route and they've got no information about what else to do, such as apprenticeships. So they end up becoming NEETs (not in education, employment or training); they're stuck.

Better information in schools, early on, would help to resolve this. In Suffolk we've launched U-Explore as a pilot. It's used nationally, but it doesn't have a strong presence in Norfolk and Suffolk. U-Explore is a software package used in schools to help guide young people's career choices by showing them real-life people at work, find out the types of jobs that would be a good fit with their ability and interest, find out what training is available locally.

AW: There's also a societal issue here. We need to value people who have chosen a vocational career path. There's been a lot of focus on moving into services rather than into manufacturing, disciplines that make things and sell them. And because of that, collectively we haven't done a good enough job in communicating how rewarding and how fulfilling roles in engineering and manufacturing can be. That's part of the issue. The other is the whole rush to get everybody to university and that has led people to take a certain path that may not over the long term be the best for them or the economy. Quite frankly we haven't valued vocational skills anything like we should have done. If you look at the German economy, an engineer is a high status individual. Germany is viewed by many as a powerhouse economy and they really do value those vocational skills alongside academic skills.

One of the challenges is the word 'apprentice'. Still for too many people it implies someone who works with spanners and engines and that kind of thing. We need to sweep that away, because apprenticeships can be in anything. It's about giving people a structured path once they're in the world of work. Young people can make a huge contribution in the workplace, they bring a freshness and an energy. I think there's a hugely compelling case for employing young people, particularly with the pace of technological change that we're currently facing.

JOHN HAYES

Minister for Further Education, Skills and Lifelong Learning, writes about his 'German lesson in Berlin' June 2012

In our country, too often vocational education is seen as second best – an easy alternative to 'real' learning. Some think practical skills are for other people's children – not their own. Parents in Germany think differently, where two-thirds of young people take some form of apprenticeship by the time they are 25. And that's how I want it to be in Britain.

I think apprenticeships should be amongst the key gateways to university level study. After all, good apprenticeships with top employers such as BAE, BT and Rolls Royce are more oversubscribed than degree courses at Oxford or Cambridge. So we're putting in resources and boosting the number of degree level higher apprenticeships to at least 20,000 by the end of this Parliament.

Suffolk's take-up of apprenticeships

Region	Local Authority	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
East of England	Suffolk	2,530	2,530	3,670	3,670	3,710	5,360
England Total		172,600	181,800	221,500	237,100	276,900	453,000

The National Apprenticeship Service (NAS) can help individuals to find an Apprenticeship. There are around 8,000 jobs advertised on Apprenticeship vacancies at any time <http://www.apprenticeships.org.uk/Be-An-Apprentice/The-Basics.aspx>

New government support for SMEs announced 29 August 2012

The Government is adopting the recommendations of the Holt report. New measures include:

- Enabling SMEs to get their apprentices the training they need, by providing better information on availability and investigating how to give them a greater say in developing the skills they need
- Improving the performance of providers of training to SMEs by agreeing standards and the consequences of not meeting them
- Improving the Apprenticeship Grant for Employers by making it simpler and more accessible to more employers

JAINE BOLTON, Chief Operating Officer, National Apprenticeship Service says:

"Apprenticeships lead to good careers with real progression and are available to people of all ages. With over 250 skills and industries to choose from – representing 1,400 job roles and national awards, competitions and celebration events to reward apprentices success, there has never been a better time to do an Apprenticeship."

"Encouraging more people to take up quality Apprenticeships is absolutely vital in equipping young people with the skills that Britain needs to grow."

Apprentice Jason with Antony Howell at Active Technologies, Hethel



STEMNET Ambassadors

STEMNET creates opportunities to inspire young people in Science, Technology, Engineering and Mathematics (STEM). The national STEM Ambassador programme is funded by the Department for Business, Innovation and Skills (BIS).

Suffolk Energy Ambassador programme

Suffolk County Council launched the Suffolk Energy Ambassador programme this summer, which looks to link every county secondary school to the energy sector.

The Ambassador programmes are very flexible and allow ambassadors to choose how much time they invest in their role and focus on their specific STEM or energy interests. Not only will ambassadors be giving back to their community, but they will be encouraging new entrants into the industry – their future workforce.

To find out more about becoming a STEM or energy ambassador, visit: www.stemnet.org.uk

Business in the Community

Business in the Community (BITC) is a business-led charity focused on promoting responsible business practice.

BITC has a growing membership of over 850 companies and a further 10,700 companies engaged in our campaigns globally. Our member companies help to transform communities by tackling key social and environmental issues and in doing so, transform themselves.

We do two things.

We ask our members to work together to transform communities by tackling issues where business can make a real difference.

We offer our members practical support to help them to integrate responsible business practices wherever they operate.

“Our vision is for every business to act responsibly and so ensure a sustainable future for all.”

www.bitc.org.uk



AH: I come to this skills debate from a passion of being an apprentice myself and working my way through the organisation. 25 years later, I was leading the whole global organisation. I'm a Suffolk boy who went on to have manufacturing plants in Mexico, America, sales offices in Europe and then created a manufacturing plant in China – all of this came from being an apprentice.

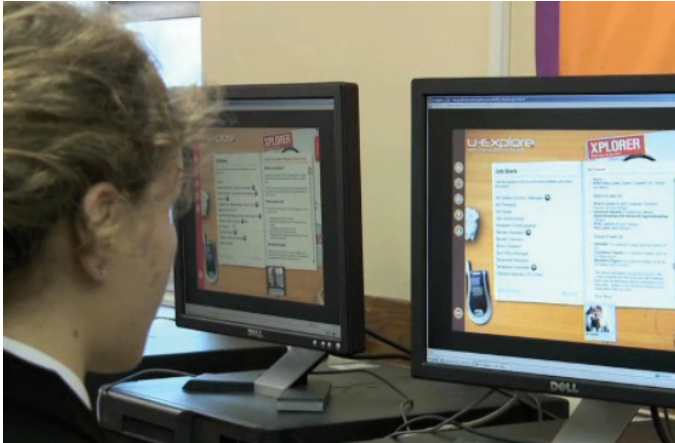
JC: What can Suffolk businesses do to help? In practical ways, how should they be getting involved?

AH: They should be looking at apprenticeships for the advantages that their business will gain. Work experience programmes are very valuable, which will enable them to identify individuals within the schools who could have just the potential that they want. They can keep in contact, maybe mentor a young person, perhaps bring that individual into the business later on. But all the time they are engaging with the school and helping the school develop the right kind of skills within the school environment. Any engagement they can have with the schools and the community will be a two-way benefit – it might be through a scheme like the STEM ambassadors or the Suffolk Energy Ambassador programme.

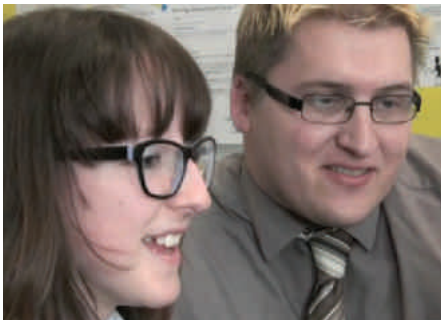
AW: Business in the Community has a scheme called Business Class, where a business leader or a business will provide staff to go into schools. That might be working with the faculty, talking about opportunities outside the school to bring teaching staff up to speed, or it might be working with children and talking about the opportunities that exist. It might be acting as a role model for a group of people. Engaging in that way I think is critically important. This is a team effort, and we're not going to do this unless we do it as a team. We can't just leave it to teachers or college staff; we all need to get involved or we will miss another opportunity.

JC: It's becoming urgent, isn't it? We can't afford to miss out.

AW: We need to take steps now. It can take about 12 years to bring a new nuclear power station to generating capability. And the East Anglian array, if it goes ahead, will be the biggest wind farm in the world; it will be being built for years and years. Most of the young people who are going to be working on those facilities maybe haven't even started school yet. So we need to be putting what we know about the skills that are going to be required into our education system now. We have a window of opportunity. We're not too late!



U-Explore Waveney informing and inspiring young people about career choices



U-Explore is a web-based resource that informs and inspires 14-18 year old students about the world of work in their area. It uses applications such as video case studies, virtual tours and interactive skills logs to bring the working world to life in the classroom, helping students to make informed decisions about their future. It has been developed by U-Explore Ltd and is used in thousands of schools across the country.

The U-Explore Waveney site was launched on 23 February 2012. It is backed by Enterprise Lowestoft, Suffolk County Council, Waveney District Council and the New Anglia Local Enterprise Partnership. 11 schools and colleges from across north-east Suffolk are involved. The schools are Ashley School, Lowestoft; Benjamin Britten High, Lowestoft; Denes High Lowestoft; Leiston High; Old Warren House (Pupil Referral Unit), Lowestoft; Pakefield High, Lowestoft; Sir John Leman, Beccles; and Stradbroke High. Bungay High School will be joining the initiative in the near future. The colleges are Lowestoft College and Lowestoft Sixth Form College.

U-Explore Waveney will contain a wealth of information about the requirements for entering employment or moving onto further training locally. As the project develops the platform will be populated by local businesses, helping young people to plan the next steps for their future career. For example, there's a 360° tour of Adnams in Southwold. It shows the brewery, pubs and wine shop outlets, which enables young people to understand the range of careers they could take up at the company – it's not just about brewing beer.

U-Explore's founder, Andy Pickles, is working with Lowestoft College to enhance the system's functionality with NearMe, which shows students the opportunities for work experience and training in their area. This is especially important in a rural area like Suffolk.

Hazel Johnson is chair of Enterprise Lowestoft, the lead organisation for Waveney U-Explore. She says: "Being well informed is the key – for young people, their teachers, parents and carers. That is why this resource is so important for them. It will help motivate young people and raise aspirations."

Antony Howell is director of Active Technologies Limited and chair of New Anglia Advanced Manufacturing and Engineering (NAAME). He is championing the initiative: "The dream is to have U-Explore in every school in Norfolk and Suffolk, working in partnership with other software. Then we as employers will know that our young people have got all the information that they could possibly need, at their fingertips within the school environment and at home, to enable them to make these informed choices. Eventually the plan would be that they have the knowledge from primary school all the way through to their working career; they'll understand the options, the choices they need to make and what's available on their doorstep. That's the ideal situation. The sooner we do that, the sooner we'll get more people coming through for apprenticeships and we solve the problem of the skills gap."

For more information visit www.enterpriselowestoft.co.uk