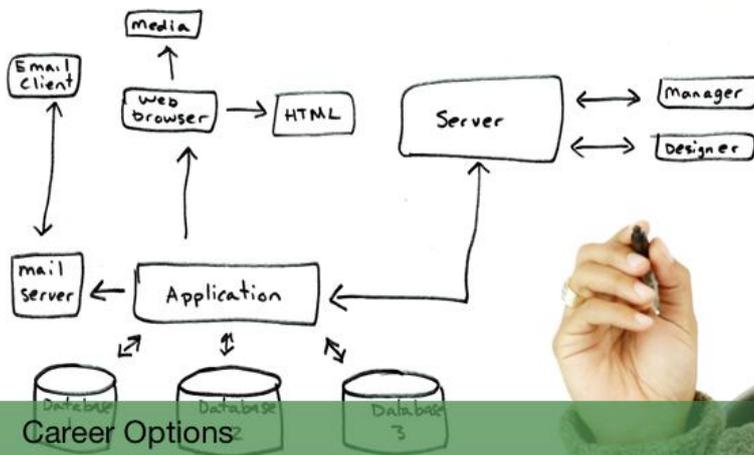


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Women in ICT/Digital



Fast Facts

Staff in the Spotlight

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The National Picture

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Career Options

Types of Careers

Information technology is a major influence in most of our lives at work and at home. There are many different careers in computing, requiring a variety of skills, qualifications and experience.

The UK depends on its ICT/Digital and Telecoms workforce within the sector itself and across education, health, engineering, manufacturing, retail, construction, logistics, media, finance, government – and many more industries.

According to “Technology Insights 2012”⁽¹⁾, there are some specific technologies that are **emerging** in the digital sector:

Cloud Computing	<i>Internet-based computing, where different services (such as servers, storage and applications) are accessed through the Internet. IDC noted that between 2012 and 2015, over 220,000 jobs will be created through cloud computing in the UK⁽²⁾</i>
Green IT/ Environmental Computing	<i>Minimising the environmental impact of IT from design through to disposal, energy/power consumption, including roles in environmental impact assessment</i>
‘Big Data’	<i>Requiring skills in data modelling and simulation. Organisations hold massive volumes of data about people that is difficult to process using traditional databases and software. For example, if a supermarket wants to use information to target customers with a special offer they need analysis of the information they hold about sales records, transactions, loyalty cards, online shopping and digital video systems. To do this, staff will need skills in areas from mathematics to programming, and from psychology to server maintenance</i>
Security and Data Protection	<i>Fixing the vulnerabilities of system infrastructure. Many organisations are hiring specialists to ensure they meet their data security obligations</i>

Challenging Occupational Gender Stereotyping Women in ICT and Digital

Here's a flavour of some of the roles that are available in the ICT/Digital and Telecoms Sector:

Occupational Area	Skills	Examples of Roles
Information and Communication Technology managers	Planning and organising work Developing and maintaining networks Software and hardware support	<ul style="list-style-type: none"> · Data Processing Manager · IT Manager · Systems Manager · Project Manager
IT Strategy and Planning	Providing advice Solving problems	<ul style="list-style-type: none"> · Computer Consultant · Software Consultant · Project Manager
Software Professionals	Design, development, testing and operation of software systems	<ul style="list-style-type: none"> · Analyst/Programmer · Software Engineer/Analyst · Systems Designer · Games Developer · Web Designer/Developer · App Developer · Software Publisher · Technical Architect
IT Operations Technicians	Running computer systems and networks Preparing backup systems Checking and testing	<ul style="list-style-type: none"> · Database Manager · IT Technician · Network Technician · Systems Administrator · Web Master
IT User Support Technicians	Providing technical support and advice face-to-face, by phone, email or network connection	<ul style="list-style-type: none"> · Help Desk Operator · Helpline Operator · Support Technician · Systems Support Officer
Database Assistants and Clerks	Create, maintain, preserve and update information held on electronic databases	<ul style="list-style-type: none"> · Computer Clerk · Data Entry Clerk · Data Processor
Tele-communications Engineers	Install, maintain and repair public and private telephone systems	<ul style="list-style-type: none"> · Technical Officer · Engineer · Technician
Line Repairers and Cable Jointers	Install, maintain, test and repair overhead, underground, surface and submarine cables	<ul style="list-style-type: none"> · Cable Jointer · Telephone/Telegraph Technician
Computer Engineers	Install, maintain and repair PCs, mainframes and other computer hardware	<ul style="list-style-type: none"> · Computer Engineer · Maintenance Engineer · Service Technician
Education	Communication, planning, organisation, transferring knowledge and skills	<ul style="list-style-type: none"> · ICT Tutor · Lecturer · Teacher

Challenging Occupational Gender Stereotyping Women in ICT and Digital

What employers are looking for

Employers may be looking for people who:

- Can solve problems creatively
- Have a good eye for detail
- Are organised and methodical
- Have a logical mind
- Have technical competence and experience
- Are proactive in keeping up to date with IT developments
- Have good project management skills
- Have the ability to work under pressure and meet deadlines
- Have good communication and social skills

Things to consider

Gender imbalance remains a significant issue for the sector - there has been a **fall in female representation in the workforce** from 22% in 2001 to 18% in 2011.

Gender imbalance also exists across IT-related courses. 15% of applicants to computing degree courses are female. The proportion of females who sat the 2013 Computing A Level is 6.5%, 1.3% lower than in 2012.⁽³⁾

Work-based Routes

Traineeships

Traineeships are available to young people aged 16- 23 years old, who do not have formal work experience or a level 2 qualification.

The traineeship will last between 6 weeks and 6 months. Through work experience individuals can develop skills to help them apply for an Apprenticeship or move into work. English and maths must be studied if you don't have GCSE/ level 2 qualifications in these subjects. On completion of the traineeship you'd achieve a Traineeship Completion Certificate.

<http://www.apprenticeships.org.uk/employers/traineeships.aspx>

Apprenticeships

An apprenticeship framework sets out the minimum requirements to complete the apprenticeship at each level and for each occupation.

Frameworks exist in the following areas:

IT Applications Specialists, IT & Telecoms Professionals

IT, Software, Web & Telecoms Professionals, Network Engineer

In 2009/10, over 18,500 females achieved an IT/Telecoms related NVQ.

Pay rates by age can be found at the following link.

<https://www.gov.uk/apprenticeships-guide/pay-and-holidays>

Example – Advanced Apprenticeship in Information Security

In 2010, the National Security Council highlighted attacks on computer networks as among the biggest emerging security threats to the UK.. Information security is a business survival issue for every company in every sector. Across Europe, most businesses have detected cyber security incidents that can result in financial loss, intellectual property theft, and loss of customers. PWC estimate that the market for cyber security products will grow by 10% each year. The apprenticeship includes completion of a Level 3 Diploma in Information Security.

Jobs might include:

Network Security Officer (Planning, implementing, upgrading and monitoring security measures for the protection of computer networks and information).

Penetration Tester (Evaluation of computer and network security by simulating attacks on a system or network from internal and external threats).

Example – Intermediate/Advanced Apprenticeships for IT, Software, Web and Telecoms Professionals

This framework includes technical content e.g. Software Development, Web Development, Technical Support, Telecoms and Databases. The Intermediate Apprenticeship includes qualifications at Level 2 (for example L2 Diploma in ICT Systems Support, L2 Certificate in ICT Systems and Principles). The Advanced Apprenticeship includes qualifications at Level 3 (for example L3 Diploma in ICT Professional Competence, BTEC National Diploma in IT). The minimum duration for Intermediate and Advanced Apprenticeships is 12 months.

Jobs might include:

Support Technician (Setting up new equipment or upgrading existing systems).

Helpdesk Professional (Working with customers – primarily over the phone and email – to identify, troubleshoot and escalate IT faults).

Field Operations (Travel to customers' sites to install, connect, maintain, test and repair equipment and services).

Software/Web Developer (Creating software applications and websites).

Network Engineer (Maintaining company networks, including software, servers and security).

Challenging Occupational Gender Stereotyping Women in ICT and Digital

Academic Routes

College and University

Higher Education courses include Computing, Information Systems, Software Engineering, Artificial Intelligence, Computing Science, Communications Engineering, Telecommunications Engineering and Satellite Engineering.

It should be noted that employers of ICT/Digital staff also look to graduates of other disciplines when seeking to fill entry level positions as this is seen to provide a healthy mix in the workforce.

According to UCAS, across all IT related HE courses in 2010, 85% of UK domiciled acceptances were male, and 15% were female.⁽¹⁾

Professional Development

The ICT/Digital sector is fast paced and continually evolving. For a large majority of people working in IT, their development is for the most part up to them. Undertaking CPD is expected by the industry and seen by many employers as a key strength. It also gives job seekers kudos among their peers and keeps them at the top of recruiters' candidate lists. Further information can be obtained from the BCS (Chartered Institute for IT):

<http://www.bcs.org/category/16876>

References

- (1) Technology Insights 2012:
<http://www.e-skills.com/research/research-publications/insights-reports-and-videos/technology-insights-2012/>
- (2) IDC (International Data Corporation) Cloud Computing's Role in Job Creation 2012
- (3) Information Security (England) Apprenticeship Framework 8/11/13

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Fast Facts

- **Ada Lovelace** (b.1815, d.1852) is recognised as the world's first computer programmer for her work on Charles Babbage's early mechanical general purpose computer ⁽¹⁾
- In the EU, around **7 million people** work in the ICT sector. 30% are women ⁽²⁾
- In the EU the ICT sector is creating **120,000 new jobs every year**. There may be a lack of 900,000 skilled ICT workers in 2015 ⁽²⁾
- 10% of male **graduates** have an ICT related degree. For women, this is just 3% ⁽³⁾
- ICT is a sector without a **gender pay gap** ⁽³⁾
- The European "**App**" **economy** employs 800,000 people ⁽³⁾
- One in six of the women in the 2013 **Forbes Power List** works in the technology field (companies including Google, Yahoo, Facebook, HP) ⁽⁴⁾
- The **percentage of women** employed as IT & Telecoms professionals has declined from 22% in 2001 to just 18% in 2011 in the UK ⁽⁵⁾
- 15% of applicants to Computing **degree courses** are female ⁽⁵⁾
- **Grace Murray Hopper** was an American computer scientist and US Navy rear admiral. She was one of the first programmers of the Harvard Mark I computer, and developed the first compiler for a computer programming language. She popularised the idea of machine-independent programming languages, which led to the development of COBOL, one of the first modern programming languages. She is credited with popularising the term "debugging" for fixing computer glitches (inspired by an actual moth removed from the computer). Owing to the breadth of her accomplishments and her naval rank, she is sometimes referred to as "Amazing Grace" ⁽⁶⁾

References

- (1) http://en.wikipedia.org/wiki/Ada_Lovelace
- (2) <http://ec.europa.eu/digital-agenda/en/women-ict>
- (3) http://europa.eu/rapid/press-release_SPEECH-13-732_en.htm
- (4) <http://www.telegraph.co.uk/women/womens-life/10405226/Coding-still-a-mans-game.html>
- (5) <http://www.e-skills.com/research/research-themes/women-in-it/>
- (6) http://en.wikipedia.org/wiki/Grace_Hopper

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Staff in the Spotlight



Holly Richardson
Computing Student

Teaching computing is Holly's ambition

When 21 year old Holly Richardson finished her A Levels she decided to take up a Business Administration Apprenticeship with Con Mech Engineers Ltd, a heat treatment specialist in Annfield Plain, Stanley. She gained experience in a wide range of administrative roles as well as quality and auditing, and thoroughly enjoyed her experience and the insight it gave her into working in the private sector. However, after completing her Apprenticeship Holly took the decision to return to academia and pursue her main interest – computing.

In 2011 Holly started a Foundation Degree in Applied Computing with Newcastle College. She has learned about many aspects of ICT including web design, networking, web security and App development. She enjoys her learning journey so much she intends to continue her studies to achieve a BSc in Applied Computing. Holly told us: “The best thing about this course is that I know it has real practical applications that I can put into practice in the future”.

Holly's Dad is a Telecoms Engineer, and has been her main inspiration to follow her interest in computing. Even around the dinner table the conversations they have focus on computing and networking! With 20 students on her course, just four are women. Holly feels that there is still a perception that IT is a “man's world”, and indeed she intends to complete her dissertation on research into women in IT, and to investigate the potential stigma or stereotyping that may exist in the sector.

A self-confessed “IT Geek”, Holly is passionate about computing and the opportunities it can bring to individuals of either gender. When asked what encouragement she'd give to women to consider ICT/Digital as a career, Holly explained: “Even though I wasn't especially inspired about IT at school, I realised that it's an essential part of our society now. If you've dismissed the idea of IT as a career, I'd really encourage you to reconsider. IT is really important in all sectors of business and there are so many different fields you could specialise in it – just try it out!”

At the moment, Holly is considering following a career in teaching ICT, and has started mentoring other students at the College. She added: “Newcastle College has been really supportive and it's a great place to learn”.

Newcastle College: Digital Skills Academy

Newcastle College's Digital Skills Academy delivers IT qualifications and training from entry level through to professional accredited qualifications. <http://www.ncl-coll.ac.uk/>



Jill Holdcroft
Software Developer

IT needs more women!

Jill Holdcroft from Darlington works as a freelance software developer in a company she formed with her husband, Bitformed Ltd. Jill studied maths at university and always imagined that she would go into engineering. However a friend with a computing degree was applying for jobs that Jill found to be much more interesting. She'd never considered working in IT, but found that even without an IT degree it wasn't an issue for potential employers. She joined a company that offered technical training – they sent her on courses, gave her a mentor, as well as on the job training for about 2 years until she was qualified to complete more difficult work on her own.

For the last couple of years, all of Jill's work has come from the same overseas company. This gives her the freedom to work around her children's schedules – working in the morning whilst they're at school/nursery, then again once they've gone to bed.

Jill explained: "I love my job! It suits me perfectly. To me, software development is all about problem solving and figuring out the best way to build something. I spend my days writing code to build a new piece of software, fixing problems with existing code, or talking with my colleagues to figure out the best way to approach building something.

Being a developer is unlike most jobs because you can spend days making no progress whatsoever. But when you write a really clever bit of code or fix something no-one else has been able to fix, it's a very satisfying feeling".

Jill feels that women are still vastly outnumbered in IT and that if you go to a conference there's a very good chance that all the speakers will be male. Jill thinks that if coding was taught in schools, more girls would realise that this industry is a great one for men AND women to work in.

She added "IT needs more women! I've always had lovely colleagues and made lots of friends at work, but I think any office benefits from a more even mix of men and women. If you're interested in working in IT then there is no reason to feel intimidated by the prospect of it being a male dominated industry. I've never felt out of place because of my gender, even if I was outnumbered!"

Jill advised that if you don't take an IT-related degree, to look for a company that offers training for non-technical graduates. "If you're interested in computers, problem solving and building things then, male or female, IT is a fantastic, well paid industry to work in".

Bitformed Ltd
Software development company



Judith Daley
IT Tutor

Judith pursues her passion for IT

“Teaching information technology is very rewarding and gives me a great sense of achievement”, says Judith Daley, IT Tutor with e-achieve in Middlesbrough.

The first 15 years of Judith’s career were spent in non-IT roles in the banking sector. When she was at school, Judith’s Dad encouraged her to study IT, but it wasn’t until some years later that Judith’s interest in IT was rekindled, when she and her husband bought their first computer. She soon started looking after some of the IT systems at work such as making backups and training staff as part of her role in the bank.

After being made redundant from the bank Judith went to work for the adult careers service where she was introduced to Community Learning at Teesside University and started taking some IT courses, wanting to learn more to help with using computers at home and at work. Whilst on courses such as Excel, Access, FLASH and HTML, Judith observed adult learners doing “learndirect” IT training and felt that she would really enjoy teaching adults to use computers. She embarked on an Open University degree in IT which she funded herself, and has studied web design with programming languages such as PHP, ASP, SQL which she hopes to finish this year.

Part of Judith’s previous job was to train staff on their IT and database systems and her employer funded her PTLLS (Preparing to Teach in the Lifelong Learning Sector) course to help her in this role.

Since joining e-achieve, Judith has completed her Certificate in Teaching (CTLLS), is taking her A1 Assessor award and will shortly start her Diploma in Teaching. Delivering a range of IT qualifications from entry level through to level 2, Judith explained: “I love the moment where a learner understands an IT challenge they’ve been grappling with - it’s very rewarding. At the present time I’m enjoying teaching so much I can’t imagine doing anything else”.

“If you enjoy solving puzzles, you’ll love working in IT. As one of the fastest growing sectors globally, there will be lots of IT and Digital job opportunities for people to consider – I’d highly recommend it”.

e-achieve

e-achieve is a leading employability organisation in the North East, helping thousands of jobseekers gain nationally recognised qualifications, and guiding them back into employment. For more information visit: <http://www.eachieve.co.uk/>



Tammy Short
IT Consultant

Consider a career in IT

Tammy developed a passion for IT during her childhood. Her mum owned an early personal computer and she used to enjoy playing educational games on the PC. Her early interest was developed at school where IT was a compulsory course. Tammy then went on to study IT at A-level. After this she completed a combined Business and IT degree as she felt this would give her more employment opportunities when she left university.

Tammy told us: “I began my career providing IT helpdesk support for the County Durham and Darlington NHS Foundation Trust after I finished my degree. I then started with Aspire in 2010 as a Service Desk Analyst and I’ve since progressed to be an IT Consultant. I am the first point of contact for customers who receive IT support from Aspire. I generally work over the telephone, recording problems and trying to solve them immediately. If I can’t solve the problem remotely over the phone or the issue requires more resources I will escalate it. For some incidents I am required to drive to the customer site to resolve the issue. I get a great deal of job satisfaction when I successfully resolve a customer’s problem or implement an effective IT solution. I greatly enjoy working offsite and meeting the customers directly, as I can see how valued I am by the customer to ensure the effective operation of their business”.

As the industry is constantly evolving Tammy is proactive in undertaking the training and development opportunities provided by Aspire, as well as through her own independent learning. She has recently attained a MCSA in Windows 8 and is working to progress her career in networking. She is the most experienced person on the Aspire helpdesk to make changes and resolve telecoms issues with Mitel 3300 phone systems. Tammy said customers are often surprised to meet a woman working in a technical role. “I have never felt discriminated against because of my gender but often as a first point of contact for technical problems, customers think they have been put through to the admin support section as they are talking to a woman. Customer misconceptions are quickly resolved over the telephone and onsite when I successfully resolve their problem or provide an IT solution”. Tammy said she can understand how some women might feel intimidated working in a male dominated environment, but that she has never been treated any differently and Aspire have been very supportive and encouraged her development in the business. Tammy told us that “IT is a very fun and rewarding employment sector. It gives the opportunity to experience new technologies, opportunities to work away and work on prestigious contracts.”

Tammy would encourage any woman who has a passion for IT, who is logical, enjoys problems solving and must have the latest gadget, to consider a career in IT.

Aspire Technology Solutions

Aspire Technology Solutions specialises in hosted services, data centre solutions, communications and traditional IT support. <http://www.aspirets.com/contact-us/work-with-aspire.aspx>

Challenging Occupational Gender Stereotyping Women in ICT and Digital



Courtney Goulden
Data Services Apprentice

IT is always evolving

Before embarking on her career as a Data Services Apprentice with global IT company Accenture, Courtney's career aim was to teach children with disabilities. After she completed a qualification in Children's Care, Learning and Development she met up with a Connexions careers adviser who suggested she might like to look at an apprenticeship with Accenture.

Courtney had always done well in IT at school and liked the fact that computing is seen as a little bit 'different'. Courtney explained: "The recruitment process was pretty intense and scary! It involved a whole assessment day followed by an interview, and I was really happy to be offered the position. There were 20 people at the assessment day, and only two of us were female, which surprised me."

Courtney feels that the GCSE in IT does not necessarily give students enough of an insight into the real world of IT. At her school, there were more females than males on the GCSE course, but this completely changed at college, where very few females continued their ICT education. She told us:

"I think ICT has a reputation as being very male dominated. Perhaps people think it's a bit "nerdy" and they don't want to be classed as a nerd – but it's really not! My advice to girls is to go for it. The rewards are good and you get a lot of job satisfaction from fixing problems for clients. IT doesn't stand still and the skills you need are always evolving – it's a really dynamic environment to work in".

The first rotation of Courtney's Apprenticeship involves working on site for a large client with around 300 other Accenture staff, writing code to develop or fix problems with their database. Soon she will move into testing, building and designing software.

The Apprenticeship will last for three years. Courtney is currently working towards a Level 3 IT qualification at College, and then will move on to a Foundation Degree at Northumbria University.

In the future, Courtney would like to be a Technical Architect, designing IT solutions and websites for clients.

Accenture

Accenture is a global management consulting, technology services and outsourcing company, with offices and operations in more than 200 cities worldwide.

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Employers in the Spotlight



Accenture

Accenture, Cobalt Business Park, Newcastle upon Tyne, NE27 0QQ

As the North East IT industry expands at a significant pace, Accenture recognises that women play an integral role in the success of this sector. Continuing to grow our female workforce is a key goal for Accenture Newcastle and something we are driving forward with a series of long term initiatives. These range from new recruitment programmes to the development of existing staff and are something we would like to think of as our route to success.

The Accenture journey of supporting and promoting women in IT begins at the recruitment stage where we are actively working to increase the number of female applicants for IT roles. Through our relationships with North East universities we encourage female students to participate in our Industrial Placement Scheme as part of their degree and have seen several of these individuals return to Accenture after graduating to embark on successful careers.

As part of our Apprenticeship Scheme we have employed a number of women onto a 3 year programme which combines high quality structured IT training with on-the-job learning. Building on the success of the Apprenticeship Scheme, we believe that to encourage young people to consider a career in IT, we need to spark their interest at an early age. To achieve this, we work with local schools to provide Computer Clubs for Girls to inspire young people to learn computer programming and are specifically aimed at encouraging more girls into IT.

When it comes to existing staff, the development of our people is paramount to the success of our business. Through Accenture's comprehensive learning and development programmes, our female workforce has the opportunity to build the relevant skills to succeed and realise their career goals. In Newcastle, we have a number of women operating at very senior positions across a variety of roles from project management to team leadership, and are committed to investing in the development of female staff at all levels. Through our "Accent on Women" initiative we have built a strong community in which success stories are showcased and shared. This includes Managing Directors providing insight into their own career paths and offering face to face career coaching and guidance to junior female staff.

It is essential that we are able to offer our workforce the chance to develop their careers in a way that complements their individual working situations, and we are aware that this is often different for women and men. With this in mind we look to provide opportunities that fit all circumstances – from working mothers to part-time employees and new apprentices, Accenture provides the perfect platform to launch a tailor made career. The talented females within our organisation demonstrate that women can have successful careers in the IT industry, and as we move through 2014 and beyond we look forward to continuing to build and develop our female workforce in Newcastle. <http://careers.accenture.com/gb-en/Pages/index.aspx>

Challenging Occupational Gender Stereotyping Women in ICT and Digital



Aspire Technology Solutions

Heworth Hall, Shields Road, Gateshead, NE10 0UX

Aspire Technology Solutions specialises in hosted services, data centre solutions, communications and traditional IT support. Developing and maintaining relationships with customers is as important to Aspire as providing technical solutions. Project coordinators work closely with customers to ensure their IT solution is completed on time and to cost, then they receive ongoing support from the team. Aspire's 50 employees work primarily in technical roles, but the business also needs its IT professionals to have a range of non-technical skills.

Nigel Begg, Managing Director, explains: "Our work is both challenging and rewarding. Every customer is different and our team must have excellent technical and customer service skills. I employ people who are passionate about IT. Our staff members love to solve problems and see their work as a vocation. They need to constantly learn new skills and develop solutions to problems to keep ahead of changes to technology."

At Aspire, employees who exceed customer expectations are rewarded. The business has developed a culture of one team and one family with regular social activities.

Nigel developed his passion for IT as a child and began his career in London as an Application Analyst writing IT programmes. He then became an IT Consultant working on software projects throughout the UK. During this period, Nigel would often outsource work to the North East. He saw a gap in the market for a managed services company. He launched Aspire in 2007 and the company has grown steadily year on year.

Nigel would definitely welcome applications from women for technical roles in Aspire, but acknowledges there is not a large pool of technically trained women to recruit from. Nigel promotes vacancies with local universities, the company website and recruitment consultants.

Nigel explains that although a career in IT can be financially rewarding people have to be prepared to work in a constantly changing environment, taking personal responsibility to keep their skills up to date and have the mindset to cope with daily challenges. Staff also have to possess business skills and respect customer confidentiality. He explained: "Potential staff must have a passion for IT and get job satisfaction from solving customer's problems. IT is not a 9-5 job and requires people to go that extra mile."

<http://www.aspirets.com/contact-us/work-with-aspire.aspx>

Challenging Occupational Gender Stereotyping Women in ICT and Digital



Newcastle College Digital Skills Academy Sandyford Building, Sandyford Road, Newcastle NE1 8QE

The new Digital Skills Academy in Newcastle (part of Newcastle College and NCG) has excellent facilities to help people gain the digital skills they need. Programmes range from Coders Clubs, Girls into Computing, part time skills courses, full time programmes of study, pre-apprenticeships and apprenticeships, foundation degrees and full degree top-ups.

The Academy works closely with industry and e-skills to help drive the skills agenda in the region.

We spoke to Lee Hall, who works at the Academy. Lee's background in IT started when his parents bought their first BBC personal computer at home. He enjoyed finding out how it worked (and how to fix it when it stopped working), and his interest in computers continued into higher education. After working in the NHS and private sector as a developer and web designer, Lee decided to pursue his goal of lecturing, and is now Team Leader at the Digital Skills Academy. He manages a team of lecturers, oversees HE and FE courses, and teaches on several programmes.

Lee explained: "Newcastle College is committed to attracting talented individuals to teach ICT, regardless of gender."

"A gender stereotype may exist in the sector, but there is change coming. We're seeing lots more female applicants for courses and jobs in IT this year, and this is a positive trend. The sector is changing so quickly, it can open more doors for you than you could possibly imagine".

Newcastle College: Digital Skills Academy

Newcastle College's Digital Skills Academy delivers IT qualifications and training from entry level through to professional accredited qualifications.

<http://www.ncl-coll.ac.uk/>

Challenging Occupational Gender Stereotyping Women in ICT and Digital



Wolf Consultancy

Nautilus House, North Shields, NE29 6AR

I set up Wolf Consultancy in 1998 delivering business solutions for organisations such as TRW, NPower, BT, Sage and Caterpillar. The company now employs 16 people, developing bespoke software to provide business solutions and providing support 24/7.

The business also provides consultancy services to help companies develop their IT strategies from application development, custom configuration, through to design, testing, implementation and project management.

We employ a female project manager, Louise, who combines her technical understanding with excellent customer facing skills. These strengths help Louise to translate the customer's needs into technical solutions, then relay the information to the technical team at Wolf to create the IT solution.

Due to the difficulties I'd experienced in recruiting trained and experienced staff I established a training Academy to provide IT training to local people.

The Academy gives trainees the chance to work on "live" customer projects so they gain real industry experience.

The Academy is open to anyone with a keen interest in ICT. At the moment, we are focusing on programmers, developers and software solution testers.

Training is very flexible to suit the individuals circumstance and family or other commitments. At the moment, the courses are aligned to BTEC qualifications but are not yet accredited, as the focus is on getting real life project experience.

One of the main reasons I set up the Academy was to help my business grow with trained and experienced staff. I would encourage more women to join the ICT sector, because there are a significant number of opportunities in all kinds of disciplines that you may not anticipate. Notably, I believe that women can bring with them a broad range of "soft" skills needed to interpret customer needs, alongside their technical know-how.

Marc Fowler, Managing Director

<http://www.wolfgroup.co.uk/>

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The National Picture

Overview

- The IT & Telecoms industries contribute a gross value added (GVA) of £75 billion per annum – **8% of the UK economy** ⁽⁴⁾
- One in 20 UK workers are employed in the IT and Telecoms industry – equating to **1.5 million people** ⁽³⁾
- There are over **131,000 companies** in the digital sector and nearly 57,000 businesses have two or more employees ⁽⁴⁾
- Businesses in the sector tend to be small with 83% classed as **micro-businesses**, having between 2 and 9 employees ⁽⁴⁾
- **Skills shortage vacancies** equate to 17% of all vacancies in the sector, and are experienced by over 3,000 employers ⁽³⁾
- IT and Telecoms **skills shortages most often reported** are in Programming, Sales/Marketing, Project Management, Software Development and Web Design/Development ⁽⁵⁾
- Employment of IT professionals through to 2020 is **forecast to grow at 1.62%** per annum – nearly twice the UK average for all occupations ⁽²⁾
- **745,000 additional workers** with digital skills will be needed to meet the rising demand over the period 2013-2017 ⁽²⁾
- The digital sector requires nearly **300,000 recruits** at Professional, Manager and Associate Professional level to fulfil growth potential and replacement needs to 2020 ⁽³⁾
- Employers such as Atos, BT, Cassidian, IBM and QinetiQ have joined forces to develop the first ever specialist **cyber security apprenticeships** through e-skills UK. Overall, more than 100 apprenticeship places are expected to be made available in Summer 2014 (e-skills UK)
- 45% of IT and Telecoms workplaces are in **London and the South East** (33,000) ⁽¹⁾
- 13% of over 16 year olds in the UK have **never used a computer** ⁽⁵⁾
- In 2013, over 90% of **IT-related A-Levels** were studied by males ⁽⁵⁾
- **129,000 new entrants a year** are required to fill IT/Telecoms job roles in the UK ⁽¹⁾

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- One of the key challenges facing the sector is **gender equality** – ensuring that women (currently only 18% of the tech workforce) benefit from the sector's opportunities ⁽²⁾
- According to a 2014 report commissioned by Nominet: If the same number of women studied computer science degrees as men, and the same proportion of these women as men went on to work in the IT industry, the overall net benefit for the UK economy would be **£103 million per year**.

Typical roles and salaries

Trainee:	£17,482
Junior Analyst:	£22,900
Analyst:	£30,866
Senior Analyst:	£39,910
Project Manager:	£47,178
Department Manager	£66,166
IT Function Head:	£79,926
IT Managers:	£98,529
IT Director:	£131,911

The Future

The following sectors report a need to recruit the following workers:

Financial Sector: 141,000 IT and Telecoms recruits will be needed annually by the Financial Sector. In-demand skills include programming, IT management and Linux (operating system).

Public Sector: Skill shortages exist in IT management, programming and web services (especially service oriented architecture).

Retail Sector: Due to the rise in e-commerce the demand for skills in databases and web services will continue⁽²⁾

Across Sectors: It is predicted 69,000 big data specialists who have the ability to implement systems and analyse large data sets will be required by 2017⁽¹⁾

Policy Context

- “**Superfast Britain**” is a Government programme of investment in broadband in the UK incorporating superfast and high speed broadband and mobile network quality and coverage. This includes:
 - £790m to extend superfast broadband to 95% of the UK by 2017
 - £150m to provide high speed broadband to businesses in 22 cities
 - £150m to improve quality and coverage of mobile phone and basic data network services ⁽⁷⁾

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- “**Digital by Default**” - a Government Digital Strategy committed the government to ensuring all new or redesigned digital services meet the “Digital by Default” service standard from April 2014 ⁽⁶⁾
- ‘**Race Online 2012**’ and ‘**Go ON UK**’ aim to bring the benefits of the internet to every individual, organisation and community across the UK

Sector Skills Council

e-skills

<https://www.e-skills.com/>

References

- (1) Technology Insights 2012:
<http://www.e-skills.com/research/research-publications/insights-reports-and-videos/technology-insights-2012/>
- (2) The Future Digital Skills Needs of the UK Economy (O2) 2013
- (3) UKCES Technology and skills in the Digital Industries September 2013
- (4) Sector Skills Assessment (e-skills UK, 2012)
- (5) Herb Kim, Thinking Digital (20:20 Digital Skills Academy Event, Jan-14)
- (6) <https://www.gov.uk/service-manual/digital-by-default>
- (7) <https://www.gov.uk/government/policies/transforming-uk-broadband>
- (8) e-skills UK

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The North East Picture

Outlook

- The ICT/Digital sector in the North East employs **30,000 people in 1,300** businesses
- The North East LEP has identified the ICT sector as a growth industry and will invest funding to **increase job creation** and stimulate inward investment to the region
- **Sunderland Software City** exists to inspire and encourage the growing software industry in North East England and to make the region the place to do business for global software companies. The North East is home to more software companies than anywhere else in the UK outside of London
- Home to over 100 of the region's software firms, Sunderland is the first city in the UK to offer blanket **superfast broadband** and its own Cloud
- "**Superfast Britain**" is a Government programme of investment in broadband in the UK. Broadband rollout schemes in the North East will result in over £7m of investment across all local authorities
- The **Coders Academy** is a North East social enterprise which aims to find and train software developers and support them into employment. You can start with a free online assessment at: <https://www.surveymonkey.com/s/EDMotivation2>
- IT & Digital **opportunities in the North East** are expected to be generated in the following areas ⁽¹⁾

Automotive Software	<i>In-car systems that connect every car to the internet</i>
New & renewable technology software	<i>New opportunities are predicted in data storage and analysis, conservation systems, micro-generation management and smart grid mapping, particularly at enterprise zones in Blyth and the North Bank of the Tyne</i>
Public sector software and environments	<i>Sunderland City Council is developing a "Smart City" in conjunction with IBM and is a pioneer in open data for businesses (including trading on the Government-cloud)</i>
Healthcare Software	<i>Regional software companies to develop software for the Institute for Ageing and Health at Newcastle University and the department of Pharmacy, Health and Wellbeing at the University of Sunderland</i>

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Employers

Over 1300 software and digital companies are active across the region. Here are just a few companies in the North East:

Company	Description
Accenture	Newcastle. Multinational. Technology/consultancy/ outsourcing.
AES Digital Solutions Ltd	Billingham. Software developers.
Aspire Technology Solutions	Gateshead. 50+ staff. Hosted services, data centre solutions, IT support.
Atomhawk Design	Gateshead. 10+ staff. Visual Design (games, film, online)
AYO Digital	Gateshead. Web-based software/Apps
Boxmodel Digital Media	Newcastle. Software engineers.
Cloud Data Service	Newcastle. <10 staff. Software development.
Coal Face Development	Newcastle. Web and App development.
Coast Technology	Morpeth. IT Solutions Provider
Consult and Design	Sunderland. Web and App development.
Design365 Solutions Ltd	Gateshead & Newton Aycliffe. Web design.
Enigma Interactive	Newcastle. 10+ staff. Web, mobile and media solutions.
Gospelware	Gateshead. <10 staff. Mobile consultancy, App development.
ITPS	Gateshead. 90+ staff. ICT solutions for business.
Mediaworks	Gateshead, London. 10+ staff. Online marketing.
Orangebus	Newcastle. 30+ staff. Digital agency.
Orchid Software	Gateshead. Intranet provider.
R//evolution	Gateshead. 5+ staff. Digital marketing
RecruitmentForce	Newcastle. 10+ staff. Web-recruitment software firm.
Saberlight Digital	Gateshead. <5 staff. Web design.
SaleCycle	Rainton Bridge, 50+ staff. Online shopping software.
Shout Digital	Newcastle & London. Digital services.
STCS	Gateshead. Software development, web design
Technology Services Group	Newcastle. 450+ staff. IT services.
The Leighton Group	Sunderland, London, East Lothian, Virginia. Technology, software, media, communications.
The Roundhouse	Newcastle. 20 staff. Branding, digital strategy, web/Apps.
The Sage Group plc	Gosforth. 13,000 staff. Software.
The Test Factory	Co Durham. Online assessment solutions.
Urban River	South Shields. Creative and web design.
Waterstons	Durham & London. Business and IT consultancy.
Wolf Consultancy	North Shields. 15+ staff. Business solutions.

References

(1) North East LEP Skills Action Plan Evidence Base, May 2013

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Find Out More

National Careers Service

Information, advice and guidance about careers

W: <https://nationalcareersservice.direct.gov.uk/Pages/Home.aspx>

T: 0800 100 900

Ladies who Code

Groups of women who meet up monthly to talk about coding

W: <http://www.ladieswhocode.com/>

Women in Technology

A job board advertising vacancies in companies committed to increasing the number of female technologists working for them

W: <http://www.womenintechology.co.uk/>

Pyladies

International mentoring group of women who use the Python programming language

W: <http://www.pyladies.com/>

Sunderland Software City

Support and advice to aspiring and established software businesses in the North East of England – including a jobs board

W: <http://www.sunderlandsoftwarecity.com/>

Coders Academy

Social enterprise aiming to find and train developers in the North East

W: <http://thecodersacademy.com/>

Girls who Code

Organisation providing computer science education to young women

W: <http://www.girlswhocode.com/about-us/>

e-skills

Sector Skills Council for ICT in the UK

W: <http://www.e-skills.com/>

T: 0207 963 8920

The National Skills Academy for IT

Employer led organisation promoting excellence in IT learning and development

W: www.itskillsacademy.ac.uk

BCS

The Chartered Institute for IT

W: <http://www.bcs.org/>

Skills Framework for the Information Age

Defining a common language for IT skills and competencies

W: <http://www.sfia-online.org/>

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Microsoft Learning

Computer training for Microsoft products and technologies

W: www.microsoft.com/learning

GO ON you can do IT

An e-skills initiative to assess your current online skills and access learning materials

W: <http://go-onyoucandoit.co.uk/>

Digital Union

A digital and creative commercial network of businesses throughout the North East, including a job search section

W: <http://digiunion.co.uk/>

Digital Skills.com

A space for asking questions about ICT, and sharing resources, events and more

W: <http://digitalskills.com/>

Big Ambition

Raising the profile of IT as a career choice (e-skills)

W: www.bigambition.co.uk

Cyber Security Challenge UK Ltd

Learn more about jobs in Cyber Security

W: <https://cybersecuritychallenge.org.uk/careers-faqs.php>

Institution of Analysis and Programmers (IAP)

Professional body, useful careers information section

W: www.iap.org.uk

T: 020 8567 2118

Jobsites

<http://www.itjobswatch.co.uk/>

<http://www.computerweekly.com/>

<http://www.computing.co.uk/>

<http://www.bcsrecruit.com/>

<http://www.theitjobboard.co.uk/>

<http://www.cwjobs.co.uk/>

<http://www.sharperecruitment.co.uk/>

<http://www.telecomsjobsources.co.uk/>

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Context

CfBT Advice and Guidance Ltd is the prime contractor for the National Careers Service in the North East of England. In 2013, we secured Equality and Diversity Innovation Fund support through the Skills Funding Agency to develop resources for careers professionals to use with adult men and women to promote non-traditional occupational alternatives in sectors where gender stereotyping continues to affect career choices.

These resources focus on four different sectors where both national and regional research has indicated under-representation of men or women in the workforce.

For example, in April 2012, the Data Service published an [Equality and Diversity data report](#) covering adult learner and all age Apprenticeship participation and success rates. Women were well represented in adult learning overall, but there remained significant stereotyping by gender in Apprenticeship sectors. Engineering and Construction frameworks were dominated by men, while Health, Public Services and Care frameworks were dominated by women.

The Institute for Employment Studies Good Practice Evaluation of the Diversity in Apprenticeship Pilots (<http://www.employment-studies.co.uk/pdflibrary/496.pdf>) found that young women, parents, and often teachers and advisers held outdated views of science, technology, engineering and manufacturing (STEM) occupations, and there is a need for gender positive images and role models in marketing campaigns to make social care careers a comfortable choice for male applicants.

Project Team

Our project team includes Edwin Milligan, Shirley Sunderland, Carly Hinds, Karim Nower and Colette O'Brien from CfBT Advice and Guidance Ltd. Contact us at: nationalcareersservice@cfbt.com

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July 2014

Version

1.0

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