In a nutshell

From shopping to watching TV, communicating to travelling, IT and telecommunications are at the centre of everyday life. The two are very much interlinked via the technologies driving them both, and are increasingly merging together to form one industry.

Requiring skilled workers with vision and drive, e-skills UK - The Sector Skills Council for Business and Information Technology forecast that IT and telecoms professional occupations will grow at more than three times the UK average rate over the coming decade.

The IT and telecoms industry encompasses a wealth of technical, creative and commercial roles - all working together and creating this Information Age. It also plays a central role in the government’s current ambition to make Britain the “technology hub of Europe” and at the cutting edge of a global industry.

With a reported nine out of ten firms suffering IT and telecoms-related skills shortages, there’s a clear demand for creative and technology and business-savvy graduates.

What kind of work can I do?

The UK economy will require 500,000+ new IT and telecoms professionals over the next five years, working across all sectors of the economy (Technology Insights 2011).

When looking for work you’ll find that IT job titles and descriptions aren’t standardised, so you’ll need to read the job descriptions carefully to understand the parameters of the role. Common roles include:

- system/software development - includes developers, designers, testers, analysts and engineers who research, design, develop and test computer software for clients - see systems developer, applications developer, multimedia programmer, games developer and systems analyst;
- database administration - responsible for the design and operational management of new databases and maintenance of existing ones - see database administrator;
- network/systems designers and engineers - install and maintain communication networks in organisations, working to provide maximum performance and network availability for clients - see network engineer;
- technical writing - involves interpreting technology or applications and designing and writing documentation to make it easy to understand. Includes user guides, reference manuals and online help - see technical author;
- IT user support technicians (help desk support) and trainers - solve faults and problems. They also train clients and help them maximise the use of software features - see **IT technical support officer** and **IT trainer**;
- IT consultants and planners - improve systems and structures of their client organisation's IT systems - see **IT consultant**;
- IT/telecoms management - responsible for all aspects of IT infrastructure, application and operation - see **information systems manager**;
- IT sales - selling hardware and/or software - see **IT sales professional**.

**What’s it like working in this industry?**

- IT is a dynamic industry that is often informal, but always focused on achievement. IT graduates work on interesting problems using different technologies. They enjoy variety, relaxed work environments, flexible working arrangements, working to deadlines, working closely with a variety of people and a good work/life balance.
- Mobility is becoming a necessity for IT employees working in IT services and consulting roles.
- Many graduates work a fairly standard day. However, in some areas extra work may be necessary to meet project deadlines. In the games industry for example, long hours are standard.
- Average graduate IT role salaries range from £23,000 to £25,000, while junior roles rise to around the £30,000 a year mark. With experience, IT roles can demand salaries ranging from £30,000 to £50,000, with senior roles offering salaries upwards of £60,000 (**IT Jobs Watch**, March 2012).
- A significant number of these IT roles are with telecommunications companies. The average annual wage for a telecoms engineer is around £35,000 (**IT Jobs Watch**, March 2012).
- IT salaries can be significantly higher in more specialist fields and in different parts of the country, especially in the City.
- Job opportunities exist throughout the UK, although over 44% of UK IT jobs are based in London and the South East.
- Women remain severely under-represented in the IT profession in the UK. They make up over a third of the overall UK workforce but only 18% of people in IT are female (**Office for National Statistics (ONS)** and Technology Insights 2011).
- Various groups exist to support women in IT. Organisations such as **Women in Technology** and **Equalitec** provide information and advice to women interested in a career in technology. The **BCS (The Chartered Institute for IT)** has a specialist online support group, **BCSWomen**, which offers a CV clinic service, career development workshops and networking meetings. **Intelect** has formed the Women in IT Forum for members to lead action to increase the representation of women in IT.

According to Technology Insights 2011:

- 1 in 20 employed people in the UK work in the IT and telecoms industry (1.5 million people).
- This amounts to approximately 863,000 in the IT and telecoms industry itself and an additional 674,000 employed as IT or telecoms professionals in other industries.
- 22 million people - 77% of the workforce in the UK - use IT in their jobs at the moment. And this figure will only rise.
- The UK's IT and telecoms industry produces an annual Gross Value Added (GVA) contribution of £81 billion (9%) of the total UK economy.
- Dividing this GVA per person, an IT and telecoms employee is almost twice as productive as the average UK worker.

Further information
- Computer Weekly
- Computer Arts
- Computing
- New Media Age
- V3.co.uk

### Entry and progression

#### How do I find a job?

As IT and telecoms opportunities are available within such a wide range of employers you should contact careers services for details of vacancy sources. Use specialist graduate publications, websites and industry journals to find out about opportunities. Attend campus careers fairs as well as industry-specific ones. The websites of professional bodies can be very informative, try Institution of Analysts and Programmers (IAP) or UK Web Design Association (UKWDA), Society for Information Technology Management (Socitm) or Internet Service Providers' Association (ISPA UK). Others you may be interested in include International Game Developers Association (IGDA), British Interactive Media Association (BIMA), National Computing Centre (NCC) and Institute of Scientific and Technical Communicators (ISTC). Membership can have its advantages, such as networking events, discounts on training and publications, and industry-specific newsletters.

You can apply for jobs directly via advertised graduate training schemes or on a speculative basis to small to medium-sized enterprises (SMEs) where networking is a particularly effective approach. Apply early for graduate schemes but be flexible about applying to other organisations who may also offer good training opportunities.

#### What skills do I need?

As there are such a wide range of opportunities in both technical and non-technical roles it is not essential to have an IT-related degree. Employers are happy to recruit graduates
with non-IT degrees into consultancy and business analysis roles where they can apply a broad technical knowledge to commercial environments.

However, more technical roles such as network and telecoms engineers and software developers do require graduates with relevant degrees such as computer science, information systems and software engineering. Also required are programming languages, operations systems knowledge, network and infrastructure understanding, development skills and, increasingly, business-orientated skills.

It is equally important to have a range of soft skills, including:

- communication - written and verbal and interpersonal skills;
- teamwork;
- organisation and planning;
- problem-solving;
- commercial awareness and customer focus;
- enthusiasm and motivation;
- adaptability and flexibility;
- willingness and an ability to learn new skills quickly.

**Where can I find work experience?**

While academic qualifications and technical skills are important, IT employers want graduates who are highly motivated and can work in customer-focused environments. You can find two month to year-long placements either as part of your degree or during the summer vacation with a number of graduate employers.

Many employers use the placement as the first stage in the recruitment process and can often lead to job offers with the same company. Work experience and work shadowing opportunities can also be found with smaller companies who you can approach directly.

If you are unable to find IT-related experience look out for opportunities where you can develop the softer but all important skills of teamwork, commercial awareness and customer service. Also, part-time jobs can show further evidence of these transferable skills.

**Is postgraduate study useful?**

Postgraduate study is not essential though could give you an edge in an increasingly competitive job marketplace.

IT is a highly dynamic industry and it is crucial that you continue training to keep your skills up to date with new technology. The IT industry is very committed to continuous personal development and many ICT companies, as well as companies in different sectors, provide IT training for employees.
e-skills UK - The Sector Skills Council for Business and Information Technology has created the National Skills Academy for IT in conjunction with employers. It aims to help subscribers who are interested in, (or already working in), IT to identify suitable courses, qualifications and apprenticeships. There are courses, mentors, eBooks and more available online. There are also training opportunities with Skillset: The Sector Skills Council for the Audio Visual Industries.

The industry’s professional body, the BCS (The Chartered Institute for IT), has comprehensive information on its accredited degree courses. The Institute for the Management of Information Systems (IMIS) and the SFIA Foundation (Skills Framework for the Information Age) also provide a means for IT professionals to monitor and develop their skills. The Institution of Analysts and Programmers (IAP) offers up-to-date information on training and relevant industry-recognised qualifications. Microsoft, IBM, Novell, Cisco and Oracle run industry-relevant certification courses for Windows, networking and databases as well.

**How can my career develop?**

Career opportunities are diversifying as the IT and telecoms industries are increasingly merging together to form one industry. This is due to new technologies in the telecoms industry which use broadband data networks that carry high amounts of multimedia traffic. This industry therefore needs the digital skills of IT professionals.

Traditional career paths do still exist, for example moving from programmer to analyst to project manager, although progression routes are breaking down. In the last two decades the IT industry has re-invented itself and is not just about programming work. It now encompasses highly skilled work with advanced technological developments. Furthermore, graduates not only need these high level technology skills but also have to be business aware as well as creative.

It may be necessary to change jobs frequently, building up your CV and using networking skills in order to keep progressing in your career. Those who have the combination of high-level technical skills and the required soft skills are likely to be more successful in advancing their careers.

**Further information**

CWJobs
IT Jobs Post
Technojobs
**Typical employers**

**Big players**

- Acccenture, IBM, Logica and Microsoft are amongst the biggest names in the IT industry, providing worldwide expert support and services to other organisations.
- Many IT professionals find IT roles with companies providing services via hardware and software, web development and specialist consultancies services for niche markets. Some examples of these are Ernst & Young, Deloitte, KPMG, FDM and BDO Stoy Hayward.
- Financial services firms such as JP Morgan, Bloomberg and Morgan Stanley require highly secure, high quality IT systems for all their global daily banking transactions. There is also some outsourcing of their functions via software development companies such as Scott Logic Ltd.
- The retail industry has business-focused IT jobs available; indeed most of the major retailers such as Sainsbury’s and Tesco will use a variety of IT systems to support a whole range of functions. Look out for opportunities via their graduate training schemes.
- The telecommunications industry is one which is fast paced and rapidly expanding providing mobile services, broadband, land telephony, IPTV and Video on Demand services. Key players are BT, Vodafone, Orange and T-Mobile.
- The public sector, which includes local authorities, central government and the NHS, offers a variety of IT roles.
- The manufacturing industry is a key user of all aspects of IT and opportunities exist in multinational engineering companies in the oil, pharmaceutical, automotive parts and energy industries. Examples of key players are GlaxoSmithKline, npower and Amec.
- The games development industry has a good UK presence. Many of the larger companies have studios in the UK and include companies such as Electronic Arts, Sony, Rockstar and Disney. Many smaller companies offer opportunities in all aspects of games development.

**Small to medium-sized enterprises (SMEs)**

The IT industry provides a plethora of employment opportunities within SMEs. The publication Technology Insights 2011 reports that micro firms make up 93% of the number of IT and telecoms workplaces in GB, and more than one-in-four of the sector’s workforce are employed by them. Working for a smaller company can be rewarding because you are more likely to forge a path for yourself within the company, although opportunities to try other departments may be limited.

SMEs are unlikely to use the testing and assessment techniques of larger companies, or follow lengthy recruitment procedures. SMEs are more likely to advertise their vacancies through the local press, university careers service bulletins, local graduate vacancy listings, agencies, jobcentres and word of mouth.
Careers services should have listings of jobs with small firms; check out employment agency websites specialising in IT and telecoms roles; and also see the Department for Business, Innovation and Skills (BIS).

**Self-employment**

Small businesses that cannot afford their own full-time IT staff provide an excellent market for self-employed IT professionals. Opportunities exist for those looking to work as IT consultants, IT trainers and web designers. During tough financial periods, self-employment may be an attractive option as more organisations choose to outsource their non-core functions.

Self-employment is demanding but can be very rewarding.

**Opportunities abroad**

The IT and telecoms industry is global. As its influence has spread, companies have grown too and now have offices all over the world.

Europe and North America can still be classed as the countries that are leading technological development. However, the increasing trend for businesses to move jobs offshore has resulted in a growing number of opportunities becoming available in developing countries, particularly India and China.

More recently, Brazil has become a country keen to join the list of countries engaging in offshore activities. A number of major IT companies including Accenture, HP and British Telecom already have operations in Brazil. Costa Rica and the Philippines are also increasingly attracting offshoring opportunities.

**Will my qualifications be recognised?**

For graduates interested in working abroad it is advisable to first gain experience with a UK company that has links abroad. Language ability may also be beneficial particularly for roles involving client contact. Many European employers expect recruits to have a relevant degree and the same software knowledge as would be required in the UK. To compare UK qualifications with their international equivalents, go to ENIC-NARIC.
Future trends

Business and economic factors

The IT industry will continue to grow across a range of industries. IT is an essential component which ensures businesses can run effectively and efficiently and impacts on countless areas. One key growth area is the financial industry where IT opportunities will increase. There will also continue to be opportunities in the creative industries, which are heavily dependent on IT. Here graduates will find roles in the computer games, film special effects and media sectors.

Technology

The challenges presented by technology are likely to be driven by the next generation of digital natives, native speakers of the digital language of computers, gaming and the internet.

Products that rely on digital technologies will increase and because of this, the industry will need to keep up to speed in terms of digital technologies and innovative advances. It has already become easily portable, with laptops, tablets and smartphones. Therefore, knowledge and understanding of the systems, architecture and infrastructure that enable the convergence of communications with IT networks and devices that support voice, video and data is increasingly desirable.

Social computing powered by web 2.0 technologies and the development of new technologies will shape future IT products, services and skills. Increased concern for the environment will impact on the number of green IT products required.

Social factors

The rapid expansion of social networking has seen the development of social media sites like Facebook, Myspace and Twitter. They will continue to be a major factor influencing how the IT sector develops. There is also an increasing desire for people to have a better work-life balance and flexible work patterns in their lives. IT has an important part to play in this as we will see more demand for wireless internet access and more technologically advanced communication systems to enable more people to work from home in virtual work places.

Skills

There is an increasing need for employees to possess higher level IT skills to keep up the new versions of programs and technological advances. There is also the need for those with higher level IT skills to cope with the demand for producing more innovative IT products. These skills will have to be continually updated if the UK is to remain a
significant player in the IT sector in the future, and for it to become the “technology hub of Europe”.

Businesses are increasingly looking for candidates with business awareness - creative and technical skills alone may not be enough to stand out. Security and data protection issues are also a big concern for businesses - so knowledge in this area may be an advantage.

Jargon buster

- **Agile** - methodology/development - a method of software developing involving collaboration between cross-functional teams. This flexible way of working facilitates adaptive planning and evolutionary development. Agile methods include Scrum, DSDM (Dynamic Systems Development Method) and Kanban. It is an alternative to the Waterfall methodology.
- **ASP.NET** - a Microsoft web application framework which allows programmers to build dynamic web sites, web applications and web services.
- **Applications** - programs for specific functions, such as word-processing.
- **Back-end applications** - the software architecture supporting the GUI. See also Front-end applications.
- **Backshoring** - reverting offshoring activity to the home country.
- **Blogging** - an online diary or journal. A blogger is someone who keeps an online diary or journal.
- **C** - a programming language.
- **C++** - a programming language.
- **C#** - Microsoft’s programming language based on C++ and Java.
- **Cloud computing** - general term covering anything involving delivering hosted services over the internet.
- **CPU** - central processing unit, the ‘brain’ of a computer which carries out the instructions of a computer program.
- **CRM** - customer relationship management. Software that enables different sectors of a business to share information about customers.
- **Convergence** - the combination of multiple services via a single provider’s lines of telecommunication.
- **DBA** - database.
- **Digital native** - individuals who have grown up immersed in technology, generally born after 1985.
- **ERP** - enterprise resource planning. A system that helps businesses manage functions, such as purchasing and logistics.
- **Front-end applications** - programs with which systems users interact directly. (Back-end programs support the process.)
- **Green computing/IT** - aims to design, manufacture, use and dispose of hardware with as little environmental impact as possible. Also referred to as ICT sustainability.
- **GUI** - graphical user interface, a front-end desktop environment. See also UI.
- **HTML** - hypertext markup language. Language used to display text on web pages.
- **IP** - internet protocol. The protocol by which information is sent via the internet.
- **ISP** - internet service provider.
- **IPTV** - internet protocol television is a system through which internet television services are delivered using the architecture and networking methods of the internet protocol suite.
- **Java** - a programming language created by Sun Microsystems.
- **JavaScript** - a programming language popular for creating dynamic web pages and applications.
- **.NET** - a Microsoft software programming framework which holds a large library that enables language interoperability across several different programming languages.
- **Offshoring** - the relocation of IT services to a lower cost location, usually overseas.
- **Operating system (OS)** - provides the software to manage all the application programs in a computer.
- **Oracle** - a software company and database, also referred to as Oracle RDBMS (relational database management system).
- **Outsourcing** - taking internal company functions and paying an outside firm to handle them. Also online outsourcing - outsourcing over the internet.
- **Portal** - a website designed to be a user’s main point of entry to the internet. Portals attempt to achieve this by providing assistance, usually in navigation or information.
- **SAP** - application software that manages financial, HR and other functions.
- **SQL** - structured query language. Aids the input and extraction of information into and from databases.
- **UI** - user interface. See also GUI.
- **UML** - unified modelling language. Allows the development of ‘object oriented’ software, an approach that makes software easier to maintain and reuse.
- **UNIX** - a commonly used operating system.
- **Virtualisation** - is the creation of a virtual platform, server, network, application or desktop (also known as VDI or virtual desktop infrastructure). This means several OSs can run simultaneously on a single CPU which reduces cost and increases efficiency.
- **VoIP** - voice over IP. Voice information sent via the internet using IP, enabling the internet to be used to make telephone calls.
- **Waterfall** - methodology/development - a method of software developing following a strictly adhered to sequence starting with the requirements, then flowing downwards (like a waterfall) to the design, then the building, followed by testing and finally the release. It is an alternative to the Agile methodology.
- **Web 2.0** - the technologies that form the second generation of the internet. It refers to internet sites and solutions that form web-based communities and hosted services such as social networking sites and wikis.

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