

# TECH SOUTH WEST

## TECH SKILLS: SHAPING THE FUTURE TODAY

Identifying the  
skills we need  
for the tech  
sector to thrive



# INTRODUCTION

Talent underpins success. Encouraging and helping young people understand the opportunities for exciting careers within our sector is vital to expanding the homegrown 'talent pool' across our region. To do this, the education sector needs to be supported and guided to develop and deliver the right learning content in the right way.

Education and business together will help create the very best 'talent pool' that we can.

And that is why Tech South West invited its members to take part in two Skills Summits, in Exeter and Bristol, to identify what skills we believe our sector needs to thrive now and in the future.

Company leaders, employees and freelancers mixed with representatives of education organisations and social enterprises, debating the issue and setting out those skills.

At both summits, it was clear that this is not just about technical skills, but a complete array of requirements, combined with a learning approach, that delegates believe is essential to fostering the next generation of tech talent and giving them a relevant skill set in a fast-changing world. Delegates want this to be mixed with a focus on producing 'well-rounded individuals', who understand the tech sector, are shown the opportunities and are able to develop the mix of soft and hard skills we need.

This report is for you to consider and respond to. Copies have been sent to schools, colleges and universities across the region, to every council and key regional organisations including Local Enterprise Partnerships, Digital Skills Partnership, Great South West and to central Government.

We hope it helps shape activity on the ground. With this in mind, Tech South West will continue to play its part, including showcasing great tech education, putting talent and education at the heart of the new Tech South West Awards being launched in 2019, and ensuring the findings in this report are shared and discussed with key organisations and decision-makers.

We urge our members to play their part. For business members, consider the ways you can connect with local education providers, support opportunities, develop projects and programmes that allow young people to learn from you, to get a feel for a great tech organisation and to see the diverse role models that exist, here, on their doorstep, in the South West.

Some see such activity as too time-consuming and lacking immediate results. Others see it as part of who they are, essential to their brand, their long-term talent and growth strategies, and their approach to forging a business with purpose that contributes and makes a real difference.

## TELL US

- What are you doing to help progress the skills agenda?
- What's missing in this report?
- What do you need help delivering?

Every year Tech South West surveys its members. Every year, lack of homegrown talent emerges as a key barrier to the sector performing even better than it already does.

We cannot control economic uncertainty across the UK or the world, but we can help shape the efforts to develop our own people in our communities across the South West.

Please share this report and share with us the efforts you are already making, the progress already being made, as we look to showcase just how business is working with education across the region in the coming months.

**Dan Pritchard**  
Tech South West steering group  
March 2019



# ABOUT TECH SOUTH WEST

Tech South West helps support, showcase and celebrate the region's tech sector.

With more than 10,900 tech companies across the South West employing over 135,000 people (Tech Nation 2018), tech is the fastest growing part of the region's economy.

Tech South West's objectives are to help 'join the dots' within the sector around the whole region, showcase and celebrate the sector and its many achievements and help grow the 'talent pool'.

We believe that having a supportive business environment and wonderful living environment will help attract top talent, inward investment and the best organisations to the South West.

The diversity of the sector, the variety of organisations in terms of specialisms, size and location, is a key strength. People need to know there is a vast array of opportunities in tech across the South West to allow them to fix on and progress exciting careers.

It is about the variety of businesses, but also the strength of cluster organisations like Tech Exeter, Tech Spark, Northern Devon Digital, Software Cornwall, Digital Plymouth, initiatives like Agile on the Beach, the Sparkies Awards and SHIFT programme (amplifying the voices of underrepresented individuals within the sector), and the education providers (in terms of learning and research) including our universities, colleges and schools.

The challenge for Tech South West and the thousands of tech companies in the area is to showcase the South West as an emerging, world-leading hub for technology and innovation.

The South West is a global leader in areas critical to the future well being not just of the economy but the planet itself, being at the forefront of research and development in climate science, marine technology, environmental science and agri-tech, and aeronautical engineering.

Technology is fundamental to each of these, and their ability to innovate, find solutions and bring prosperity.

Tech South West covers the whole region, from Cornwall and the Isles of Scilly to Gloucestershire and Wiltshire. Bath and Bristol, Bournemouth and Poole, Devon, Dorset, and Somerset are all part of Tech South West.

**For more information and to join [www.techsouthwest.org.uk](http://www.techsouthwest.org.uk)**

# OUTPUTS FROM THE EXETER AND BRISTOL SKILLS SUMMITS

## WHAT SKILLS DOES THE TECH SECTOR NEED NOW?

### TECHNICAL SKILLS

- Python
- JavaScript
- Cloud architecture
- Data engineering
- Cyber (understanding of the impact of GDPR)
- Understanding of mobile devices
- Quality assurance/testing (more at a mid and senior level)
- Mid-level devices - all languages
- Dev Ops (enterprise software development)
- Cloud-focused expertise
- Framework
- Project-based people
- Threat awareness
- Artificial Intelligence
- Machine Learning
- Virtual Reality /Augmented Reality
- Ethical understanding - issues, supply chain, consumers
- Headless and Blockchain
- Automated testing
- User experience (UX) design skills
- Web development
- Digital marketing
- Email

### SOFT SKILLS

- Well-rounded individuals (professional and human skills)
- More of an early stage focus on aptitude and attitude
- Wider business understanding from young people coming out of education
- Leadership skills to help manage teams, grow business and support for new business (leadership development)
- Pipeline development from business and education to be more aligned
- More of a focus on vocational soft skills such as:
  - General problem-solving
  - Commercial awareness and teamworking, better self-awareness from learners
- A more consistent focus on the diversity of experience and background required
- Contextual skills such as finance
- Critical and interpretation skills
- Creative thinking (links back to problem-solving)
- Project management skills
- Skills within HR - education and business need to better recognise the right people for the right job, and that this is about attributes and attitude; looking at a broader mix - psychology students for example
- Client communication skills

### CULTURE CHANGE PRIORITIES

- Education teaching wider skills, not just the current specific needs
- Thinking about technology being part of all conversations (and all sectors) rather than as a silo

## WHAT SKILLS ARE REQUIRED BY TECHNICAL STAFF FOR THE NEXT FIVE YEARS?

### EMERGING TECHNOLOGY

- Artificial Intelligence, Machine Learning and Blockchain Developers
- Artificial Intelligence professionals with a strong understanding of ethical impacts
- Quantum computing and tech
- Virtual Reality / Augmented Reality / Mixed Reality developers and people with the business skills to implement in business (a mix of business skills)
- Hardware design (need a local pipeline of talent. Currently, most done by external talent outside the SW)
- Software design (need a local pipeline of talent. Currently, most done by external talent outside the SW)
- 5G telecoms infrastructure skills
- Digital innovators, who are looking - what next, how do we embrace future trends and take advantage of them
- Programme language
  - Javascript
  - Python
  - C++
- 'Gig Economy' - ensure more experience in short term roles to create more well-rounded and experienced individuals, who need more understanding of:
  - Technology sector
  - Data collection/analysis
  - Sector-specific knowledge (experience in different sectors - tech relevant in all)
- Data analytics
- Machine learning
- Statistical analysis
- Business understanding of new tech

### EDUCATION

- Development of courses reflecting the pace of change
- Awareness in the educational environment of the opportunities in tech especially at primary/secondary school level
- A focus on lifelong learning to access new skill groups like returners, carer changers and veterans etc
- More of a focus on soft skills like general problem-solving, commercial awareness and team-working
- Emotional intelligence
- Creative skills
- Ethics and moral obligation (try to breach the gap between age groups)

### BUSINESS

- A shift in recruitment - more tech agnostic/ holistic and problem-solving potential than specific languages
- Focus more on recruitment - use better processes than standard letter and CV, e.g. video, effective skills tests for candidates, better ads with clarity around the employee and job that attract the right people
- Better links with educations as they provide more short-term options such as placements/internships, so skilled workers can have a more varied knowledge and skills to bring to a company
- Blended learning - education and business collaborations

# IN THE EDUCATIONAL EXPERIENCE WHAT WORKS AND WHAT DOESN'T WORK?

## WHAT IS WORKING:

### COMMUNITY

- Peer Programmes in business and mentorships
- Focused meetups and special interest groups, potentially hacks
- Peer-to-peer training

### BUSINESS

- Enabling 10% of time for projects like passion projects
- Enabling learning in a commercial environment and being close to projects so it's not theory based. Often having the combination of placements and blended learning
- Reaching out to new communities like digital mums, veterans, returners and people retraining, has been great to change the diversity of businesses and uncover different skill sets/levels of commitment
- Development of internal academies with specific needs met (Bristol IT consultancy BJSS do this)
- Accepting that it shouldn't be a one size fits all
- Prioritizing learning around curiosity and a drive to learn over people with formal qualifications
- Conferences
- Blended learning has to be :
  - Cutting-edge
  - Sharing best practice
  - Inspirational
  - Like-minded people
  - Workplace continual learning

### EDUCATION

- Getting the right apprenticeship standards - making it relevant to what businesses need
- University can be great, where the focus of the work is cutting edge and can access world-leading academics
- Online courses (for what they provide they work well)

## WHAT ISN'T WORKING:

### COMMUNITY

- Hackathons where they either don't have a clear focus or are just used as a way for companies to cheaply solve any issue/innovate.
- Formal Conferences
  - Content often isn't relevant
  - Content is difficult to absorb/put into practice
  - Cost money
  - Use up a large amount of time
- Need information on what online courses actually work/help. Where is the evidence?

### EDUCATION

- Many of the Further Education/Higher Education courses offer content which is out of date or not relevant
- Much curriculum-based learning does not take into account different learning styles, changing needs or is connected enough with the industry
- Many of the leads on courses aren't industry professionals or aren't engaged day-to-day with the sector - how can more be supported to achieve this?
- Formal training courses using traditional models of learning often take some time out of businesses and aren't specific enough to needs or learning styles.
- People with mid-level autism - their development isn't working so well in the education system, though it works well in many workplaces. How can this be addressed - placements etc?
- Young people who have good grades but lack business skills
- Skills taught in schools are often outdated
- Not creating creative thinkers
- Lack of understanding of opportunities in education can lead to demotivated workers further down the line - unable to fulfil their potential

### BUSINESS

- Internships, when they're not done in the right way, can be terrible learning experiences. This can be about not giving people relevant tasks, not devoting time to interns or not paying them
- Any one size fits all approach to learning, recruitment or development is ultimately self-defeating
- Experiential learning

# THINKING DIFFERENTLY: WORKING TOGETHER

The adage 'recruit for attitude, train for skills' doesn't mean we should ignore how skills training is delivered. Thinking creatively is required to meet the challenge of attracting, growing and retaining our own talent pool in rural areas, as it is clear we do have a lot to offer.

Applegate have very successful workplace Degree Apprenticeships in place to develop skills in-house, in tandem with more formal training, alongside their First Rung scheme, providing up to £20,000 to help them get on the housing ladder. This is aimed at attracting and keeping the brightest and best from in and beyond the area.

Lineal use industry-specific training alongside successful apprenticeship programmes. They have also worked closely with their local Pluss office, who support people with disabilities into employment. Several work placements for those on the autism spectrum have progressed into full-time positions as software developers.

Both companies work closely with local training provider Petroc to achieve quality training to upskill their staff. By thinking differently and working together, creating a talent pool is absolutely achievable.

**Paula Byers**  
Chair, Digital ND

# NEXT STEPS

## Tech South West will

- Share the findings with our members, partners and other key organisations
- Continue to encourage comment, ideas and progress from the tech sector, Tech South West members, partners and key organisations
- Support the setting up of a think-tank involving representatives of education and business, adopting a collaborative and co-creation approach, to review the findings in more detail, explore opportunities, identify examples of where innovative practices are working well and develop potential prototype approaches that can be progressed.

The opportunities, requirements and concerns are many, and the work is complex. The 100 people who contributed to the two Skills Summits were more business than education focused, reflecting the mix of our membership.

Lists can be overwhelming. The challenge is understanding the needs and creating the actions and then delivering on them. At the same time, activity needs to be constantly reviewed to ensure activity remains relevant.

That is why we believe it is important to continue to develop links and partnerships between education and business.

At the Skills Summits, there was recognition that education has come a long way and is working harder than ever before, in tough financial times, to support and help young people learn relevant skills, but that there is still a long way to go until every education provider is delivering everything that is required. Perhaps that is an impossible 'ask', but that does not mean we should not work towards it.

Tech has risen up the agenda. Primary schools were praised at both Skills Summits for the progress made in recent years. Colleges too now offer more relevant courses in many instances, with high-quality learning and good links with local businesses. There was less certainty about the success of secondary schools in recent years.

Despite the challenges, people were positive about the opportunities and for the need to support education providers in their vital work.

To get involved in the debate, to connect with Tech South West and our members, join at [www.techsouthwest.org.uk](http://www.techsouthwest.org.uk) contact us at [members@techsouthwest.org.uk](mailto:members@techsouthwest.org.uk) and share with us your views, experiences, activities, initiatives, ideas, requests for collaborations...

We want to know what you are doing to help grow the talent pool. We want to celebrate best practice. Join the conversation and help us to join the dots, celebrate success and help the sector progress.

**Toby Parkins**  
Chair Tech South West

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# TECH SOUTH WEST

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