

Embracing the Challenge, Exploiting the Opportunities

**Building a World Class IT Profession in the Era
of Global Sourcing**

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Report by the British Computer Society
Working Party on Offshoring
May 2006



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Preface and Acknowledgements

The era of global sourcing has truly arrived. Organizations today can choose to source IT services from around the world, combining offshore, nearshore and onshore resources to best effect. Companies can choose the most economical option or specialist skills or niche service providers wherever they can be found.

This second report from the Working Party on Offshoring focuses on activities within BCS that will help UK IT professionals succeed as globalization increases. The report also includes items written by individual IT professionals who are using the new opportunities opened up by offshoring and gives some examples of UK success stories, including sectors where we have world-leading strengths. Individual contributors are acknowledged in the report as providers of the information included in the preceding text, direct quotes and boxed case studies.

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1 Executive Summary

We live in the era of global sourcing. Companies can transfer professional activities around the world – IT services have become a global industry. In 2004, BCS set up a working party to review the offshoring trend and to consider how the UK's IT profession might best respond. The group analysed the profession's competitive strengths compared to the best in the world; devised a new career model for the new era of global sourcing; looked at ways of helping IT professionals displaced by offshoring; and considered how the UK might benefit from offshoring without succumbing to the risks and pitfalls. The working party's first report was published in November 2004 (BCS Working Party on Offshoring, 2004).

This second report focuses on the very wide range of BCS activities that will help the UK's IT profession meet the challenges and exploit the opportunities of globalization. It also includes contributions from individuals who are carving out successful careers in a world of global sourcing, celebrates UK achievements and looks at how other organizations are responding to offshoring. The report is aimed at today's UK-based IT professionals, and those considering a career in IT, who may be concerned about the impact of globalization and want to learn more about how they can develop their careers and what the BCS is doing to help them.

PROMOTING PROFESSIONAL STANDARDS

Today's UK IT professionals need to gear up for the globalization of the IT services industry. BCS is promoting professionalism both in the UK and internationally. Current initiatives include:

- Professionalism in IT, a ground-breaking programme to raise professional standards and improve the ability of organizations to exploit the potential of IT effectively and consistently;
- development of the Chartered IT Professional (CITP) designation, designed to act as the gold standard for the IT profession and an integral part of building a mature profession;
- development of the TickIT quality management scheme to combine the best features of both TickIT and the Capability Maturity Model Integration (CMMi), the quality scheme widely implemented in the offshore industry;
- support for the UK Council for Health Informatics Professions (UKCHIP) registration scheme, recognizing experience levels, qualifications and job roles, for professionals working in the health sector in the NHS, private medicine, academic sector and service-provider industry;
- involvement in international bodies, promoting the UK IT sector and encouraging the adoption of professional standards and qualifications.

RECRUITING AND EDUCATING IT PROFESSIONALS FOR THE FUTURE

To sustain the UK's competitiveness we need to recruit and educate IT professionals who add value by understanding how IT can be used to deliver business benefits and by combining technical with interpersonal skills. BCS is seeking to increase recruitment into the profession and continues to develop its world-class qualifications to meet 21st century needs.

- BCS is leading an initiative, supported by the Higher Education Funding Council, to increase the number of students studying computing and IT at school, college and university.
- BCS's very successful Information Systems Examination Board (ISEB) qualification scheme is being expanded into new IT management areas and has been re-aligned into a more cohesive structure, highlighting the links across different subject areas.
- A BCS group is examining where effort is needed to improve the standard of IT management. A competency framework is being developed and postgraduate degree courses reviewed worldwide.
- BCS's scouts badge continues to capture the interest of young people, encouraging them to consider pursuing a career in IT.

DEVELOPING SUCCESSFUL CAREERS

In this era of global sourcing, IT professionals need to focus on developing those skills that continue to be required in the UK. Employers report a shortage of skilled IT workers who combine technical expertise with project management skills and an understanding of how to deliver business benefit through IT. BCS offers an increasing range of services to help individual professionals develop their careers successfully in the UK.

- The Skills Framework for the Information Age (SFIA) provides a model for describing IT professional roles that can be used to benchmark the skills required for particular jobs or career paths. A new version of the framework, released in November 2005, caters more effectively for organizations managing outsourcing relationships, business change roles and service management.
- The online Career Builder service helps professionals drive their own career-development programmes.
- Free mentoring services are available to members through BCS.
- The online Career Centre service enables BCS members to create, edit and manage their CVs and apply for jobs through the Monster network.
- BCSWomen has set up a CV Advice Team that provides support and feedback on CVs, covering letters, career advice and mentoring.
- UKCHIP is developing a continuing professional development scheme for health informaticians.
- BCS continues to offer networking opportunities through its many and varied specialist groups and branches.
- The new BCS website includes extensive editorial sections and an enhanced online library service for members, offering access to books, journal and magazine databases and selected Forrester reports.
- BCS's new book-publishing programme contains titles explicitly aimed at the IT professional looking to improve skills, prospects and job options.

WORKING WITH GOVERNMENT

Government initiatives that support IT innovation, education, training and employment all contribute to building a strong IT profession against a background of increasing globalization. BCS has a role to play in ensuring that these policy initiatives are coordinated and effective.

- The BCS Government Relations Group exists to develop mutually beneficial relationships between BCS and government bodies; to provide a focus for submissions to government; and to initiate programmes to inform government on IT-related issues.
- BCS is represented on a panel that advises government on skills shortages in the UK IT workforce. BCS developed the methodology for assessing the level of IT skills shortages and has recently been contributing to discussions on a new managed migration strategy and the work permits issued to IT professionals from offshore IT service providers.
- Members of the BCS Health Informatics Forum contribute to advisory groups, think tanks and consultations on NHS initiatives.

WORKING WITH EMPLOYERS

Offshoring is a reality of business life today. BCS is committed to raising professional standards; deriving and promulgating best practice; encouraging the adoption of quality standards; and promoting good security management. Effective governance arrangements help ensure that offshore outsourcing relationships meet expectations and evolve to meet changing business needs. Data Protection Act principles provide critical safety measures for UK citizens when personal data are transferred between countries. The security strategy should bring together personnel, physical and technical factors. Many operational security functions need to be based locally, at offshore locations where appropriate.

BCS offers a range of professional products to help employers develop the IT expertise of their staff:

- a professional development accreditation scheme, which provides external benchmarking and validation by BCS;
- the Career Developer service that helps employers define, manage and develop the IT skills within their organization;
- the Skills Manager software solution, which helps organizations identify and manage IT skills and match business requirements against current skills levels;
- the IT Job Descriptor browser-based solution.

BCS is also committed to raising national IT literacy standards and offers a range of qualifications for all employees.

SUPPORTING INNOVATION AND CELEBRATING EXCELLENCE

Never has it been so important for UK-based IT professionals to use their skills and knowledge to exploit the possibilities that IT offers, to innovate and improve. This places new demands on us. IT professionals can provide the bridge between technology and business experts, helping to stimulate the innovation that helps companies succeed. BCS is a key sponsor of the Centre for Innovation in IT, which was set up to promote thought leadership in the delivery of innovation through IT.

BCS award schemes have been recognizing outstanding achievement in IT and IT management for more than 30 years. Award categories cover technology, business achievement, individual excellence, women in IT, mobile computing and investment in security.

As the learned society for computing and computer science, BCS plays a significant role in the development of the academic discipline and research carried out in the UK. BCS is determined to do everything possible to assist in setting and sustaining the UK's research agenda. In 2006 BCS will play a key role in a new international review of ICT research in the UK and also organize the third in a series of conferences, *Grand Challenges in Computing*, dedicated to setting the research agenda for the next decade.

BCS THOUGHT LEADERSHIP ROLE

BCS has a pivotal role to play in the IT profession's response to globalization. As the leading learned and professional society for IT, BCS aims to ensure that it is always at the forefront in thought leadership and promoting the underlying science, techniques and applications of IT. It does this by providing opportunities for experts from research and practice to exchange views, including thought leadership debates, forums, specialist groups, the Learned Society Awards programme, prestige public lectures and publishing.

A debate in January 2006 considered what the UK might do to avoid losing out to the Far East in the knowledge-based economy. The discussion was very positive, highlighting that the UK is currently in a strong position. Innovation, learning, professional standards and a business-friendly environment, supported and encouraged by government measures, will all help the UK to sustain its competitive edge in the global IT economy.

BCS is commissioning a research study to look at the effect of computing developments on the UK economy and its society over the next 20 years, addressing three challenges:

- Do we want the UK to be G8 or G20 in 20 years time?
- Computing will dictate many more forms of work in the future. How should BCS influence computing-related employment?
- How should BCS ensure that people can reach their full potential in a technical and information-rich society?

The BCS case studies initiative is drawing on lessons learnt by Professional IT Award winners and medallists to develop a range of material to guide, inform and help raise standards of professionalism.

2 Introduction

IT professionals are constantly adapting to change. New technologies, changing business demands and economic factors all influence IT career choices and training needs. In recent years the UK profession has faced a new challenge: the era of global sourcing. Organizations can now use professional services provided by overseas IT staff. Companies may choose to set up their own IT centres or 'captive sites' in other countries or they may choose to outsource to external service providers. Whichever business model is adopted, overseas professionals provide IT services.

In 2004, BCS set up a working party to review the offshoring trend and to consider how the UK's IT profession might best respond. Analyst predictions for the continued growth of offshoring suggest that many thousands of jobs that might at one time have been based in the UK will in future be found overseas in lower wage economies. The Working Party looked at how the UK's IT profession can meet this challenge and exploit the new opportunities being opened up in the global IT services market. The group's initial findings were published in November 2004 and are summarized below (BCS Working Party on Offshoring, 2004). The full report can be accessed at www.bcs.org/positions/offshoring.

THE IMPACT OF GLOBALIZATION

We cannot be certain how many jobs will be affected by offshoring, or indeed how many new jobs the global market may create. Although the numbers of estimated job losses look large, they represent only a small percentage of the total IT workforce in the UK. Some IT projects would be uneconomical in the UK and will only be progressed overseas where wage rates are lower (but IT professionals are well paid compared with others in their own country).

The numbers of jobs moved offshore will probably be sufficient to make it harder for IT professionals with limited skills to find work. As more routine work is moved overseas, it may become difficult for new recruits to get good basic experience in IT work.

The Working Party scanned the work of a number of economists and found one overriding conclusion: free trade, without protectionist measures, is beneficial for all countries. It exposes companies to international competition and this leads to greater productivity and more effective use of new technology and encourages innovation. The UK has been a beneficiary of global trade in IT services for many years; USA-based companies like IBM and Microsoft have established research centres in the UK and created UK-based jobs. Many high-wage countries, like the UK, have ageing populations. Labour shortages in future years will need to be tackled through a combination of immigration, offshoring and longer working lives.

PROMOTING THE COMPETITIVE STRENGTHS OF BRITAIN'S IT PROFESSION

Globalization opens up opportunities for British IT professionals to work overseas and to provide services from the UK to world markets. But we need to compare our performance objectively with the best in the world, otherwise we risk underestimating the competition we face and the capacity of overseas workers to

provide high-quality, cost-effective services. We need to nurture our strengths and make the most of new opportunities.

In assessing which jobs will remain in the UK, we need to identify areas where UK IT professionals add value and can offer more than offshore workers. UK-based professionals have a good understanding of British and international business processes; they can offer a combination of business knowledge and IT skills and they have good problem-solving and analytical skills. Our business culture encourages creativity; we regularly question the way things are done and seek out improvements; and we have a diverse society and are used to working with professionals drawn from different ethnic backgrounds. The large freelance contractor workforce in the UK provides mobile and temporary resources where and when they are needed.

CAREER DEVELOPMENT AND TRAINING

The challenge for British professionals now is to gear up for the globalization of the IT services industry. Traditional IT skills such as software development have become globally ubiquitous and a narrow focus on technical skills and their application will not help tomorrow's professionals. We found that IT staff can underestimate their business knowledge and expertise.

The Working Party described a new career model in which professionals move on from foundation IT training to developing additional skills such as project and relationship management expertise, business skills and knowledge of specialized technologies, as illustrated in Figure 2.1. This would open up a wider career path, including the possibility for IT professionals to work in other business functions.

The ultimate aim is to create an environment in which IT can be a career where longevity is valued and IT know-how is transferred into the business arena. Lifelong learning will become more important for all IT professionals, making full use of services such as BCS's Career Builder.

HELPING IT PROFESSIONALS DISPLACED BY OFFSHORING

However beneficial offshoring may be for companies and the economy at large, individuals can suffer as they see work transfer overseas and are forced to tackle the task of finding new employment. The Working Party identified the major challenge as how to protect the interests of IT professionals rather than their specific jobs.

Corporate social responsibility (CSR) principles provide a useful framework for handling job losses caused by restructuring and can be applied to offshoring initiatives. Agreements between some UK companies and their trade unions help protect the interests of IT professionals at the same time as recognizing that some work will transfer overseas and deliver corporate benefits. This assistance is funded from the initial corporate benefits derived from offshoring projects.

Individual IT professionals need to take personal responsibility for their own career development. We all need to raise our professional standards to maximize our job prospects and develop our careers. We can all take steps to increase our opportunities in the UK by:

- developing business skills and knowledge;
- focusing on roles that will remain in the UK, such as jobs requiring close interaction with users and jobs where agility and innovation are more important than cost;
- training in new and emerging technologies;

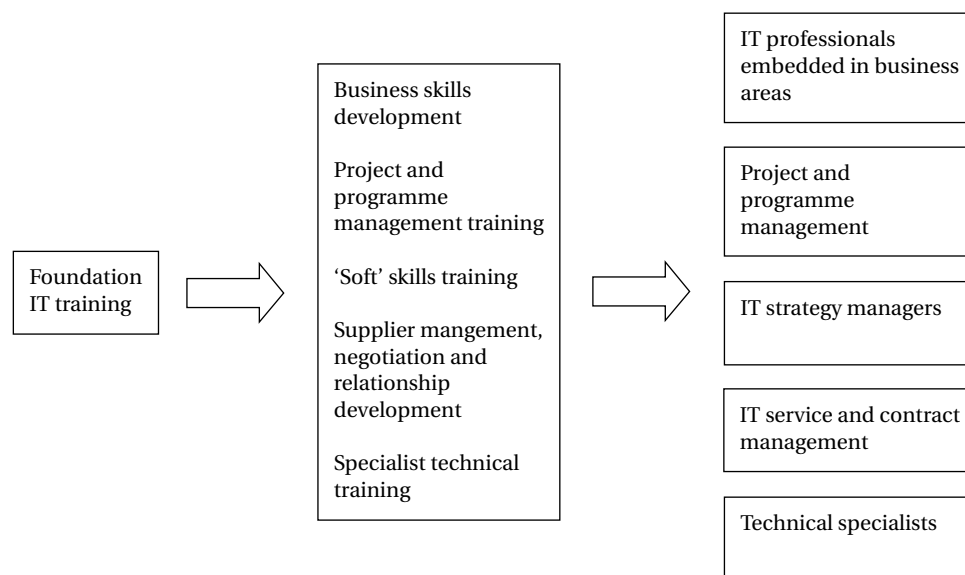


FIGURE 2.1 *A new career model for a new era*

- monitoring sectors where new jobs are being created;
- avoiding becoming locked into areas that are more likely to be offshored.

This is particularly relevant for freelance contractors who cannot look to a corporate employer for training and development support.

For all UK-based IT staff, maintaining professional standards will become even more important. BCS is uniquely and ideally placed to help and offers a range of services for IT professionals, including internationally recognized qualifications, chartered status, continuing professional development and web-based information.

ENABLING THE UK ECONOMY TO BENEFIT FROM OFFSHORING

Offshoring is a reality of business life today. The capability to source globally is a growing competitive differentiator for companies (and countries). Successful offshoring depends on strategy, skills, quality processes, management effort and governance:

- companies need to devise a strategy that determines which services can profitably be offshored;
- skills are needed to support technical design, project management, supplier management, data protection and transition management functions;
- quality processes within the company need to be sufficient to be able to work alongside an offshoring supplier that may have achieved a high level of compliance with internationally recognized standards;
- appropriate procedures and governance structures need to be in place.

The Working Party identified four factors that make some activities unsuitable for offshoring:

- activities for which distance or proximity is crucially important;
- services for which the value of the activity far outweighs the cost;
- functions that require employee agility;
- activities that form a sustainable centre of expertise.

Finally we noted that price is not the only factor of importance in the global marketplace. Singapore is a good example of a country with a highly successful IT industry in which average salary levels far exceed those of neighbouring countries. The UK economy will benefit from openness to trade if a business-friendly environment and a flexible, skilled workforce support it.

HEALTH INFORMATICS PERSPECTIVE

BCS Health Informatics Forum member Jean Roberts writes:

At first reading, the idea of offshoring causes considerable general concern to informaticians but the UK has considerable strengths in specific key areas, health being one of them. The overall aim of BCS is to take action now to develop a strong IT profession that meets future business needs and contributes to the well-being of the UK economy, and that aspiration is endorsed by those in the health sector too.

An emerging worldwide IT services market requires some changes to take place; in health we must gear up for that globalization, and thereby ensure that our jobs are not offshored inappropriately. Within the health context, initiatives such as the English National Programme for IT Connecting for Health have indicated that requirements for operation and development of health informatics solutions will need of the order of 10,000 staff long term. The future is full of opportunities that indicate a new or broader paradigm is necessary, where IT can be a career in which longevity is valued and IT know-how is transferred into the business of care delivery. Informatics for health includes activities for which distance and/or proximity is crucially important; functions that require employee agility; and initiatives that form a sustainable centre of expertise over time.

Reviewing strengths and weaknesses, those in health informatics should not be complacent. BCS Health Informatics Forum represents many perspectives, notably those who support staff in direct care and management roles, academic teachers and research staff and those who work commercially in the health domain. We will remain vigilant about how informatics requirements develop and how our members can retain 'fitness to practice'. Our particular niche skills must be well recognized, developed and kept up to date. Whilst such skills will flourish in a UK base, they also open up opportunities for British IT professionals to work overseas and to provide services from the UK to world markets and, subject to validated competency and domain knowledge, will provide opportunities for additional professional resources to be integrated into the health sector from bases in other sectors and geographies.

DEVELOPING THE IT PROFESSION IN THE ERA OF GLOBAL SOURCING

BCS has a crucial role to play in the profession's response to offshoring. This new report provides an overview of recent offshoring developments and describes BCS activities that will help the UK's IT profession meet the challenges and exploit the opportunities of globalization in seven areas:

- promoting professional standards;
- recruiting and educating IT professionals for the future;
- developing successful careers;
- working with government;
- working with employers;
- supporting innovation and excellence;
- BCS thought leadership role.

The report provides a comprehensive account and can be read selectively to provide an insight into current progress and initiatives.

3 Recent Developments in Offshoring

As experience grows, companies are devising more sophisticated sourcing strategies that use offshoring selectively to complement the strengths of onshore IT professional staff. Recent research by sourcing advisory firm TPI found that 81 per cent of senior UK executives responsible for outsourcing within large companies expect to increase their offshore outsourcing over the next 2–3 years (TPI, 2005a). There was, however, a marked shift away from outsourcing towards the use of captive sites set up by organizations overseas in preference to relying on external service providers. Fifteen of the FTSE 100 companies now have captive operations in India (TPI, 2005a).

Global sourcing is also having an impact on the size of new outsourcing contracts awarded. TPI found that the average value of larger contracts signed worldwide in 2005 was down by about one-quarter compared with 2004. However, the number of outsourcing contracts continues to rise and in 2005 was around 10 per cent higher than a year before (TPI, 2005b). A key factor is the increased use of offshore resources and companies' growing expertise in combining the services of different providers each skilled in specific areas. There are little data available on the split between onshore and offshore outsourcing operations, but TPI found that more than 40 per cent involved an element of global service delivery. More business process outsourcing (BPO) than IT outsourcing deals now have offshore components.

TPI's research also showed that although companies are planning to increase their use of offshoring, they are also re-adjusting the split between onshore and offshore operations. Half of the survey respondents expect to bring some functions back to the UK in the next 5 years as their global sourcing strategy develops.

Offshoring occurs in almost all developed countries. A study by Frost & Sullivan looked at the use of offshoring (both through offshore outsourcing and the use of captive sites offshore) in the USA, UK, France, Germany, Japan and Hong Kong between 2002 and 2004 (Rosenthal, 2005). The number of IT jobs exported during this period is illustrated in Figure 3.1.

One surprising result from the Frost & Sullivan study (Rosenthal, 2005) was that Poland was the fastest growing offshore location for IT outsourcing, although India remains the single largest recipient of IT job imports. Different countries are developing their own niche markets. Brazil is particularly attractive to Japanese companies because there has been a significant level of Japanese immigration to Brazil. Russians are developing a reputation as IT problem solvers. French companies choose French-speaking outsourcing companies in Tunisia and Mauritius. German organizations are choosing nearshore destinations such as Poland and Romania.

Suppliers are moving up the value chain and offering more complex services. The increased nature of global competition and subsequent impact on profitability has forced many service companies to expand their range of services, with a gradual move to offering more complex tasks being the natural next step. Analysts use the term knowledge process outsourcing (KPO) for the next tranche of services that might be offshored. KPO is therefore a continuation of BPO, although with rather more business complexity. The defining difference is that KPO is usually focused on

knowledge-intensive business processes that require significant domain expertise. An offshore team servicing a KPO contract cannot be easily hired overnight as the members will be highly educated and trained and trusted to take decisions on behalf of the client.

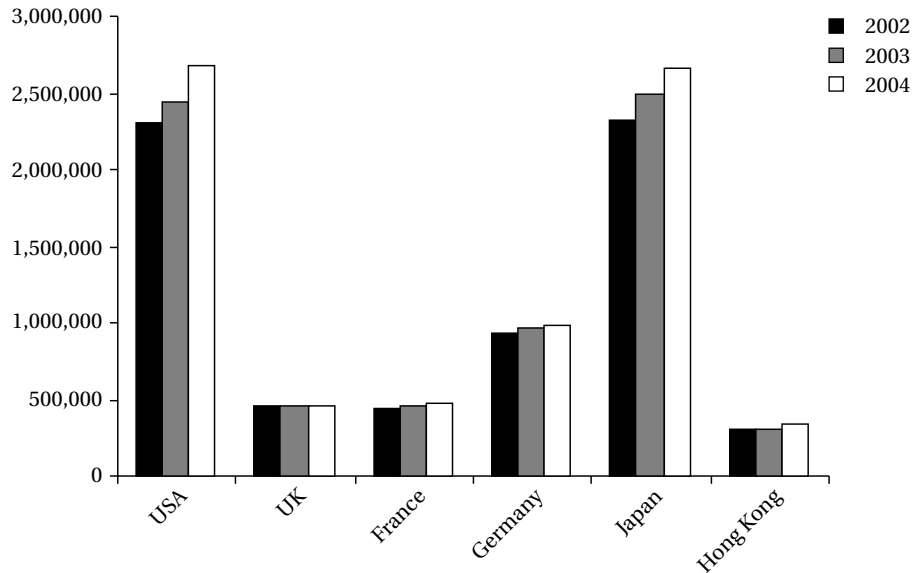


FIGURE 3.1 Total number of IT jobs exported (offshore outsourcing and offshore subsidiaries), 2002–2004 (Source: derived from Rosenthal, 2005)

KPO delivers higher value to organizations that offshore their domain-based processes, thereby enhancing the traditional cost-quality arguments for BPO. The central theme of KPO is to create value for the client by providing business rather than process expertise. So KPO involves a shift from standardized processes to advanced analytical thinking, technical skills and decisive judgement based on experience. These services include financial research, customer data analysis and patent work.

The leading Indian IT service companies are developing into major global players and are recruiting staff around the world to provide local services to their clients. They are also acquiring companies to expand into specialist areas and offer higher value services, as the description of Tata Consultancy Services in Box 3.1 illustrates. With annual revenue increases around 30 per cent, the major Indian companies are growing faster than American and European suppliers and are becoming world leaders in the IT services market.

BOX 3.1 EVOLUTION FROM INDIAN TO GLOBAL IT SERVICES COMPANY: TATA CONSULTANCY SERVICES (TCS)

Natarajan Chandrasekaran, Executive Vice-President, writes about the development of TCS into an international company. Chandra is a member of the BCS Working Party on Offshoring.

In 1968 the IT industry as we know it did not exist. That year Tata Consultancy Services (TCS) commenced operations with a handful of employees in India and embarked

(Continued)

on an exciting journey. Today, with over 60,000 employees, TCS is a truly global company with 158 offices in 43 countries across six continents. TCS' Network Delivery Model (NDM™) provides business value to clients using global delivery centres, regional development centres, nearshore centres and several niche solution centres in various countries. This ensures that the full service capability can be brought to our customers from the most appropriate destinations, at the fastest possible speed, the lowest possible risk and with the best available expertise. With 33 centres in a Network Delivery Model across six continents, TCS has one of the strongest delivery networks in the world.

TCS' vision is to be a top 10 IT services company by 2010. In order to deliver on this vision and to further increase its global footprint and capabilities, TCS has looked beyond its traditional organic growth by way of acquisitions. Most notable are the acquisitions of Chilean business process outsourcing firm Comicro for £15 million and the £13 million acquisition of Australian banking solutions firm FNS. These deals provide the platform for our larger customer base to process their business transactions with a high degree of precision and at an optimal cost.

Another aspect of TCS' globalization is its ability to serve its international customers locally. This is a very key characteristic that enables our customers as they enter into new territories to expand their global footprint. For the Dutch bank ABN AMRO, TCS is delivering from Luxembourg, Amsterdam and Brazil in addition to our centres in India. This has provided the necessary balance between the cost optimization objective and the nearshore customer comfort needs. With the UK insurance company Pearl, TCS has built a strong platform for the life and pensions domain.

TCS was first established in Europe in 1975 and now has 23 offices across the European continent. In addition to ABN AMRO and Pearl, European clients include Aviva, British Airways, BNP Paribas, Ferrari, Nokia, Rabobank and Somerfield. As a leading IT and consultancy firm in Europe, TCS is very much a part of the business and social fabric across the 14 European countries in which it operates. In September 2005 the company received a Special Recognition Award for Outstanding Contribution to the UK Knowledge Economy. While presenting the award Rt Hon. Tony Blair concluded, 'Blending the best of British and Indian know-how and technology, TCS has developed innovative, world-beating techniques to develop high-quality services that add value to business plans and efficiency to government service delivery alike.' From a small Indian IT company to a global IT services player praised by Britain's Prime Minister, an exciting journey indeed.

Wealthier nations also benefit from the global trade in IT services. An article by researchers from the International Monetary Fund (IMF) points out that trade in services is a two-way street. In addition to importing services, the UK is also a large exporter of services. The UK and the USA both have large net trade surpluses in business services while Ireland and Germany import significantly more services than they export (Amiti and Shang-Jin, 2004).

Trade statistics indicate that the offshoring of services is quite small compared with that in manufacturing. Research at the Said Business School, Oxford (Sako, 2005), has shown that:

- only 10 per cent of services output enters international trade, whereas 50 per cent of manufacturing does, indicating that offshoring of services is small relative to outsourcing within national boundaries;
- the top two exporters of computer services are Ireland and India, but the two top exporters of other business services are the USA and the UK.

Although the USA and the UK are known as major users of global IT resources, they are in fact both major net exporters of computer and information services. The three largest net importers of computer services are Japan, Brazil and Germany (World Trade Organization, 2005b). Figure 3.2 illustrates the balance of trade in computer and information services across the world.

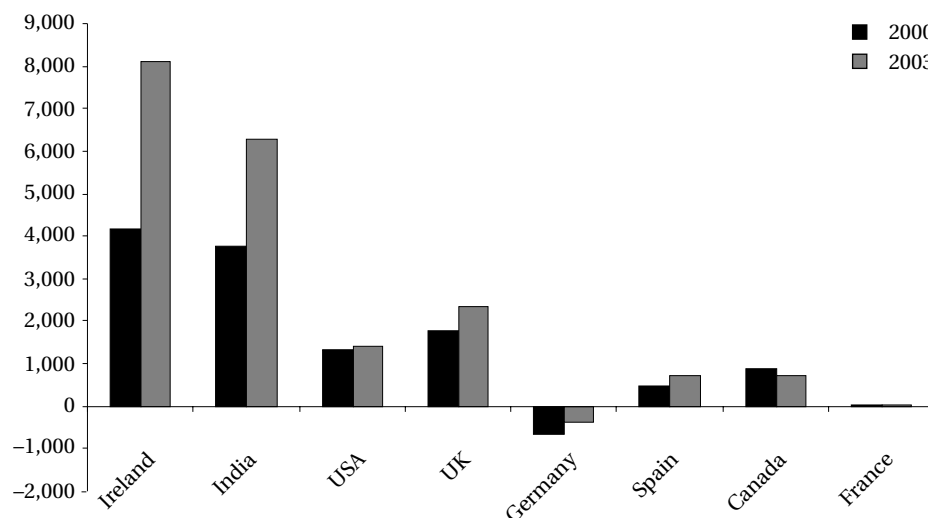


FIGURE 3.2 Major traders in computer and information services, 2000 and 2003
(Source: derived from World Trade Organization, 2005b)

UK productivity in high-tech business services is catching up with other countries. We have substantially closed the productivity gap with the USA, Germany and France in this sector while, at the same time, increasing numbers in employment (Advanced Institute of Management Research, 2004).

RESEARCH AND ANALYSIS REPORTS

Since the BCS Working Party's report on offshoring was published (BCS Working Party on Offshoring, 2004), a number of new reports have appeared offering different perspectives and analyses of the offshoring trend.

Advanced Institute of Management (AIM) Research

Offshoring of Business Services and its Impact on the UK Economy

The AIM community includes more than 150 academics and is the largest management initiative in the UK. This paper (Abramovsky *et al.*, 2004) considers recent trends in specialization, outsourcing and offshoring of business services and identifies four key findings:

- business services have accounted for more than 50 per cent of job growth in the UK over the past two decades;
- more business services are purchased from the UK than the UK purchases from overseas, i.e. we have a trade surplus in business services, and it has been growing;
- most business service industries in the UK have experienced continued job growth;

- UK productivity in business services has caught up with other leading economies.

Association for Computing Machinery (ACM)

Globalization and Offshoring of Software

ACM is an educational and scientific society uniting the world's computing educators, researchers and professionals to inspire dialogue, share resources and address the field's challenges. A taskforce was established to look at the issues surrounding the migration of jobs worldwide within the computing and IT field and industry. The key findings and recommendations (Aspray *et al.*, 2006) are outlined below.

- Globalization of, and offshoring within, the software industry are deeply connected and both will continue to grow. Key enablers of this growth are IT itself, the evolution of work and business processes, education and national policies.
- Both anecdotal evidence and economic theory indicate that offshoring between developed and developing countries can, as a whole, benefit both, but competition is intensifying.
- While offshoring will increase, determining the specifics of this increase are difficult given the current quantity, quality and objectivity of data available. Scepticism is warranted regarding claims about the number of jobs to be offshored and the projected growth of software industries in developing nations.
- Standardized jobs are more easily moved from developed to developing countries than are higher skill jobs. These standardized jobs were the initial focus of offshoring. Today, global competition in higher end skills such as research is increasing. These trends have implications for individuals, companies and countries.
- Offshoring magnifies existing risks and creates new and often poorly understood or addressed threats to national security, business property and processes, and individuals' privacy. While it is unlikely these risks will deter the growth of offshoring, businesses and nations should employ strategies to mitigate them.
- To stay competitive in a global IT environment and industry, countries must adopt policies that foster innovation. To this end, policies that improve a country's ability to attract, educate and retain the best IT talent are critical. Educational policy and investment is at the core.

Global Insight

The Comprehensive Impact of Offshore Software and IT Services Outsourcing on the US Economy and the IT Industry

The Information Technology Association of America (ITAA) provides global public policy, business networking and leadership for its 325-plus corporate members in the USA and its global network of IT associations in 70 countries. The ITAA sponsored this analysis and its key findings (Global Insight, 2005) include:

- while global software and IT service outsourcing displaces some workers, total employment in the USA increases as the benefits ripple through the economy;

- cost savings and use of offshore resources lower inflation, increase productivity and lower interest rates. This boosts business and consumer spending and increases economic activity;
- spending on global sourcing of computer software and services is expected to grow at a compound annual rate of just over 20 per cent;
- the USA has a large and rapidly growing trade surplus in services and the expected increase in offshore software and IT services outsourcing will not reverse this trend.

McKinsey Global Institute

US Offshoring: Rethinking the Response

The McKinsey Global Institute was founded in 1990 as an independent economics think-tank within McKinsey & Company. Its research (Farrell and Rosenfeld, 2005) found that many fewer jobs can be performed remotely than is commonly assumed. In theory 11 per cent of all USA services jobs could possibly be performed offshore. A large percentage of service jobs require face-to-face customer interactions or a worker's physical presence. Moreover, only a small fraction of the service jobs that could theoretically be performed offshore actually will be. By 2008, offshoring will affect less than 2 per cent of all service jobs. Offshoring generates substantial benefits but historical data show that not all workers who lose their jobs will find new ones and many that do will have to accept pay cuts. Policies are needed to ease the transition for displaced workers. Globalization is producing more frequent and dramatic shifts in companies' demand for labour and it is vital to prepare people to work in such an economy. This will require changes to the USA educational system and a new approach to career changes.

Office for National Statistics

Offshoring and the Labour Market: the IT and Call Centre Occupations Considered

The Office for National Statistics is the government department that provides UK statistical and registration services. This article (Heckley, 2005) places offshoring in the context of the economics of international trade, both in theory and practice. It then examines the evidence of recent labour market impacts using official UK labour market data. The key findings (Heckley, 2005) are:

- the UK is a net exporter of IT-enabled services;
- the trend in both exports and imports of these services is increasing, but this rise is in line with the rise in UK output;
- employment growth over the last 4 years in relevant occupations has been three times (8.8 per cent) the overall UK employment growth (3.2 per cent);
- redundancy rates are higher and re-employment rates have been lower in relevant occupations compared with the overall UK figures;
- the overall re-employment rate for these occupations is increasing.

Organization for Economic Cooperation and Development (OECD)

Growth in Services: Fostering Employment, Productivity and Innovation

The 30 member countries within OECD share a commitment to democratic government and the market economy. The services sector now accounts for more than 70 per cent of total employment and value-added in OECD economies. Productivity growth in services, however, has been slow in many OECD countries and the share of the working-age population employed in services remains low in many countries. Addressing the challenges of global competition and strengthening the potential of services to foster employment, productivity and innovation will need to build on sound macroeconomic fundamentals and involve a combination of structural policies (OECD, 2005).

OECD Working Party on the Information Economy

Potential Offshoring of the ICT-Intensive Using Occupations

Even though there are no official statistics measuring the extent of offshoring, anecdotal evidence suggests that the international sourcing of IT and ICT-enabled services is growing rapidly. However, even the largest estimates of jobs likely to be lost through offshoring are relatively small compared with the general job turnover numbers. Results from an analysis of occupational employment data (OECD Working Party on the Information Economy, 2005a) suggest that nearly 20 per cent of total employment in the European Union, USA, Canada and Australia could potentially be affected by global sourcing. The adjustment process could be costly, especially for those who have lost their jobs. Education and training programmes should be adapted to enable people to take advantage of new employment opportunities. Life-long learning and skills upgrades will become increasingly important. A change in mentality will be needed, as people are increasingly likely to have multiple jobs and even careers. Countries should remain committed to liberalizing trade in services and avoid a protectionist response.

OECD Working Party on the Information Economy

The Share of Employment Potentially Affected by Offshoring

This report (OECD Working Party on the Information Economy, 2005b) examines the relationship between the share of employment potentially affected by ICT-enabled offshoring of services and other economic and structural indicators. Estimates are provided of the statistical association between this share, trade in business services and foreign direct investment. Contrary to popular belief, the analysis in this paper does not find any systematic evidence that net outward investment or imports of business services are associated with significant declines in the share of potentially offshorable occupations at the aggregate level. Exports of business services are found to have a positive statistical association with the share of employment potentially affected by ICT-enabled offshoring of services, suggesting that increases in demand and production have also raised demand for these types of ICT-using occupations. Other key factors positively associated with the share of potentially offshorable occupations are found to be the comparative size of the service sector, the growing share of ICT investment in total fixed investment, and human capital.

Professional Contractors Group (PCG)

The Offshoring of IT Work and the Government's New Immigration Strategy

PCG is a not-for-profit professional body for freelance contractors and consultants, with more than 12,000 members in a wide variety of sectors. This paper (Professional Contractors Group, 2005) presents an empirical analysis of the advantages and disadvantages of offshoring IT work and suggests that the widely predicted benefits of this strategy seldom, if ever, emerge. Economic theory predicts that offshoring will result in large cost savings, which will be sufficient to offset the short-term damage to the economy caused by the loss of work in the UK. This study (Professional Contractors Group, 2005) suggests that this theory is wrong and that companies who offshore their IT operations usually fail to make the anticipated savings and have no clear advantage compared with those who do not offshore. They are in fact often out-performed by their non-offshoring competitors.

United States Government Accountability Office (GAO)

Offshoring of Services: An Overview of the Issues

The GAO is an independent, non-partisan agency that studies how the federal government spends taxpayer dollars and advises Congress and the heads of executive agencies. In response to widespread congressional interest, the GAO carried out a study (United States Government Accountability Office, 2005) to help policy makers better understand the potential impacts and policy implications of services offshoring. Analysts expressed a range of views on four broad areas: the average US standard of living; employment and job loss; distribution of income; and security and consumer privacy. The different perspectives reflected the fact that services offshoring is a relatively recent development the impact of which is not fully known; the limitations of available data on offshoring; and different theoretical expectations about how services offshoring will affect the USA economy.

World Trade Organization

Offshoring Services: Recent Developments and Prospects, World Trade Report

The World Trade Organization is the only global international organization dealing with the rules of trade between nations. This essay (World Trade Organization, 2005a) appears in the 2005 World Trade Report (World Trade Organization, 2005b). Offshoring services are not new, the report states, and are in fact no different from other forms of trade driven by comparative advantage. It concludes that the impact of offshoring services jobs is far stronger in the popular perception than on actual production, employment and trade patterns. The number of jobs affected today by offshoring IT services is small if related to the overall employment levels in the developed countries most affected. In 10 years' time, the impact of service globalization will be compared with previous revolutions such as ecommerce. Offshoring of IT and IT-enabled services will increase significantly in size in the coming years without upsetting national employment levels in the countries that offshore, given the normal turnover rates in labour markets. Nor will it dramatically change the overall employment situation in the countries providing the offshored services, given their large labour force growth in the years ahead.

RESPONDING TO OFFSHORING

The BCS Working Party on Offshoring, and many of the publications described above, have highlighted the impact of increased globalization on the UK's IT profession. The scale of our ICT service exports demonstrates the competitive edge we now enjoy. Our aims now must be to anticipate future business needs, enhance professional standards, redesign IT career patterns, develop appropriate skills, encourage creativity and innovation and celebrate excellence.

4 Promoting Professional Standards

Today's UK IT profession needs to gear up for the globalization of the IT services industry. The global economy opens up opportunities for IT professionals, not only to pursue successful careers in the UK but also to provide services from the UK to global markets and work overseas. But to nurture the development of a thriving UK IT workforce we need to focus on raising our professional standards to match (and exceed) the best in the world.

As the leading association and learned society for the IT profession in the UK, BCS has a key role in promoting professionalism and it has long championed the development and implementation of a wide range of professional standards. BCS has built a strong worldwide reputation and plays a significant role in the development of international standards. This chapter of the report describes some of the initiatives underway in BCS that will help define, promote and raise professional standards. (Further information on data protection and security standards is given on pages 50 to 54)

PROFESSIONALISM IN IT PROGRAMME

This ambitious, ground-breaking new programme was launched by BCS in 2005 to increase professionalism in IT and improve the ability of companies and other organizations to exploit the potential of IT effectively and consistently. It recognizes that we are still some way from having a mature IT profession within which professional qualifications are highly valued rather than seen as an optional extra. The crucial task is to persuade major employers, business leaders and government that professionalism is key to raising standards, achieving a greater degree of success in IT projects and deriving greater value from investment in IT systems. If we are to achieve a more professional approach to the exploitation of IT, we will need an IT profession that:

- is defined in terms of its ability to play a full part in all stages of IT exploitation;
- is seen as, and sees itself as, an integral part of the business;
- has appropriate non-technical skills, including management, business leadership skills, as core competencies;
- lays greater emphasis on the accreditation of current capability and competency;
- demands a greater personal responsibility on the part of the practitioner;
- is attractive to a wider group of entrants than at present, including those groups alienated by the current image of the profession.

Different work streams are examining the scope of the IT profession, investigating stakeholders' needs and views, developing a common IT competence architecture and identifying the competencies and qualifications required by top IT professionals. A major conference on individual and corporate professionalism is to be held in May 2006 and will be hosted by BCS in partnership with National Computing Centre (NCC), Intellect and e-skills UK. All three organizations share a commitment to lead the drive for professionalism.

The President, Charles Hughes, sponsors the BCS Professionalism in IT Programme. Deputy Chief Executive Colin Thompson is the Programme Director. Global sourcing is a fact of life for many of today's IT professionals. IT managers are responsible for designing sourcing strategies, managing the split between onshore and offshore operations and maintaining professional standards across national borders. This adds a new dimension to the demands made of IT professionals. According to Colin Thompson:

I have always believed that there is considerable overlap between the issues of professionalism and global sourcing and there can be little doubt that differences of language, culture and geography add significantly to the complexity associated with ensuring end-to-end professionalism. That is not to suggest that IT staff in other parts of the world are likely to be less competent or indeed less professional. But overall professionalism in the delivery of IT-related business change is not just the sum total of the competence and professionalism of the individuals involved; it is heavily dependent upon the quality of the relationship between IT professionals and business managers and users.

One of the central messages of the professionalism programme is that IT is no longer just about producing technical solutions to problems defined by 'the business'; it is about a partnership within which IT and other business functions work together to identify and then to exploit new opportunities. If we are to do that effectively and consistently, and we believe it to be vital that we should, then we need to be extremely careful about how we use global sourcing and we need to ensure that we produce and maintain the necessary cadre of IT professionals with the competence and capability to manage a global operation.

BOX 4.1 THE GOVERNMENT'S IT PROFESSION

'I strongly encourage anyone working as an IT professional in the public sector to register with the Government IT Profession. Let's work together to build better careers and skills in Government IT', Jim Murphy, Cabinet Office Minister.

The Government IT Profession brings together all IT professionals in the UK public sector; including government departments, non-departmental public bodies (NDPBs) and local government. It stretches from new entrants through to the members of the Chief Information Officer (CIO) Council. The aim is to create a joined-up, government-wide profession, providing a career of mutual benefit to the individual and the government. This initiative is part of the Professional Skills for Government programme and is sponsored by the CIO Council. Rolling out the vision to the estimated 50,000 people who work in government IT will take time. Implementation is, however, already underway in several departments, with further roll-outs to IT professionals planned for spring 2006.

'It's about the whole public sector acting as a team', Ian Watmore, Permanent Secretary and Head of the Prime Minister's Delivery Unit.

The Government IT Profession competency framework is illustrated in Figure 4.1 and shows the career path available to aspiring and current government IT professionals. It is supported by a detailed skills framework based on SFIA. The career path includes the following.

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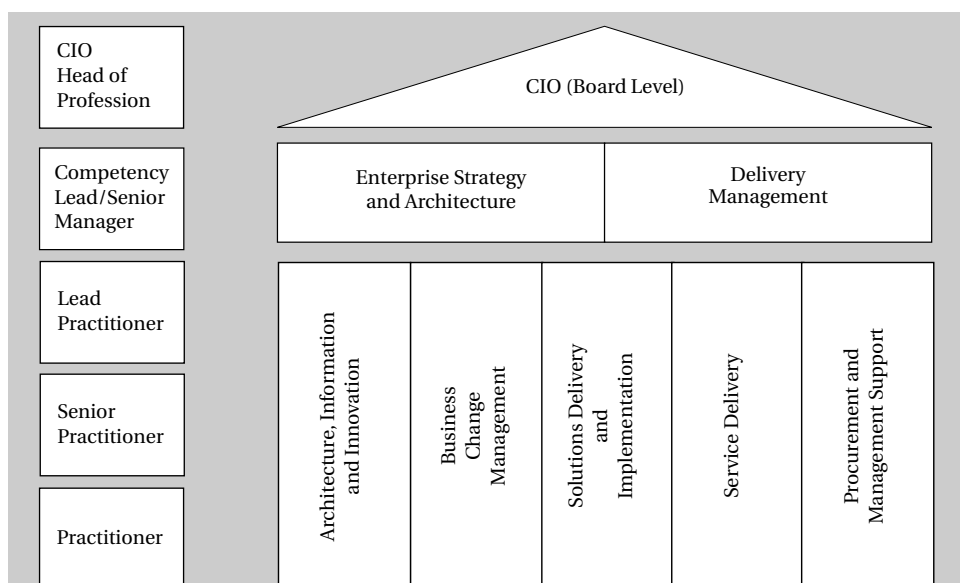


FIGURE 4.1 Government IT profession competency framework

- The CIO: a board-level appointment for the most senior IT professional in an organization. Every government IT professional can aspire to this post. All major public sector bodies will designate a CIO at main board level to establish and deliver the IT strategy for their organization.
- Delivery managers and enterprise strategy managers: senior appointments in IT. In very large, complex IT environments there may be several of these managers.
- Leaders for each competency. The skills framework describes five core competencies: architecture, information and innovation; business change management; solutions delivery and implementation, service delivery; and procurement and management support.

Most central government departments and agencies will have a competency lead for each of the five areas. The competency leads support the development of IT professionals within and wishing to join the competency.

This information was provided by IT Professionalism Directorate, eGovernment Unit. Further information can be found at www.cio.gov.uk/ITProfession.

BOX 4.2 NCC-IMPACT CIO COMPETENCY FRAMEWORK

Alistair Russell of NCC-IMPACT writes about this work:

The role of the CIO in today's business arena has never been more important in leveraging and adding real value to organizations through the exploitation of IT. NCC-IMPACT are leading a key work stream within the overall Professionalism in IT Programme, centred on identifying those competencies that are critical to the success of CIOs in organizations.

Our aim is to identify the competencies required for the most senior IT roles in the 21st century. The programme involves working with our CIO members in FTSE 250 organizations and their public sector equivalents in central and large local government. In addition, we are working with our partners in BCS, Intellect and senior figures from the IT profession to complete the programme of work.

(Continued)

Our academic partner is Dr Steven Glowinkowski, a key figure in the field of competencies and performance who has conducted a number of research projects over the last 25 years. Competencies are defined as those characteristic behaviours that lead to successful performance outcomes. Competencies are critical when considering the difference between average and outstanding performance and how they underpin organizational climate, which our research has shown differentiates between a high and average performing organization.

To develop an effective competency framework, we recognized that we needed to achieve wide participation across the CIO population. The first stage was to analyse quantitative and qualitative data obtained from nearly 100 responses to a questionnaire. A series of focus groups involving over 60 of IMPACT's CIO members formed the second stage and provided further data. The focus groups addressed such questions as:

- What key challenges face CIOs?
- What differentiates a CIO from their CXO colleagues?
- What differentiates the excellent from the average CIO?

A robust framework is essential if we are to be clear on what excellence in performance looks like. The outcome from this initiative will inform the professionalism programme as a whole and should support a range of subsequent pieces of work, such as talent management and development in IT, career planning and competencies for the CIO's core team.

CHARTERED PROFESSIONAL STATUS

The CITP designation is set to become the definitive gold standard for the IT profession in years to come. Introduced in 2004, CITP is based on the industry standard IT skills architecture, SFIA (see pages 35–6). This standard, which is open to all IT disciplines, is a major part of building a mature profession able to improve the capability of organizations to exploit IT. Four major employers, IBM, CSC, Deloitte and Accenture, have been accredited to award the CITP qualification. There are plans to extend the right to award CITP status to other relevant chartered bodies under licence.

Individuals with CITP status should have at least a minimum level of expertise across five areas: technology, application, management, interpersonal skills and ethics. They should be able to demonstrate a deep understanding of the nature of IT and the problems associated with the implementation of IT products and services. They must adhere to the codes of conduct of their awarding body and should demonstrate a personal and professional commitment to society, their profession and the environment.

BCS shares a dedication to promoting professional excellence with the Engineering Council and the Science Council. Currently BCS is the only professional body that is able to confer the three accolades: Chartered Engineer (CEng), Chartered Scientist (CSci) and Chartered IT Professional (CITP). This allows IT professionals to choose the chartered status that most appropriately matches their professional situation. It also reflects the increasing diversity of roles and career patterns within IT.

BOX 4.3 INTELLECT PROFESSIONALISM PROGRAMME

Professionalism is a key factor for the ICT industry if it is to sustain its competitive advantage in the global marketplace and improve its reputation and image. Intellect aims to harmonize and sharpen industry thinking on supplier professionalism and the standards, behaviour and responsibilities that this entails.

Intellect already has a programme of activities to improve the practice, reputation and image of the ICT industry and support UK plc's ongoing leadership in the global ICT market. The new Professionalism Programme will complement existing activities and is designed to ensure that IT professionalism is embedded within all aspects of the supply chain. The programme is being developed in conjunction with the eGovernment Unit, major customer groups, professional institutions such as BCS and *Computing*.

The programme incorporates extensive stakeholder debate through the professionalising IT initiative jointly undertaken with *Computing* during March 2006. Published guidelines designed to help suppliers demonstrate that they operate to professional standards and help customers assure themselves of the quality of their ICT suppliers should be completed in Autumn 2006. Intellect has recently released a scoping paper (Intellect, 2006) on professionalism outlining initial thinking on the issue. BCS President, Charles Hughes, is a member of the working group that produced the paper.

This information was provided by Sureyya Cansoy, Programme Manager, Professionalism Programme. The scoping paper can be accessed at www.intellectuk.org/markets/groups/corp_prof/default.asp.

Further information about Intellect can be found at www.intellectuk.org.

QUALITY STANDARDS

If British IT professionals (and UK companies) are to maintain and develop their skills and reputation in the global marketplace for UK software, systems and services they need to demonstrate knowledge of a range of quality standards and the skills required to work at this level. It is important that we ensure that UK standards are comparable or higher than the best offered by offshore IT companies such as those that have reached CMMi Level 5.

BCS has long been involved in the development of IT-related quality standards and was a key player in the creation of the TickIT Scheme in the early 1990s. TickIT is the IT Sector implementation of ISO 9001:2000 (with ISO/IEC 90003 for software) for accredited independent third-party certification, recognized by both the UK and Swedish governmental accreditation authorities. The scheme is based on the twin principles of auditor competency and added-value guidance to both suppliers and customers of IT products, systems and services derived from best practice.

The primary role of BCS in the scheme is to define and monitor the requirements for TickIT Auditor training, experience, competence and professionalism, in conjunction with the Institute of Quality Assurance (IQA) International Register of Certificated Auditors. BCS is also, however, a major contributor of good practice guidance on all aspects of software and systems development, by virtue of the wealth of professional expertise amongst its rapidly growing membership.

Following an initiative led by BCS, a new Joint TickIT Industry Steering Committee (JTISC) has been formed to create a stronger platform from which to develop the scheme and re-align it with the changing needs of the 21st century IT industry. JTISC has three parent bodies, BCS, BSI Standards and Intellect, and the first meeting was held in January 2006. Representing BCS, Arthur Dransfield is chair of the new committee and describes the way in which TickIT is adapting to future needs in the era of global sourcing:

In parallel with sponsoring the formation of JTISC, BCS set up a working group to review the Society's approach not just to the current TickIT scheme, but to the needs of the IT sector for software quality improvements in general. TickIT has been an undoubted success over the past 15 years, but the industry is moving on, and new approaches are also now available – the Software Engineering Institute's CMMi being the current headline. The working group delivered an interim report at the end of 2005, in which it reaffirmed the Society's commitment to maintain intellectual leadership in the TickIT Community and the further development of the TickIT Scheme. The report highlighted the complementary nature of the TickIT and CMMi approaches in the overall arena of quality management and software quality improvement, and supported proposals to bring together the best features of both schemes into a hybrid structure as the basis for the next generation of TickIT scheme for the 21st century. This same approach was also actively supported by the inaugural JTISC meeting, and one of the first Task Groups to be established is now specifically addressing this objective.

For further information on TickIT visit www.tickit.org and on IQA visit www.iqa.org.

BOX 4.4 ESOURCING CAPABILITY MODEL (eSCM)

The offshore market, led by India, has placed great emphasis on compliance with internationally recognized standards such as the Capability Maturity Model Integration (CMMi), ISO 9001 and Six Sigma. Carnegie Mellon University's Software Engineering Institute (SEI) devised CMMi to describe an organization's ability to exert quality control and improve the productivity of its processes.

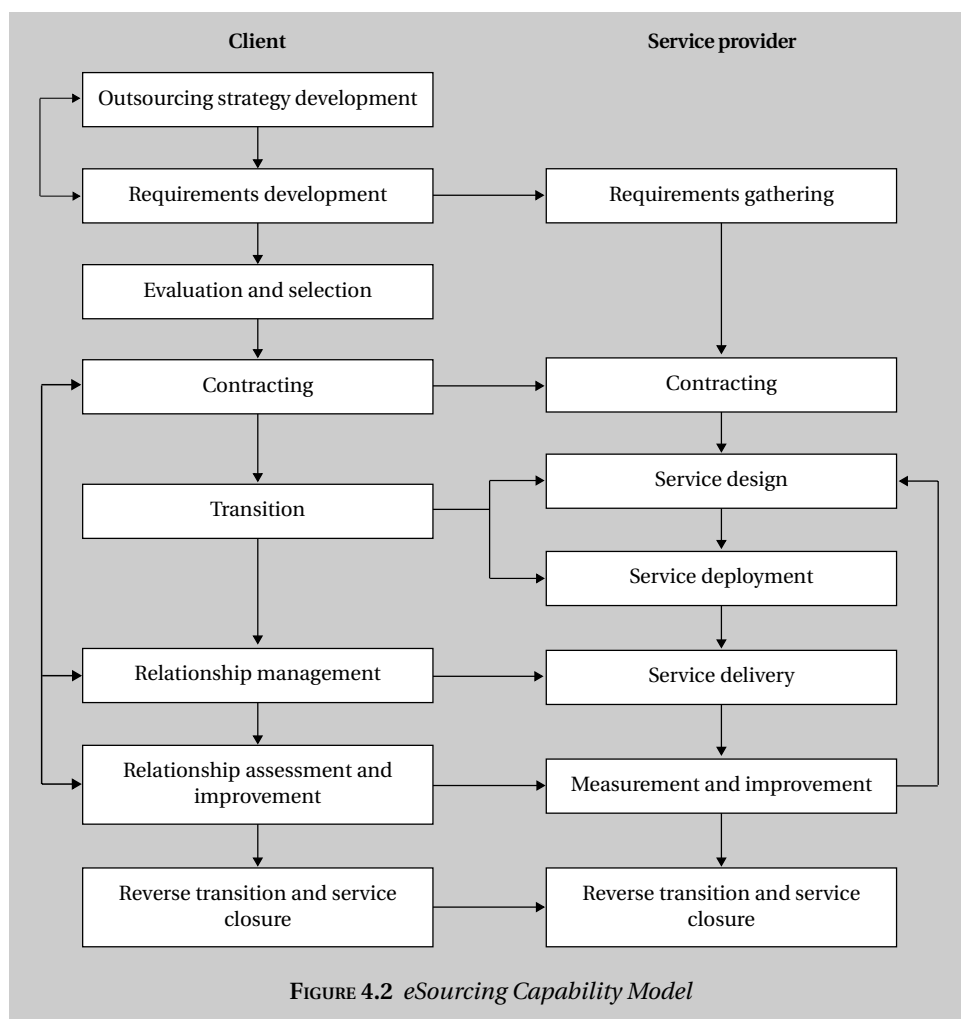
Carnegie Mellon University's School of Computer Science (IT Services Qualification Centre) and a number of leading IT companies devised eSCM. It draws on global research and comprises best practices for sourcing relationships. The purpose of the model is to provide a framework against which suppliers can benchmark their service delivery practices (principally outsourcing) and determine their levels of maturity. The model provides for five levels of maturity in the same way as CMMi and a process framework for the entire sourcing lifecycle, as illustrated in Figure 4.2.

In common with the CMMi, there is no concept of certification of maturity levels. The model is purely provided to enable suppliers to improve their internal processes. A number of suppliers will, however, use the model to try to gain competitive advantage by claiming a certain level of maturity. This is already beginning to happen in India where the outsourcing industry is well established.

This information was provided by Arthur Hill, Company Quality Manager at Detica, Intellect representative on the JTISC and member of the Policy Advisory Committee of the UK Accreditation Service.

Further information on eSCM can be found at itsqc.srv.cs.cmu.edu/escm.

(Continued overleaf)



PROFESSIONALISM IN HEALTH INFORMATICS

The term health informatician broadly encompasses IT professionals, knowledge managers, patient data handlers, designers, developers, implementers and trainers. They may be in NHS or private medicine, academia or be part of the supplier community. In all cases the aspiration is for the professionals involved to work to the same code of conduct and maintain the same standards. Informatics in and for the health sector supports clinical care in hospitals and surgeries; the management of hospitals and primary care facilities; and strategic planning. It covers internal staff and those in external bodies that provide services and solutions, and those who undertake research, teach or professionally develop staff, both specialists and end users.

UKCHIP has been established to recognize fitness to practise on behalf of patients and professionals. High standards of competence and quality are important to IT for the NHS. The (currently voluntary) register recognizes levels of experience, qualification and job roles. Where experts, specialists or professionals wish to work for the NHS without crucial domain knowledge they can, for a limited time period, be put on a pre-registration list that demonstrates their commitment to gain experience of the sensitivity and distinguishing complexity of health data and processes.

It is seen as important, given some perceptions and concerns about the robustness of remote third-party services, that staff of offshoring or outsourcing service providers should also register key staff at appropriate levels from data preparation to application system developers and testers. UKCHIP requires a continuing declaration of professional development from all its registrants; and recognizes evidence of vocational work-based activities to maintain quality in parallel with traditional courses and conference attendance. UKCHIP already has registrants who are based overseas who intend to work with the NHS or enter the NHS, and meeting the UKCHIP specifications provides a common and increasingly recognizable currency for professionalism.

This information was provided by Jean Roberts, UKCHIP Board and BCS Health Informatics Forum. Further information on UKCHIP can be found at www.ukchip.org.

BOX 4.5 PROFESSIONAL CONTRACTORS GROUP (PCG) QUALITY SCHEME

Freelance IT contractors provide flexible, dynamic, specialist skills in the UK and, just like other IT professionals, need to move up the value chain and develop new skills to meet the challenges of globalization. One of the obstacles for microbusinesses is that public sector bodies often insist that their suppliers have ISO 9001 certification (one of the leading internationally recognized quality standards). The PCG Quality Scheme (QS) is an ISO 9001 certification scheme created specifically to meet the needs and working practices of the independent contracting sector. The scheme is accredited by the UK Accreditation Service (UKAS) and bundles all the mandatory components required for ISO 9001:2000, and a few more besides, in a single, comprehensive fixed-price package designed explicitly to suit contractors. The package includes:

- a fully supported website with forums specifically for ISO 9001;
- a 1-day training course;
- experienced mentors to give advice on quality matters;
- mandatory internal and external audits;
- a fully hosted Electronic Quality Management System (EQMS) and technical support throughout.

PCG (QS) helps contractors improve their company's image, showing their commitment to providing a high level of service and ensuring a disciplined approach to effective data management and traceability. It is the first scheme of its kind and is being delivered at a fraction of the cost of any credible alternative, enabling freelance businesses to operate in a more professional manner by highlighting businesses of the highest integrity.

This new QS was presented to the Lisbon Network at the European Parliament in Brussels in November 2005. PCG believes that one of the most direct ways of increasing the competitiveness of the economy is to open public procurement, which represents 16 per cent of the European Union's gross domestic product, to smaller businesses and the self-employed. According to John Thomas, PCG Chief Executive, 'The UK's freelance workforce of around 1 million people includes some of the brightest and best talent in the country. Large private enterprises discovered the benefits of engaging freelance contractors for specific projects a long time ago, and we hope that our innovative ISO 9001 certification scheme will encourage the public sector also to take advantage of the expertise, experience and good value that freelancers can offer'.

For further information see www.pcgqs.org.uk.

INTERNATIONAL LINKS AND QUALIFICATIONS

BCS has well-established links with various international bodies and this enables it to promote the UK IT sector, encourage the adoption of professional standards worldwide and assist in the development of professional associations in other countries. BCS is represented in the General Assembly and on the Council of the International Federation for Information Processing (IFIP), the International Medical Informatics Association (IMIA), the European Federation for Medical Informatics (EFMI) and the Council of European Professional Informatics Societies (CEPIS).

BCS has active relationships across Europe in three generic areas:

- policy-related activities with similar professional bodies in other countries;
- practical relationships with these organizations to develop professional qualification offerings jointly where the market makes no adequate provision;
- collaboration with other organizations to promote the international uptake of BCS qualification products and publications.

Geoff McMullen, Past President of BCS writes about BCS activities in Europe:

BCS was a founder member of CEPIS, the Council of European Professional Informatics Societies in 1988–9. CEPIS is organized, like BCS, into a number of specialist areas, which change over time. Each specialist group produces periodic papers, recommendations and reports, which usually are addressed to European organizations with an interest in ICT-related policy. Over time, BCS has contributed to groups interested in skills, professional qualifications, security, legal aspects of IT, publications and technology futures. Such collaborations offer useful opportunities for networking and enable BCS to ensure that its voice is heard where ICT policy is formed. BCS representatives attend the biannual meetings of CEPIS council and BCS is currently represented on the CEPIS executive committee.

CEPIS's most significant success has been the creation of the European Computer Driving Licence (ECDL), the world's leading IT user certification programme. A more recent development has been a practitioner qualification, EUCIP (European Certification of IT Professionals). BCS is the UK licensee for ECDL and is represented on the board of directors of each. ECDL skills card sales have made a vital contribution to BCS income for the last 7 years.

Extensive documentation of CEPIS activities can be found at www.cepis.org along with useful links to other member societies. Further information on ECDL can be found on page 57 and at www.ecdl.com.

A little more than 15 per cent of BCS members live outside the UK and some of these international members have created active local groups. These international sections are based in Belgium, Canada, the Channel Isles, Greece, Hong Kong, Isle of Man, Mauritius, the Middle East, Pakistan, Singapore, Sri Lanka, Switzerland and the USA. Further information about the international sections can be found at www.bcs.org/international.

BOX 4.6 FUTURE IT PROFESSIONAL OPPORTUNITIES IN THE UK

Graham Marwick, Project Manager in Application Services Delivery at IBM Business Consulting Services, was a BCS Individual Excellence Award medallist in 2005.

While a project manager for a global SAP implementation based out of Amsterdam in The Netherlands, I worked with people based in both India and Eastern Europe. My entire team of infrastructure techies sat in Bangalore, India, with high-speed access into the client's systems. The main advantage was cost savings. It is simply the case that technical resources in places such as India are cheaper than the UK and the USA, purely due to the fact that salaries and real estate cost less in those countries (although this is changing and India is now getting more and more expensive). This does not mean, however, that all work can be sent to India and done for half the cost. There are still important roles to be played by the UK or any other European country.

I personally split my resources into two groups. These are (1) what I call the do-ers (the guys on the ground, making the program and configuration changes), and (2) the management (the managers, the team leaders, and the technical architects). It is common to send most programming work to the do-ers in somewhere such as India because work tends to be done quickly, cheaply and to a very high standard. However the opportunities that I see ongoing for professionals in the UK are still vast.

I have spent a large amount of time running SAP support projects out of the UK. This has given me a lot of exposure to India and South America, where 90 per cent of the technical work is done. It is vital, however, for IBM to have IT staff working with project managers in the UK. We need IT professionals who not only understand the technology but also appreciate business management principles. Our UK-based IT staff need a good understanding of project management and the financial aspects of our IT solutions. We have IT professionals with these skills working alongside bid project managers, technical architects, accountants and organizational strategists. These are the people who scope upgrade work as technology evolves. With the need for extensive liaison with our clients this work tends to be done in the UK or at the client's headquarters.

All of this leads to what I believe needs to be a global marketplace. In this day and age, we cannot accommodate borders and boundaries. Project managers must have access to global resources. We can scope, design and manage projects from the UK, and then transfer the groundwork to India, China or Eastern Europe. As the world evolves, this process will evolve. Through natural economics, prices will rise in countries such as India and Eastern Europe, where skill levels will increase, as will standards of living and salaries. Technical work will then move on to other areas of the world such as South America. Globalization is truly making the world a smaller place. Poorer countries are getting richer, the distribution of wealth is fairer and the opportunities for development, both personal and organizational, are becoming greater.

5 Recruiting and Educating IT Professionals for the Future

If the UK is to thrive in an era of global sourcing we need to recruit and educate a cadre of IT professionals who add value by understanding how IT can be used to deliver business benefits; possess the interpersonal and business skills needed to manage projects across the world; and can develop excellent working relationships. A recent report from Deloitte (Deloitte Research, 2005) observed:

The UK needs to provide technology training and education that allows the workforce to generate significant value-add, partly through understanding the technology itself, and partly through understanding how to deploy, manage and commercialize it. The UK should focus on creating individuals who have an unrivalled capacity to turn science into technology, and technology into specialized, commercially viable products, services and solutions.

Mark Kobayashi-Hillary, a member of the BCS Working Party on Offshoring, writes:

Offshoring and the global delivery of services, including IT services, is a starkly visible phenomenon of a knowledge-based society in the same vein as that experienced by former mill, coal or steel workers and subsequently our notion of childhood education and lifelong learning will need to change just as fundamentally as the workplace. Lifelong learning is already a part of the industry. The coding skills you learned at university are close to useless a decade later, constant learning is necessary to remain attractive within the employment market. To combat the change associated with globalization and offshoring it is now necessary to consider softer skills that cannot be offshored, allowing British IT employees to break away from the 'propeller-head' stereotype.

Employment in the UK IT industry is forecast to grow at five to eight times the average employment growth in the UK over the next decade. Far from encouraging young people to shun IT as a career option, the UK needs to increase the number of graduates entering the industry.

Educators need to consider the relationship and corporate partnership skills required for specialists on IT courses and also business degrees such as the MBA. Companies need to consider how to help their employees prosper in a changing environment where they must work successfully with international teams, not just the support team in the basement. Government has to consider the question of what it means to have a career in an environment where skills can be rendered redundant in years. A brave knowledge society will seize the opportunity to lead the world through an education that prepares young people for a new world of work and then supports them through to retirement.

This chapter describes an initiative to increase the number of recruits to the IT profession, the accreditation of university courses and the development of qualifications to meet the need for UK professionals to demonstrate added-value skills.

RECRUITING TOMORROW'S PROFESSIONALS

Although IT contributes significantly to the UK economy and forecasts indicate that Britain's IT workforce will need to grow substantially over the next decade if the

UK's competitiveness is to be sustained, applications to study computer science and IT are falling. The danger of a shortfall in the number of IT professionals is clear.

This problem is not limited to the UK. Bill Gates has expressed concerns about the decline in the number of students entering computer science and said that it is up to technology companies like Microsoft to cultivate a positive image of IT work (Montalbano, 2005). We need to dispel the myth that all computer scientists do is write code in isolation with limited social interaction. Bill Gates has observed, 'The nature of these jobs is not just closing the door and coding. The greatest missing skill is somebody who's good at understanding engineering and bridges that to working with customers and marketing' (Montalbano, 2005).

Gillian Lovegrove, BCS Education and Training Forum Manager and member of the Working Party on Offshoring, and Anna Round, from the Council of Professors and Heads of Computing, write about a BCS initiative to address the shortfall in recruits to the IT profession in the UK:

In 2005, the Higher Education Funding Council (HEFC) identified computing/IT as a strategic subject area in which a strong knowledge base and a supply of highly skilled workers are of particular national importance. Representatives from HEFCE approached BCS to propose that the Society should lead an initiative to increase the number of students studying computing/IT at school, college and university. HEFCE supports similar projects in areas such as chemistry, physics, engineering and mathematics, and has now provided funding for the first phase of work in computing/IT. This is steered by BCS Education and Training Forum with its Strategic Panel and Expert Panel and the Council of Professors and Heads of Computing.

Initial scoping workshops were held in Newcastle in November 2005 and in London in February 2006. The aim of these regional meetings was to gain a broad picture of the relevant issues throughout the UK. Attendees included representatives from secondary, further and higher education, industry, the training sector, the careers service, Local Education Authorities, the Learning and Skills Councils and the Regional Development Agencies. The workshops included short presentations on key issues and these were followed by intensive discussions on topics such as widening participation in computing/IT courses and careers, the recruitment of women and ethnic minorities, mature-age students, the school curriculum, computing/IT in higher education, resources for school teachers, careers advice, the role of the Skills Councils and attitudes to computing/IT.

Reports from the workshops will be taken forward at an event to be held in the spring of 2006, at which a panel of experts will examine key themes and future actions, including the format of a pilot project. A programme of activities will be drawn up and partners will be identified. Partners will be sought from higher, further and secondary education as well as industry, Skills Councils and professional organizations. The relationship between this project and other initiatives to increase student numbers in crucial STEM (science, technology, engineering and mathematics) subjects will also be established.

Further information can be found at www.bcs.org/server.php?show=ConWebDoc.3356.

ACCREDITING DEGREE COURSES

Andrew McGettrick is BCS Vice-President and Chair of the Qualifications and Standards Board, which promotes the provision of high-quality education and training to encourage practitioners to develop and maintain exciting, responsible and rewarding careers in the context of increasing globalization of the IT workforce. He writes about the current review of accreditation processes:

With the relatively recent introduction of Chartered Scientist (CSci) and Chartered IT Professional (CITP), it became necessary to review the accreditation processes associated with degree programmes leading to these awards. Criteria had to be developed to guide accreditation teams looking at undergraduate programmes and part of this involved providing clarification on the differences between CSci and CITP as well as the already existing Chartered Engineer title (CEng). Roland Ibbett, a distinguished member of the University of Edinburgh and one of its former Vice-Principals is leading this activity. The broad findings emerging from the review are that:

- Chartered Scientist is relevant for degree programmes characterized by mathematical foundations and theory or by an emphasis on the scientific method, which often relate to areas such as artificial intelligence, cognitive science, escience, simulation and modelling;
- Chartered IT Professional is characterized by an attention to areas relating to the IT profession, including systems issues and innovative and imaginative uses of computing in a variety of application areas;
- Chartered Engineer embraces areas such as software engineering, computer engineering, communications areas, embedded systems and architecture.

The accreditation review has sought to address certain kinds of postgraduate courses. The motivation for this has come from consideration of the needs of the relevant stakeholders, namely:

- students who need guidance on their choice of programmes;
- industrialists who also need guidance on graduates emerging from courses of quality;
- academic staff who see courses benefit in terms of prestige and status from the kitemark of being accredited by BCS.

An important aspect of this review has been to properly and effectively position BCS and the UK in terms of its standing and its expectations of graduates. It is envisaged that the new accreditation arrangements and criteria will be introduced at the start of the calendar year 2007.

The ACM report *Globalization and Offshoring of Software* (Aspray *et al.*, 2006; see also page 13) presents a set of six challenges to the education community.

- There is a need to consider the levels of IT work that are predominant in the national and multinational economy being served by educational institutions, and which are likely to be predominant in the coming years.
- There is a need for computing/IT education to evolve, whether due to globalization or not.
- There is a need for education to begin to prepare students for a global economy and its possible impact on their careers.
- Educational systems that help prepare students to be creative and innovative will create advantages for those students and their countries.
- Educational systems that not only pay attention to current business and industry needs but also provide a core foundational knowledge will create advantages for those students and their countries.
- A good educational system requires the right technology, a good curriculum and good teachers.

In the world of educational computing, this is a time of change and challenge. Apart from the adjustments in accreditation there are a range of concerns caused by falling student numbers, with low completion and retention rates, and uncertainties over

careers. Moreover the technology continues to evolve and educational institutions need to respond to the changing landscape. These developments create an important set of considerations for BCS through its accreditation activities.

PROFESSIONAL QUALIFICATIONS

Through the ISEB, BCS provides industry-recognized qualifications that measure competence, ability and performance in many areas. These qualifications add value to professional careers by providing both the means and the platform for recognition and enhanced career development. ISEB qualifications are currently available for the following areas:

- IT service management;
- IT assets and infrastructure management;
- IT legal and compliance;
- security;
- project management and project and programme support office;
- business analysis;
- business change;
- testing;
- systems development;
- IT architecture.

Qualifications are available at foundation, practitioner and higher levels. To maintain high standards, ISEB accredits all training providers offering courses that lead to these qualifications, reviewing both the courses and the materials used. ISEB courses are available in more than 30 countries, including the USA, Australia, New Zealand, India and China. Further information can be found at www.bcs.org/iseb.

This very successful qualification scheme is continually being expanded into new areas. Recent launches include:

- software asset management essentials;
- IT service management practitioner exams in release management, availability management, IT service continuity management, capacity management and financial management for IT.

Current developments include:

- foundation in IT assets and infrastructure;
- foundation in IT-enabled business change.

The ISEB qualification framework has recently been reviewed to align all qualifications into a more cohesive structure, highlighting the links across different subject areas so that individual professionals can more easily combine different qualifications from across the range on offer to meet their career development needs. The new ISEB framework is based on a broad subject-based structure, which makes it possible to identify which qualifications are applicable to various industry-standard job roles. There are four main subject areas:

- projects and business change;
- legal, compliance and security;
- IT infrastructure, assets and services;
- solution development and delivery.

Across all subject areas there are three qualification levels, producing greater clarity and depth in the ISEB scheme:

- foundation;
- practitioner;
- higher.

ISEB is clearly providing a wide range of qualifications that can be combined to enable UK-based IT professionals to demonstrate that they can add value, combining technical expertise with business-related knowledge, project management expertise and service management skills, to name but a few of the many subjects that can be studied.

This information was provided by Samantha Ralph, ISEB Product Manager.

BOX 5.1 DEVELOPING WORLD CLASS IT SKILLS FOR A GLOBAL MARKET: E-SKILLS UK

Margaret Sambell of e-skills UK writes:

e-skills UK is the employer-led Sector Skills Council for IT and Telecoms. Licensed by government, it brings employers together with educators and other stakeholders to improve UK productivity and competitiveness through action on skills.

In June 2005, e-skills UK launched its Sector Skills Agreement (SSA) with employers and stakeholders. The SSA sets out a 10-year vision supported by a 3-year action plan to close the UK's productivity gap with major international competitors. It is underpinned by one of the most extensive studies into the IT skills landscape ever undertaken in the UK.

The SSA research highlights the impact of globalization and global sourcing, and explains the economic imperatives that unite business, government and education in addressing the implications for the UK's IT workforce. Without coherent action, the UK is under threat from highly skilled lower cost economies. Conversely, the UK can seize opportunity, by recognizing and responding effectively to the changing environment.

The work of e-skills UK focuses on four strategic objectives: improving the attractiveness of careers in IT; preparing the future IT workforce for successful employment; helping the current IT professional workforce to meet the changing needs of the market; and addressing skills infrastructure matters through policy influence and the reform of standards and qualifications.

The IT workforce of the future needs a different blend of skills from the past: deep technical skills are increasingly married with sophisticated business, project and interpersonal skills. This four-part blend is the principle behind the new employer-led Information Technology Management for Business degree framework, which is now being adopted by universities across the UK. In November 2005, e-skills UK introduced the SFIA Profiler, an online skills management tool that allows companies to navigate easily through the Skills Framework for the Information Age (SFIA) while benefiting from SFIA's universally recognized definitions and skill descriptions.

In support of the promotion of professional standards, and as the custodian of the UK's National Occupation Standards for IT, e-skills UK is developing the overarching Sector Qualification Strategy for IT. This will provide a coherent framework that simplifies and reforms the UK's IT-related qualifications structure to ensure it meets the UK's long term needs.

Further information can be found at www.e-skills.com. For further information about SFIA see page 35.

IMPROVING IT MANAGEMENT SKILLS

A major study by BCS and the Royal Academy of Engineering in 2004 (Royal Academy of Engineering and BCS, 2004) pinpointed problems in the management of complex IT projects. This research found that a striking proportion of project difficulties arose because people in both customer and supplier organizations failed to implement known best practices. The study concluded that education in many universities and management schools in the UK is not producing IT practitioners with the IT application and project skills they need. The importance of project management is not well understood and usually under-rated. Management schools should ensure that both project management and IT are core modules of MBA courses:

The increasing prevalence of IT systems, coupled with overseas competition in this area, means that failure to improve the collective professionalism of the IT industry and strengthen the national infrastructure supporting project delivery is likely to have serious and ongoing economic consequences for the UK.

ROYAL ACADEMY OF ENGINEERING AND BCS (2004)

The Management Qualifications Working Group was set up in 2002 to evaluate where effort is needed by BCS to improve the standard of IT management. The group is helping to develop a competency framework for IT managers and reviewing postgraduate degree courses against this framework. Gill Ringland, chair of the Group, writes about its achievements:

As a result of a survey of over 100 MSc level courses in ICT management worldwide, we have developed a taxonomy to describe the content and target audience, and map them on to emerging ICT professionalism descriptors. We expect to publish a handbook on ICT management in 2007.

Further information can be found at www.bcs.org/forums/mqwg.

BOX 5.2 NATIONAL OUTSOURCING ASSOCIATION (NOA) EDUCATION AND TRAINING INITIATIVE

The NOA is an independent not-for-profit association dedicated to the promotion of best practice in outsourcing. At their 2005 annual conference delegates expressed an interest in new research focused on outsourcing education, how it is taught and how it could be improved. This led to the creation of an NOA education forum, focused on the issue with the aim of developing a formal policy that will then stimulate new research.

The NOA considers that outsourcing is now an essential part of the modern company and the use of outsourcing is expanding to include small and medium businesses. It is becoming clear to those companies purchasing services, and the service providers, that professionals and those leaving higher education should be better trained in the principles of outsourcing.

Some of the key areas on which the NOA forum has focused are:

- what knowledge of outsourcing is missing from business education in the UK today;
- what training would be of benefit to the industry, from introductory training to the MBA;

(Continued overleaf)

- can general higher education courses highlight the differences between buyers of services and suppliers of services and intermediaries, and assist all areas of industry.

The NOA education forum has determined that professional and academic education needs to be approached from different angles. The NOA is now working with higher education colleges including London South Bank University and Bristol Business School to publish a NOA-endorsed elective MBA module on outsourcing and corporate partnerships, which will be used initially in the 2006–07 academic year. The NOA education forum is planning to produce key curriculum criteria that can be used by professional trainers, allowing courses with different content and areas of focus to be NOA-accredited provided certain key subjects are included.

Through these two specific actions to promote best industry practice, the NOA intends to improve professional education in outsourcing and to provide examples of how outsourcing can be taught within higher education through academic partnerships. The NOA will conduct further research into this subject through 2006, particularly the requirement for lifelong learning and the interaction with higher education providers.

This information was provided by Mark Kobayashi-Hillary, NOA board member and member of the BCS Working Party on Offshoring.

Further information on the NOA can be found at www.noa.co.uk.

BCS'S SCOUTS BADGE

To help build a strong, dynamic IT profession for the future, BCS sponsors a five-stage scout activity badge (for boys and girls) to improve the computing skills of the younger generation and to highlight the positive benefits of using IT. In line with BCS's overall objective to ensure a fully IT literate nation, the IT badge aims to provide a solid grounding in IT skills from fundamentals such as switching on a PC correctly (stage 1) to website design and internet studies (stage 5). With the decline in the number of students choosing computer-related courses at college and university, it is vital to capture the interest of young people to demonstrate the relevance of IT, as well as encouraging more people to consider pursuing a career in IT. BCS's scouts badge has achieved 130,000 passes in just over 2 years.

6 Developing Successful Careers

For many years IT professionals have been aware of the need to develop new technical skills in the fast moving world of IT. In today's world, however, as more routine technical work is moved overseas, IT professionals need to focus on developing those skills that continue to be needed here in the UK. Employers regularly report a shortage of skilled IT workers who combine a knowledge of technology with an understanding of how IT can be exploited to bring business benefits or who can effectively manage projects to deliver IT-enabled business change. IT professionals need to branch out, especially into other business functions, to develop a more rounded skills-set and to integrate key technical and analytical skills into mainstream business functions. This chapter describes the very wide range of services offered by BCS to help IT professionals progress their careers.

SKILLS FRAMEWORK FOR THE INFORMATION AGE (SFIA) AND SFIAPLUS

SFIA provides a clear model for describing what ICT practitioners do. It consists of a simple two-dimensional framework describing areas of work on one axis and levels of responsibility on the other. There are six main areas of work:

- strategy and planning;
- development;
- business change;
- service provision;
- procurement and management support;
- ancillary skills.

These categories are divided into specific skills (a full list of SFIA skills can be found in Appendix A). The levels defined within SFIA describe the level of responsibility and accountability exercised by ICT practitioners. Each of the seven levels, from new entrant to strategist level, is defined in terms of autonomy, influence, complexity and business skills. For each skill at each level, descriptors provide examples of typical tasks undertaken. The framework helps ICT practitioners to benchmark which skills they need for particular jobs or career paths.

In July 2003, BCS, e-skills UK, the Institution of Electrical Engineers (IEE) and the Institute for the Management of Information Systems (IMIS) joined forces to form the SFIA Foundation. One of the driving forces for SFIA is the Steering Group, whose members are drawn from SFIA's user community and includes Accenture, CISCO, the Department for Trade and Industry, IBM, the Irish Computer Society, Learning Tree, the Ministry of Defence, Norwich Union, Parity Training and QA Training. Further information about SFIA can be found at www.sfia.org.uk.

A new release of SFIA (version 3) was launched in November 2005 and results from extensive consultation with the IT industry, government departments, commercial organizations such as IBM and Norwich Union and the NHS. This new version of SFIA caters more effectively for organizations managing outsourcing relationships, business change roles, service management, security and IT governance and compliance, and these are the roles that are becoming increasingly important for UK-based IT professionals in the era of global sourcing.

BCS has enhanced the SFIA standard by aligning its own training and development standard, the Industry Standard Model (ISM) and SFIA to create SFIaplus. All professional grade members of BCS have free browser access to the SFIaplus standard. This comprehensive tool can be used to classify and benchmark skills. SFIaplus has been upgraded in line with SFIA version 3. Further information can be found at: www.bcs.org/sfiaplus.

BOX 6.1 DEVELOPING VALUE-ADD SKILLS

John Webb, BCS IT Consultant of the Year in 2005, explains how he progressed his career beyond the traditional IT role to develop value-add skills:

I am a senior consultant working for Xantus Consulting and have over 15 years experience working within corporate environments in financial, manufacturing and retail organizations.

My career started in 1988 when I joined EDS and gained 10 years' experience in an outsourced manufacturing environment, developing programming skills and managing numerous network infrastructure-based projects for several clients. The ability to build strong relationships with both the client and the project team was key in delivering first-class services.

I changed role in 1998 and moved to Umbro International, the Sports Retailer, where I experienced IT service delivery from the customer perspective. Here my blue chip corporate knowledge and understanding was put to use, defining and delivering a 3-year global infrastructure strategy. I championed the introduction of new design systems and supply chain-tracking facilities and supported the strategic decision to move manufacturing offshore.

During 2000 I worked as a consultant through my own company, managing the relationship between Barclays Bank and BT Ignite for high-visibility network changes to the hub of the financial service platforms, the key being clear communication and relationship building.

In 2001 I joined Xantus Consulting, a specialist IT consultancy. One of my first assignments included developing a strategy to maximize the efficiency of a credit card system, which is used in approving 1.5 million new accounts per year, for a European credit card issuer. Currently I am part of a Xantus team advising Boots plc, where I have worked on a number of strategic initiatives. I gained external recognition for the work I recently completed for Boots by being awarded the BCS IT Consultant of the Year. This assignment saw me undertake a trusted adviser role and manage the delivery of a replacement UK data network, which resulted in an overall cost reduction of £9 million. The trusted adviser status is based on the breadth of market knowledge and impartial, up-to-date advice provided for the technology, service and commercial aspects of the project. The Management Consultancy Association also recognized Xantus for this project, awarding the company a Bronze Award for Best Practice.

The strength and depth of my experience now allows me to provide executive direction in dynamic environments, where my strategic planning, leadership and communication skills can be utilized to provide services that can support business initiatives and deliver 'best in class' IT service delivery. The real-world skills are typical of the Xantus consultant.

Xantus is an independent IT consultancy, offering expert advice and guidance on all aspects of the IT infrastructure lifecycle. The consultancy has recently managed a number of high-profile assignments including the delivery of IT infrastructure to support business process offshoring for several large and global organizations. Xantus has also developed business cases for delivering joint UK/offshore IT delivery capability for UK-based organizations balancing the benefits and risks involved in offshoring.

Further information can be found at www.xantus.co.uk.

CAREER BUILDER

BCS's career development tool, Career Builder, is an innovative online service that enables IT professionals to drive their own career development programmes. Built around the SFIPlus skills standard it enables BCS members to:

- review their IT skills against the industry standard;
- create a personal job description from recognized roles;
- set up cycles of training and development;
- identify objectives and actions in line with career development plans;
- pinpoint resources to help achieve development plans.

Career Builder is a membership service from BCS. Further information can be found at www.bcs.org/careerbuilder.

BOX 6.2 NEW CAREER OPPORTUNITIES

Peter McElwaine, Solutions Architect in the Energy and Utilities sector at Wipro, explains his decision to join Wipro and the way this has enabled him to progress his chosen career:

'Why did you leave Microsoft and come to Wipro?' is the most frequent, and still to me surprising, question I have heard from my colleagues in the last 3 years; surprising because it reveals the extent to which even those at the heart of the offshore boom don't always realize the significance of the globalization of the IT industry.

It was apparent to me, as the major US hardware and software corporations reached a plateau in the wake of the dot com boom, that one of the biggest paradigm shifts in the history of my chosen profession was going to be driven by the new competitors from so-called emerging markets in southern and eastern Asia. Advantageous economics, startling numbers of highly intelligent, well-educated, English-speaking graduates, world-class quality management processes and a work ethic reminiscent of Victorian England were combining to produce an unstoppable and (controversially) beneficial wave of change in the way that IT products and services were developed and delivered to Western markets. And my career philosophy has always been to embrace inevitable change positively rather than to resist it.

The question I still ask myself is 'Why does Wipro need me?' I am relatively expensive, relatively immobile (geographically speaking), and perhaps slightly less inclined to put work before family than my Indian colleagues. The answer that appeals to me most is that Wipro needs me because I bring more than 20 years of technical, managerial and cultural experience to an organization where many of the people with that number of years behind them are now running the company, and are therefore no longer available for full-time work on projects. The recent rapid expansion of India's leading systems integrators has meant that early progression into management, following even earlier technical specialization, is the norm rather than the exception. Fortunately for me, Wipro recognizes that a solutions architect in charge of a multimillion pound development project needs both breadth and depth of experience, and both business consulting and technical skills.

Sure, there have been cultural and operational challenges, but I expected those and have profited from them. For example, learning to communicate difficult concepts effectively by telephone because daily face-to-face communication is simply not possible has been proof, if such were needed, that I was not born with advanced telephone skills. As time progresses, I hope to become increasingly proficient at making offshoring work and perfect the art of being the interface between the

(Continued overleaf)

European customer and the offshore delivery capability. In the meantime, I am doing what I enjoy most, architecting and designing systems that really meet business needs, and I am working alongside some of the most naturally talented people to be found anywhere in the industry. That, I think, is quite a good place to be.

MENTORING

Individual BCS members can tap into the wealth of experience that exists within BCS by applying for help and advice from one of the BCS mentors. This service is free of charge and can be provided at any stage in a professional's career. All mentors are provided with training and are familiar with the range of products and services available through BCS. Each mentee is allocated a mentor who belongs to the same BCS branch, which makes contact and communication that much easier.

CV SERVICES

Writing an effective CV is often the first step towards a successful career move. 'Recruiters are typically looking for people who can take on bridge-building roles – it is all about finding people who are problem solvers and do not just have the techie skills. Technology only has the right to exist if it delivers what the business demands and there is an increasing intolerance of IT for IT's sake', wrote Sean Quinn, associate director of the IT search and selection practice at recruitment company Hudson, in *Computing*.

Your CV, therefore, needs to stress the right areas of your work; avoid saying how you recommended and implemented a specific application. Instead, stress how you saved the firm £5 million and improved the customer experience. We see candidates who say they are good communicators, yet they are unable to spell out what they are in 11-page CVs. First impressions count, and you can usually tell a lot from a candidate's CV – especially if there are lots of acronyms.

QUINN (2005)

CV guidelines

- Keep it short and precise. One page might be sufficient, three pages is a maximum.
- Use a common, easy-to-read font such as Times New Roman or Arial.
- Bullet points make it easy for the reader to assimilate key facts quickly, an important consideration when dealing with very busy people.
- Put recent and relevant experience at the beginning of your CV to draw attention to your strengths.
- Highlight the business benefits you have helped deliver.
- Revise your CV for every job you apply for. General purpose CVs rarely fit the bill for any specific job.

Further advice is available to BCS members through the Career Centre service.

Career Centre

The online Career Centre service is available to BCS members and is offered with Monster, the world-leading career network. The service enables IT professionals to:

- create, edit and manage up to five CVs and covering letters;
- apply for jobs online and track the applications;

- receive the latest jobs by email;
- maintain CVs securely and privately;
- subscribe to free newsletters.

Further information can be found at <http://career.bcs.newjobs.co.uk>.

BCS Professional Experience Record

This service, which is aimed at the individual IT contractor, consultant or freelance specialist, is designed to help capture skills and experience in a structured and consistent way by benchmarking them against the SFIPlus standard (see page 36). The primary aim of the product is to enable contractors to demonstrate their competence for any given contract or job based on their verified experience, giving them a competitive advantage.

As each assignment is completed and added to a contractor's CV, the client verifies the entry. The Professional Experience Record user does this by issuing a 'guest ticket', which allows the client to review the user's entry and, when satisfied, to verify it. This enables an individual IT contractor to build up a validated record of their career history. The Professional Experience Record can also be used to record current skills and plan, manage and record professional development in structured development cycles.

There is a charge for this member service. Further information can be found at www.bcs.org/profdev/per.

BCS Women's CV Service

BCS Women Committee member Kelly Walsh runs a CV clinic and writes about the service:

When the BCS Women egroup first started, there were lots of requests for help and advice in finding jobs. The committee decided to start up a specialized group to help with these requests and so the CV Advice Team was born. BCS Women operates the CV Advice Team primarily for the members of BCS Women, although requests have been received from all over the world and from many different industries. Team members are volunteers from the group who have experience either in recruitment (graduate and experienced) or interviewing or have a lot of industry experience.

The CV Advice Team provides support and feedback on CVs, covering letters, careers advice and mentoring. When reviewing a CV we ask what type of job the person is looking for and most of the time we can point them in the direction of relevant job sites or suggest certain parts of the industry for consideration by the individual. There have been several success stories where members have reported back that they got the interview/job they wanted after applying the feedback.

Recurring themes from the CV advice given is collated and posted on the website so that other members can benefit. Items produced include a sample CV structure, dos and don'ts, how to write a cover letter and interviewing techniques. The Advice Team also welcomes suggestions on what else members would like to see. In 2005 there were 107 requests for CV feedback, which is an increase of 44 per cent on 2004, and the demand for the service is growing.

Further information can be found in the topics section of the BCS Women website at www.bcs.org.uk/bcswomen.

CAREER DEVELOPMENT SERVICES FOR HEALTH INFORMATICS PROFESSIONALS

Health informatics in itself is not (yet) a mature discipline but UKCHIP (see pages 24–5) is in the process of developing a continuing professional development scheme that establishes and then regularly monitors an individual's 'fitness to practice' in

health services at one of three levels, from entrance to service director and technical specialist posts. The BCS Health Informatics Forum, members of the Association of Information Management and Technology Professionals (ASSIST) and others in education, training and operational health roles have designed the processes. The scheme in operation now addresses the community of practice of those who are already working in the health domain and also those coming into it from expert positions in other sectors, in addition to those who are just starting out in their career.

Professional development may include traditional training courses and conferences, and self-development activities aimed at improving a wide range of professional skills. About 40 hours development is required each year and evidence can be entered online to record past achievements and plan future activities. In addition to giving a clear outline of where an individual wants to be in the next period, the information from UKCHIP can be aggregated by a manager to give an indication of the potential impact on corporate resources and budgets over that period.

Where an individual is working for an external service provider, directly or indirectly for NHS organizations, they too must be seen to operate to the same professional standards. It is crucial that contractors show their commitment to, and knowledge and competence in, informatics to support health practices, especially where they may be living in a different health care environment whilst working for the NHS.

The UKCHIP website gives much more detail of the processes and examples of development records and allows professionals to register online from home (see www.ukchip.org). This information was provided by Jean Roberts, UKCHIP Board and member of the BCS Health Informatics Forum.

NETWORKING

BCS specialist group meetings and events provide excellent networking opportunities for keeping up to date with the latest developments within the profession, discussing topical issues and making useful contacts. A full list of specialist groups is given in Appendix B. For more information contact sg@hq.bcs.org.uk or telephone 01793 417472.

BCS has some 40 branches in the UK; each holds regular meetings in their locale on a diverse set of subjects within the field of IT. Branch meetings enable members to maintain contact with other professionals in their area, keep abreast of current developments and contribute to BCS initiatives. Further information about BCS branches can be found at www.bcs.org/branches.

BOX 6.3 LEARNING TO USE OFFSHORE RESOURCES WISELY

Steve Wharrad is a technical programme manager at Barclays and a medallist in the BCS Project Manager of the Year Award 2005. He is accountable for the build, test and delivery of the infrastructure and software needed to support any business initiative. This includes decisions on the use of partners to help with business development, the options around offshoring, as well as working effectively with software vendors. Steve writes about the lessons he has learnt from integrating offshore work into projects managed from the UK:

Consideration of the value and merits of offshore work is now part of any project initiation. To my mind it sits well with the determination of the project approach. The

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obvious benefit is cost, but there are other advantages around quality (many offshore capabilities operate at CMMi level 4 or 5) as well as the greater control around scope that offshore working demands.

Some approaches are more suited to utilizing offshore capability. For example, typical waterfall developments fit well, whereas prototyping or show-and-tell type approaches are not so suitable.

The major challenge with offshore capability is communication. The barriers on time zones have not really materialized: we work in a global environment, and are well used to dealing with parts of the business and suppliers that operate around the world. The communication challenges can be overcome by recognizing the need for a formal approach to the development. Entry criteria for the work need to be agreed with the offshore supplier. Quality checks need to be established to make sure the work packages hit these requirements. Equally exit criteria need to be well understood. Communication is likely to involve some on-site working so the mutual understanding can be cemented.

The challenge of communication has broad parallels with the purchase of software from an overseas vendor. I have had recent experience of the delivery of code from a USA-based software house. They were to supply code, with amendments to meet our specification, by dates agreed in the contract. But there were delays and concerns about quality. Entry and exit criteria, a playback of requirements to ensure mutual understanding plus a greater awareness of communication has meant that the code is now delivered and proceeding well through our internal testing. This is exactly the same approach I would expect to see where work is being contributed by an offshore capability.

The offshore proposition is a valuable tool, providing quality at a sensible price. The key to success is understanding if the proposition suits the particular project.

BCS INFORMATION RESOURCES

Brian Runciman, BCS Managing Editor, writes about the information resources now available online from BCS:

The new BCS website includes extensive editorial sections, one of which is a basic section on offshoring. This section is being expanded with articles, reports and opinion pieces on the subject to give individuals and organizations useful background information and advice.

In addition to the offshoring reports from the BCS Working Party (including this one), the section will include specific coverage on what the UK does well and should be promoting about itself. The section will cover UK specializations such as business process management, software development, outsourcing advisory services and arbitration services.

To provide help to individuals who may have been affected by the offshoring phenomenon, or are concerned about it, the website has an extensive careers section. This contains advice on career moves and how to progress an existing career path. It also includes a range of personal experiences from individuals in many types of IT work.

As a further support for members the new website has an enhanced library service for the exclusive use of BCS members. This includes access to Books 24x7, where members can choose from a list of 200 titles covering various aspects of IT and business. These titles are from more than 80 recognized industry publishers, including John Wiley, Microsoft Press, Sybex, McGraw-Hill, Harvard Business School Publishing, HRD Press, Amacon and the Centre for Creative Leadership.

Via EBSCO members can also now access a range of journal and magazine databases free of charge. The topics covered are:

- corporate business;
- internet and personal computing;
- information science and technology.

Selected Forrester reports are also available covering research focused on providing strategic insight into technology trends. The wide area of coverage makes the research applicable to any decision maker within an organization. There will be two high-level reports available to download from the BCS site every month. Topics that are covered by Forrester include, amongst others:

- application development;
- business intelligence;
- computing systems;
- IT services and outsourcing.

BCS BOOKS

As globalization, global sourcing and outsourcing continue to grow, IT professionals in industry and the public sector will increasingly need to learn new skills and adapt to new ways of work. BCS has launched a book publishing programme with titles explicitly aimed at the IT professional looking to improve their skills, prospects and options. With the role of the IT professional evolving to include more managerial tasks, personal skill development becomes increasingly important. Books on professional issues, project management and IT law are available to help readers prepare themselves for wider responsibilities.

As IT drives massive changes through industry and the public sector, IT professionals will need new management, analysis and business skills if they are to maintain a competitive edge in an increasingly pressurized market. BCS books on global sourcing, process modelling and management and business analysis will help readers come to terms with the latest thinking in these dynamic areas and help prepare them for changes to come.

Further books will be published to help IT professionals develop the skills, knowledge and flexibility to adapt to the changes currently facing them in an increasingly globalized world. Appendix C contains a list of current publications from BCS. Further information about the BCS publications programme can be found at www.bcs.org/books.

7 Working with Government

'BCS is increasingly being seen as an authoritative, independent body, capable of providing informed insight into the views of IT professionals', observes Mike Rodd, BCS Director of Learned Society and External Relations (Rodd, 2004).

In the last few years the External Relations Board has coordinated submissions to government and other bodies, representing the collective view of BCS on issues as diverse as offshore outsourcing; a unified elearning strategy; developing 21st century IT support for the NHS; IT project failures in the Department for Work and Pensions; forensic examination of child pornography; ID cards; changes to the Computer Misuse Act; ecrime; proposed changes to university research funding; registration of digital evidence specialists; the Export Control Act; and the future of higher education.

RODD (2004)

More recently, BCS has responded to proposals for a new managed migration system and the Transformational Government Strategy. The views expressed on behalf of BCS, as well as the technical input, come from members, many of whom are acknowledged experts. Mike Rodd explains that the role of BCS is 'to ensure that the voices from within the Society are heard, considered, coordinated and reported in a balanced and apolitical way' (Rodd, 2004).

BCS has influenced and informed government policy over many years. BCS was instrumental in devising the whole concept of data protection, the original UK Data Protection Act in the UK and the Data Protection Directive in Europe. BCS members, as experts in their fields, are often invited onto governmental groups. Some 20 years ago, Past President Cecil Marks was a long-serving member of the Data Protection Committee, a group that worked with the Home Office and key partners in shaping the 1984 Data Protection Act. More recently Past President Wendy Hall was appointed by the Prime Minister to the Council for Science and Technology, the government's top-level advisory body on science, engineering and technology policy; and named by the European Commission as one of the founding members of the new Scientific Council of the European Research Council.

Several current government policy initiatives offer opportunities for supporting IT innovation, education, training and employment. What is missing is a joined-up approach. BCS is ideally placed to take an overview and enter a dialogue with policy makers to help bring about a coordinated and effective response.

BCS GOVERNMENT RELATIONS GROUP

The aims of the group are to:

- develop mutually beneficial relationships between BCS and government bodies;
- provide a focus for formal responses to government requests;
- initiate specific programmes of activity to advise and inform government on IT-related issues.

BCS has a professional responsibility for giving advice on IT issues to not only central government departments but also local government, parliamentary groups,

devolved assemblies and the European Union. A current priority area is liaison with the eGovernment Unit about the BCS Professionalism in IT programme (see pages 18–21).

BCS is developing its relationship with government as:

- an employer of 50,000 ICT professionals;
- a customer for BCS products and services;
- a provider of information to citizens and businesses;
- a regulator of the ICT industry;
- the creator of public policy affecting many different areas, including IT skills development in the UK and work permit policies for overseas professionals employed in the UK;
- the sponsor of a major investment programme in science and technology.

The widespread recognition of the importance of increased professionalism in IT, in which the government is playing a major role, provides a fresh opportunity for the Government Relations Group to help BCS raise its profile across the public sector. Priorities for 2006 include:

- taking forward BCS's response to the Transformational Government Strategy;
- establishing the Government Relations Group as the coordinating body and clearing point for all official submissions from BCS to government;
- developing relationships with local government;
- establishing more effective links with PITCOM and EURIM (see pages 45–6).

BOX 7.1 NAVIGATING THE NEW ECONOMY: AN INTELLECT INITIATIVE

Ensuring the UK's future as a successful, thriving and socially cohesive knowledge-driven economy is a key objective for technology trade body Intellect. As globalization accelerates, the UK needs to become both more productive and more competitive. To a large extent this will depend upon our ability to exploit and absorb the potential of technology across the public and private sectors.

Intellect is working to ensure that the knowledge economy is at the core of UK and European Union policy making. The Lisbon Agenda and, more recently, the European Commission's i2010 communication have set the broad policy framework, but a great deal needs to be done to turn these good intentions into action, and Intellect is actively engaged in many aspects of this agenda.

Benchmarking progress is key. Intellect is working with leading industry experts and academics to develop a set of metrics that will be used to measure progress towards becoming a knowledge economy. The Intellect Index Project aims to identify the gaps in the government's current measurements and to highlight additional 'new' economy indicators. It has provided an invaluable insight into the government's current data-gathering practices, looking at whether policy development is in line with the UK's knowledge economy aims or is, in fact, working against them.

Through its Innovation Nation? initiative, a joint project with *Computing* magazine, Intellect is also working to address one of the biggest challenges facing the UK: driving innovation across the public and private sectors. The project examines ways of improving the innovative exploitation and adoption of technology, in the context of

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business environment, government policies and the culture in which the UK operates. A series of three debates brought together leading CIOs, technology industry leaders, academics, opinion formers and parliamentarians and was followed by the *Innovation Nation?* report (Intellect and Computing, 2005), which provides a series of recommendations for the UK's future. The scope of required action is broad and highlights the many 'soft' issues that need addressing.

An effective intellectual property rights regime is a core component of a knowledge economy, as is an ongoing commitment to securing better regulation and reducing 'red tape'. However, it is also essential to make sure that all citizens have the skills and motivation to engage in the knowledge economy, which is why Intellect is actively participating in the development of the government's digital strategy.

For more information visit www.intellectuk.org/policy/knowledge/default.asp and www.computing.co.uk/computing/specials/2139761/innovation-nation.

This information was provided by Beatrice Rogers, Senior Programme Manager, Knowledge Economy, Intellect.

PITCOM

PITCOM is an all-party parliamentary group and was formed in 1981. It exists to encourage a clearer understanding by parliamentarians of public policy issues arising from the development and application of computing and telecommunications technologies. The group consists of 130 parliamentarians and more than 100 corporate members, including major suppliers and advanced users in the ICT industry. PITCOM has a regular programme of meetings in the Palace of Westminster, addressed by ministers, senior industry figures and experts on topical issues, followed by discussion. Further information can be found at www.pitcom.org.uk.

BCS is a corporate member of PITCOM and attends meetings to offer professional comment and advice. A recent presentation by the Minister for eGovernment gave an opportunity for the BCS President and Deputy Director of Learned Society and External Relations to provide feedback on BCS's response to the Transformational Government Strategy.

EURIM

EURIM is dedicated to ensuring that those who make the decisions hear the voices of those who are affected by ICT policy. Members include members of the House of Commons and of the House of Lords, members of the European Parliament, multinational blue-chip companies, financial institutions, broadcasters, publishers and professional bodies. EURIM's objective is to exert genuine influence on the legislative process, not just via high-level political contact, but by working with those responsible for drafting policy, particularly where it cuts across departmental boundaries. The group's aims are to:

- provide parliamentarians and other interested parties with clear, accurate and timely information on ICT-related policy proposals;
- alert parliamentarians and other interested parties to the state of the debate and the degree of support or opposition to such proposals, and to concerns over their implementation;

- ensure that views and concerns are rapidly and effectively communicated to ministers, commissioners, officials and parliamentarians in London and Brussels.
- ensure that rapid and effective action follows, where appropriate.

Further information can be found at www.eurim.org.uk. BCS is a corporate member of EURIM and the Deputy Director of Learned Society and External Relations sits on the EURIM Council. BCS is therefore well placed to contribute to EURIM debates and activities.

BOX 7.2 I2010: EUROPEAN INFORMATION SOCIETY 2010

The European Commission launched the i2010 initiative in June 2005 to foster growth and jobs in the information society and media industries. It is a comprehensive strategy for modernizing and deploying all European Union policy instruments to encourage the development of the digital economy. There are three policy priorities.

- To create an open and competitive single market for the information society and media services within the European Union:
 - supporting initiatives include an efficient spectrum management policy in Europe; modernization of the rules on audiovisual media services; an update for electronic communications regulation; a strategy for a secure information society; and effective and interoperable digital rights management.
- To increase European Union investment in ICT research by 80 per cent:
 - Europe lags behind in ICT research, investing only £55 per head compared with £242 in Japan and £276 in the USA; i2010 identifies steps to put more into ICT research and get more out of it.
- To promote an inclusive European information society:
 - an action plan on eGovernment for citizen-centred services and initiatives to overcome geographic and social digital divisions.

i2010 is a key element of the European Union's 10-year Lisbon Strategy. It focuses on the most promising sector of the European Union economy. ICT accounts for 40 per cent of Europe's productivity growth and 25 per cent of European Union gross domestic product growth (European Commission, 2005).

Speaking at a meeting in London to agree i2010 priorities, Department for Trade and Industry Minister Alun Michael said, 'It is not enough for Europe to be making progress, we have to accelerate that activity if we are going to compete with countries such as China and India' (Arnott, 2005).

Further information on i2010 can be found at europa.eu.int/information_society/eeurope/i2010/i2010/index_en.htm

BCS'S CONTRIBUTION TO GOVERNMENT POLICY ON WORK PERMITS

All overseas IT professionals from outside Europe who come to the UK to work, either on IT projects or as part of the knowledge-transfer process prior to moving work offshore, require work permits. One of the overriding principles in work permits policy is that the ease with which permits are issued to those seeking work in the UK from outside the European Economic Area depends on the level of skills shortages in relevant occupations. Producing adequate evidence of skills shortages for the many IT practitioner occupations is particularly difficult.

IT practitioner occupations were first included on the official shortage occupation

list in relation to work permits in 1999. BCS was invited in 2001 to send a representative to serve on the Sector (Advisory) Panel for IT, Communications and Electronics of Work Permits (UK), an agency reporting to the Home Office Immigration and Nationality Directorate. Qualifications and Standards Board member Matthew Dixon represents BCS on the Panel and he developed the methodology that has since been refined and adopted for determining the level of skills shortage in the UK national labour market for IT practitioner occupations. This methodology, while recognized to be far from perfect, is acknowledged to be considerably more advanced than any other known to be used in any other sector (or indeed any other country). Matthew Dixon writes about BCS's influence on work permits policy:

Probably the most significant BCS contribution to work permits policy for IT practitioner occupations came in September 2003, when the BCS-developed methodology was used to provide adequate evidence to clear the shortage list of all IT practitioner occupations. The severe shortages of 1998 and 1999 had disappeared with the bursting of the dot com bubble in 2000 and indeed many IT practitioners, including a number of BCS members, were finding work difficult to come by; yet the previous Panel arrangements had not enabled the official shortage list to be cleared. BCS has also contributed on other key issues relating to the work permits policy, including:

- aspects of implementation of the policy by Work Permits (UK) caseworkers;
- the validity of the 'labour market test' (advertising in the UK job market);
- responding to specific requests from Work Permits (UK) in relation to, for example, occupational classifications and current salary rates;
- discussions on the work permits issued to overseas IT professionals from offshore IT service providers;
- the major study carried out by the Institute for Employment Studies on the link between work permits policy and the competitiveness of the UK IT industry.

Most recently, BCS has provided a detailed response on the Home Office consultation on the proposed new managed migration strategy, which involves a number of important proposed changes to the current arrangements.

WORKING WITH THE NHS

Jean Roberts, BCS Health Informatics Forum, writes about BCS's work with the NHS:

The NHS organizations and suppliers in all the home countries are addressing the challenge of informatics in different ways. Members of the BCS Health Informatics Forum contribute to advisory groups and collectively contribute through think tanks and consultations such as the RADICAL STEPS series of initiatives.

The response or collaborative working resulting from these actions is frequently constructive, but there is a fine line between being a 'critical friend' (our aim) and being seen to be negative. The influence may be prolonged through committees and frequent (informal) consultation groups, such as the Health Informatics Partnership Group, the Health Informatics Professional Development Board and the NHS Health Informatics Faculty; or it may be in response to a request for a press comment on a significant issue, such as the Bruncefield Incident, changes in the NHS Care Records Guarantee or variations to the systems available to General Medical Practitioners. The BCS Health Informatics Forum has, with NHS colleagues, been instrumental in progressing professionalism through the establishment and ongoing support of UKCHIP.

Further information about the RADICAL STEPS initiatives can be found at www.bcs.org/BCS/Forums/health.

8 Working with Employers

Offshoring is a reality of business life today. The capability to source wisely, combining onshore and offshore, in-house and outsourced services, is a growing competitive differentiator for organizations. BCS is committed to raising professional standards; deriving and promulgating best practice; encouraging the adoption of effective quality standards; and promoting good security management. All these factors are crucial for employers seeking to maximize the benefits of offshoring and minimize the associated risks. In this chapter we highlight three critical issues for companies: governance, data protection and security, and look at some of the services offered by BCS to help employers develop the IT expertise of their staff.

Global sourcing raises a number of ethical and social concerns. The transfer of IT activities to low wage economies can bring corporate benefits, lower prices for consumers and make UK companies more competitive. Individual UK-based professionals, however, may face the prospect of losing their jobs. Many companies offer individuals the chance to retrain and invest a certain percentage of the savings made through offshoring into career development services. Trade unions are actively involved in negotiating agreements to protect the interests of those employees displaced by offshoring.

There are also concerns about the impact of global sourcing on developing countries, the concentration of the wealth generated to a relatively small group of employees, and potential problems caused by the movement of work from one developing country to another. Many of the companies whose core business depends on global sourcing are involved in social projects aimed at tackling issues of poverty and deprivation. This chapter looks at some examples.

GOVERNANCE

Offshore outsourcing brings together two organizations, each with its own corporate objectives, into a contractual relationship. From the outset, the client organization needs to balance the dual aims of realizing value from the outsourcing deal and managing risk. Value is realized by ensuring that savings are delivered; managing demand for the outsourced services; maintaining fair market prices; optimizing operations by standardizing processes and applications; exploiting the service provider's capabilities; and introducing process improvement schemes. Risks can be managed through strict adherence to contract obligations; rapid issue resolution; management controls; and consistent and unambiguous instructions to the service provider.

Effective governance arrangements will ensure that the outsourcing relationship meets expectations and is developed to meet evolving business needs. As well as covering contractual and commercial management, governance should incorporate quality management and problem resolution.

Governance organization

Best practice in offshore outsourcing requires that a strong governance organization is put in place to:

- manage the client–service provider relationship;

- manage changes effectively, as business needs develop;
- ensure that both parties work well together to prepare joint plans, improve communications between the organizations and monitor satisfaction levels with the outsourcing arrangement;
- review performance and aim for continuous improvement;
- track and resolve critical issues.

Putting in place an effective governance organization requires a thorough understanding of outsourcing, the key objectives of the deal and organization design. Some activities must be retained within the client organization and cannot be transferred to the service provider. These include corporate IT strategy and policies; operation and management of functions not covered by the outsourcing deal; and resolution of internal operational issues.

Roles in governance

Given the continued growth in outsourcing, relationship management skills will continue to be in demand. Supplier governance looks set to become a critical competency offering long-term career paths to IT professionals. Governance is likely to evolve from tactical relationship monitoring and management to strategic issues such as IT and business alignment and business process enhancement.

Typical roles include:

- relationship manager;
- commercial manager;
- finance manager, which is likely to include the client's internal cost-recovery process as well managing the financial arrangement with the service provider;
- contract manager;
- performance manager;
- service quality support, collating performance measurements and tracking trends;
- project manager, being responsible for the client side of any project implementation and changes;
- compliance manager, ensuring services satisfy evolving policy and legislation.

While these roles often require commercial skills, finance, procurement and contract management expertise, they also need a thorough understanding of the service being provided, the process quality measures and risks to be mitigated and managed.

Governance in captive offshore services

Captive offshore services do not depend on a contractual relationship between two parties. There is, however, still the need to align organizations in different countries, in different time zones and with their own cultures. The objectives remain to manage the risk of having activities executed across organizations at a distance and to realize the value set out in the original business case. While contract management should not in this case be a significant activity, performance and issue management remain more important than would be the case without global sourcing and financial management needs to ensure organization boundaries do not get in the way of making sensible business decisions.

Governance information provided by Alan Hopwood, Equaterra and member of the BCS Working Party on Offshoring.

BOX 8.1 MANAGING ACROSS THE CULTURAL DIVIDE: ARRK GROUP

Nick Lapham has been a member of BCS for more than 20 years, having first joined while working on mainframes for ICL. Today Nick is Associate Director of Business Development at Arrk Group, which was founded in Manchester in 1998 to deliver project management services including interim IT directors. Several early major projects used offshore resources and by 2000 Arrk had decided to establish an offshore team in India.

Arrk UK and Arrk India deliver a range of software development and maintenance services and applications management and monitoring. Arrk has pioneered the concept of virtual offshore development centres, which are set up for organizations that view software development as key to their business. Often these businesses are independent software vendors or ebusinesses. Arrk establishes a baseline team in Mumbai, which is resourced and managed by Arrk staff, but importantly this team feels to the customer in all respects like their own team. These are long-term relationships, in which the Arrk UK team supports the customer in understanding how best to work with an Indian team. Customers include independent software vendors, an ebusiness providing a business intelligence service for the construction industry and the RAC. There is a particular focus on ecommerce projects, undertaken by the 200-plus staff in Arrk India.

Nick writes about the cultural and ethical values adopted by Arrk:

We have a blended culture among Arrk UK and Arrk India, as far as this is possible. We have a single managing director who now spends half his time in India and half in the UK (he has a flat and a car in Mumbai). Other senior Arrk staff spend much of their time in both countries, the Arrk India director spends up to 25 per cent of her time in the UK, and 50 per cent of all Arrk India staff have worked in the UK. Where delivery of offshore services often fails is in the bigger picture of what service quality means across a cultural divide. The interchange of staff between India and the UK, our integrated delivery methods, and single set of processes for human resources, finance and administration across the company goes a long way to build the blended culture that benefits our customers and staff.

Arrk recognizes that our people are our business, and therefore seeks to ensure that Arrk is a vibrant and dynamic place to work. People satisfaction surveys are taken annually. In the last survey the average satisfaction level across all questions was above 70 per cent with satisfaction levels across most questions being above 80 per cent. Our staff turnover in India is 14 per cent, and this is exceptionally low for the Indian software industry where staff attrition has been running at around 30 per cent over the past few years. Clearly these two points are linked, and Arrk values, culture and brand are compelling reasons for staff to stay with us.

We believe that corporations have a responsibility to play their part in improving society, both by behaving to the highest ethical standards at all times, and by working directly with the community. We have therefore formed the Arrk Foundation, to which Arrk donates 10 per cent of its profits, and which supports a variety of charities working to alleviate poverty and exploitation in India. Many Arrk colleagues also donate directly to the Foundation. We also work with schools that are local to our UK offices.

DATA PROTECTION AND PRIVACY ISSUES

In the global sourcing world, offshore outsourcing and associated data transfers are commonplace and increasing as suppliers search out lower wage countries, which may have even fewer data protections than the original offshore locations. Press

reports of criminal incidents involving personal data misuse in offshore locations raise worries on the safety and security of these locations, their companies and their IT processing of UK citizens' personal data. Roger Baker, a member of the BCS Working Party on Offshoring, writes about the importance of data protection:

In this environment, the 1998 Data Protection Act's 8th Principle on permitted data transfers to third countries, and associated 7th Principle security provisions, become critical protections for UK data subjects, and are crucial responsibilities of UK companies using offshore locations, and of their remaining UK-based IT professionals.

As such, it is the UK IT systems designer or IT manager who must ensure that each UK company or subsidiary upholds the stringent UK and European Economic Area data protection and security provisions not required in most offshore data-processing countries, but mandated within the UK, throughout Europe and in an increasing number of other countries (including the USA for financial services). While such protections are important for personal data, they are doubly so for sensitive personal data including health, religious and political information for which more stringent rules and protections apply.

A series of recent developments in the legislation over definitions, coverage, new contract terms and emerging use of binding corporate rules also need to be considered by companies that process data offshore. The key provisions of the legislation, the Data Protection Act's 7th and 8th Principles, are needed more than ever in the growing outsourced world (Baker, 2006). It is the responsibility of UK IT professionals to ensure these requirements are fully understood and met in their organizations, especially when some functions are moved offshore.

BCS championed the legislation initially and continues to promote such requirements, associated regulations and professional security standards through its specialist groups and ever-developing BCS publications, education and training materials. These need ongoing revision to meet the evolving legislation and offshore outsourcing needs. BCS can champion such exemplars of good practice as the UK banking sector to employers and IT professionals. Most significantly longer-term, as a thought leader, BCS can continue to influence the government and the European Economic Area development of the law and regulation in strengthening and updating data protections and security in the offshore context.

Brian Layzell, past member BCS Information Privacy Expert Panel, and Jean Roberts, BCS Health Informatics Forum, write about the special concerns surrounding health records:

The NHS in particular is very sensitive to privacy issues, especially data protection and confidentiality. All of the existing legislative requirements apply to health data except for options that may come into force where the Secretary of State can authorize use of identifiable data, without the consent of the patients concerned, in order to carry out research and other activities under Section 60 of the Health and Social Care Act 2001.

Like all other bodies under the 1998 Data Protection Act, each NHS organization has to recognize its responsibilities for processing data about individuals. This responsibility originates where the individual subject's record is held but there are many occasions where an authorized professional may need to access the record, and in some cases to update it, from a place outside the 'jurisdiction' of the Data Controller, from the national Data Spine, or from locations outside the home country. That remote body still has a duty to exercise proper legal control over any data held or accessed by them; whether the outsourcing organization is an independent controller or a processor who only operates as instructed.

Any location handling data on behalf of an NHS organization, for example an offshore data processing unit, needs to ensure no access is allowed that might risk serious harm to the physical/mental health or condition of the subject, or any other person;

or where giving access would disclose information relating to/provided by a third person who had not consented to disclosure. Where information is not readily intelligible, an explanation (perhaps of abbreviations or clinical terminology) must be given in order that errors are not introduced into their processing. For example the terms fetal and fatal can both be legitimate but to use one in the wrong circumstances could have significant ramifications.

In essence, when it comes to international transfers, there is no difference in the consideration of health data than with any other type of personal data. The data protection position in respect of transfers of sensitive personal data extra territorially is that it will be legal if it conforms to the basic requirements of both the Data Protection Act and the European Union Directive, and a risk analysis has been done.

SECURITY

Security is a wide subject covering physical, personnel, ICT technical and information issues, all of which are affected by an offshoring decision. For each element, security needs to be addressed at strategic, management and operational levels. The following security issues are relevant to any operation that is moved offshore.

- Any offshore initiative needs to be subject to a full risk analysis and risk management process, because although you may fully understand the operation as it functions in its current location at least some security risk depends on location and prevailing conditions.
- The business risk profile needs to reflect the environmental, political and cultural risks, as it does anywhere in the world. The overall security threat is affected by the likelihood of natural disaster, terrorist activity, civil unrest, crime, prevailing politics, competition rules and local business practices.
- Cultural issues need to be considered and understood, so that your company understands the behaviour and motivations of local employed staff and avoids upsetting local sensitivities and creating a hostile backlash.
- Technical risks are exacerbated by the dependence on long-distance communications and it may be necessary to install encrypted links.

All these factors need to be taken into account when developing disaster-recovery and business-continuity processes.

Security is increasingly recognized as a feature of corporate governance and forms part of the regulatory regime under which many companies are required to operate, particularly in the financial sector. A security strategy will bring together all aspects of personnel, physical and technical security to ensure that corporate requirements and appropriate regulatory obligations are being met. A key concern for company directors is that they can never rid themselves of their corporate responsibility for security.

The management of security can in theory be located wherever there are good direct communications channels and transport links to both the centre and the company's operations. In practice many operational security functions need to be based locally, dealing with local people, local buildings and plants and local technology. When operations are moved overseas, security staff will be needed at the offshore location to handle operational issues. It is sensible to consider colocating the security administrators and technicians who maintain the technical security elements of the computer and communications networks (firewalls and router configuration, user management and other services) with the IT support operation, wherever it is located.

Les Fraser, BCS Security Forum manager, writes:

In order to make the offshoring of any operation with an information systems security element (and this is probably all of them!) a success for everyone there are a few obvious rules.

- Understand clearly what your corporate responsibilities are – retain strategy, policy and direction even if you outsource the mechanics of implementation.
- Work to defined standards – in the security area ISO/IEC 17799 and BS7799 Part 2 (imminently to become the ISO 27000 series of international standards) are not only good standards in their own right, but useful for defining compliance in a contract situation because it gives both parties a properly defined security target.
- Make sure staff on both the offshoring and the onshore sides (not just the management) understand the demarcation lines, and the division of responsibility.
- Encourage team building – the onshore and offshore elements of your operation should want the same results, and they will achieve more if they work together.
- Don't expect miracles. If your process was not up to scratch before any move, it is unlikely to improve overnight.

BCS vice-president Brian Collins writes about BCS's security role:

By supporting all aspects of an individual's professional agenda, the BCS Security Forum has determined the Society will play a leading role in ensuring that professionalism in information assurance and security will add significant value and trustworthiness to the rapidly developing global information society and ebusiness world we all live in.

BOX 8.2 THE HOLE IN THE WALL PROJECT: NIIT

NIIT Technologies is a global IT solutions provider servicing customers in Asia Pacific, Europe, India, Japan and the USA. It provides services in application development and management in legacy, client-server, web and wireless technologies, integration solutions, data warehousing solutions, testing services, legacy applications re-engineering, package services and managed services. Dr Sugata Mitra, Head of NIIT's Research and Development, and Carl Stadler, write about the Hole in the Wall project:

In 1999, Dr Mitra conducted the largest experiment in alternative primary education in the world. How did he do this? He installed a computer, connected to the internet, into a slum wall and left it unsupervised, for use by children. The results were fascinating. The findings of the experiment suggested that groups of children could learn to use computers and the internet on their own, irrespective of who or where they were. This discovery was verified by extending the experiment to thousands of children in 30 villages spread throughout India, and subsequently in Cambodia and South Africa. NIIT and the World Bank formed a joint venture to undertake this large-scale experiment, which was soon widely known as the Hole in the Wall project, although its official title is Minimally Invasive Education Technology.

Minimally invasive education is new educational technology for achieving mass computer literacy, and some basic primary education, at a cost that is considerably lower than traditional alternatives. It employs learning models such as collaborative constructivism and a series of interlocking innovations, both technological and pedagogical. Computers are made available in shared, public spaces, free of charge and no structure is imposed on when, how or what children learn.

About 40,000 in-school and out-of-school children have been directly impacted by minimally invasive education in terms of the following research based outcomes:

(Continued overleaf)

- acquisition of functional computer literacy;
- improvement in academic performance;
- increase in confidence and self-esteem;
- increased collaborative behaviour.

Apart from data-based findings, there has been consistent anecdotal evidence of a large-scale impact on school enrolment, retention, concentration, attention span and problem-solving ability. Throughout, all instruction by adults and older youngsters was rigorously avoided. As a result, child teachers emerged at each of the experimental sites – typically, talented 6–8-year-old boys and girls who took on the teacher role and taught three or four generations of children to use the computers.

The Hole in the Wall experiments have resulted in a new, inexpensive and reliable method for bringing computer literacy and primary education to those areas where conventional schools are not functional. Such facilities are not meant to replace schools and teachers, they are meant to supplement, complement and stand-by for those areas of the world where good schools and good teachers are, for whatever reason, absent.

BCS PROFESSIONAL PRODUCTS FOR EMPLOYERS

BCS offers a range of products and services to help employers maximize the potential of their IT staff, as illustrated in Figure 8.1. The SFIPlus IT skills standard (see page 36) forms the basis of these products and services leading to accreditation. SFIPlus enables clear skills benchmarking of both individuals and jobs, while providing detailed pointers to training and development resources. The SFIPlus standard combines the nationally recognized model of IT skills, SFIA, with BCS's detailed Industry Structure Model.

BCS also offers consultancy services using BCS experts to help with the professional development of IT staff and departments. With more than 40 years of career development experience, BCS can additionally offer training as either in-house or public courses to help scheme participants, supervisors and coordinators realize the full potential of their investment as quickly as possible. Training programmes featuring best practice case studies focus on delivering real business benefits.

BCS professional development accreditation

This scheme recognizes best practice in employer IT training and development. It is a prestigious, independent seal of quality for organizations that demonstrates the competency of their IT staff through external benchmarking and validation by BCS. Achieving accreditation demonstrates an employer's commitment to supporting the professional development of staff and improving employee motivation and retention.

BCS audits the scheme against a set of critical success factors and key performance indicators developed over many years of experience examining successful career-development programmes. The accreditation assesses either an organization's own career development scheme or implementation of a BCS-designed scheme against a defined set of critical success factors based on best practice as followed by leading IT companies.

Benefits to the organization include:

- recognition as a leader in IT professional development;
- demonstration of a commitment to supporting the development of people;

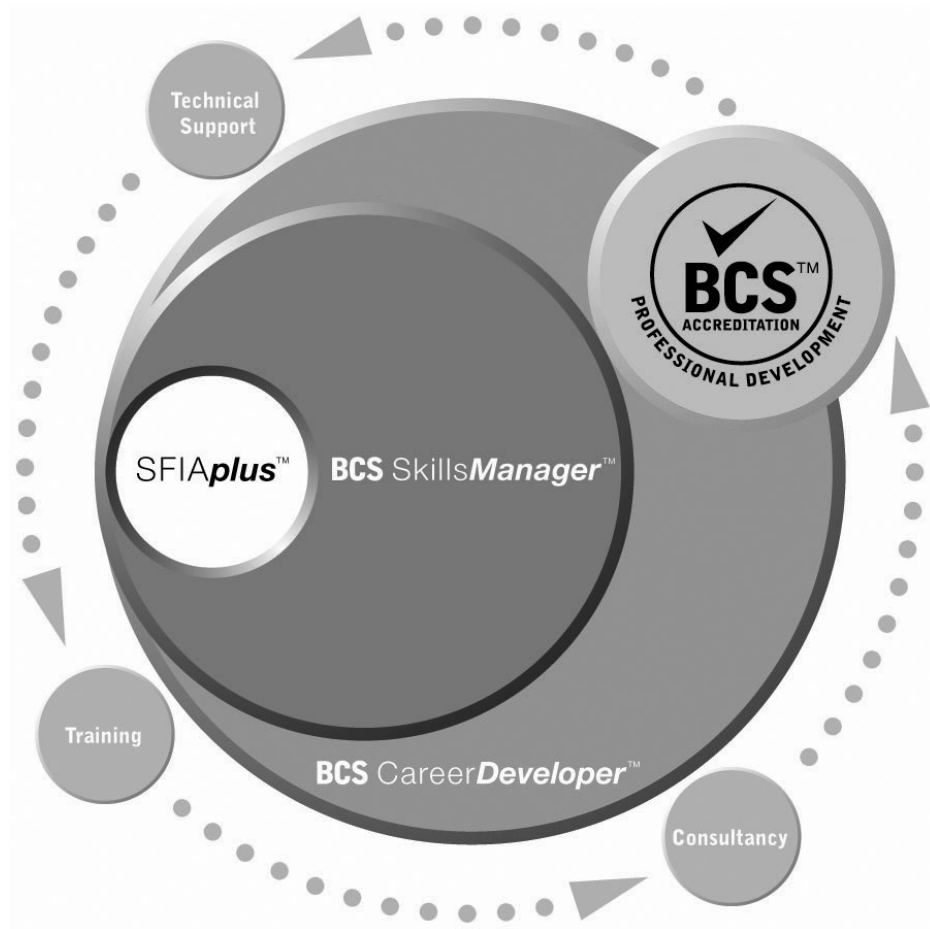


FIGURE 8.1 BCS professional products

- empowerment of IT staff to be proactive in their professional development;
- increased staff contribution and reduced turnover;
- help in attracting high-calibre graduates;
- differentiation from competitors when tendering;
- external benchmarking and validation of a company's professional development scheme;
- improved quality assurance, resource allocation to projects, skills gap analysis and succession planning;
- potential to help gain ISO 9000 accreditation and Investors in People.

Benefits to staff include:

- assurance of their employer's commitment to individual professional development;
- a proactive role in their professional development;
- confidence that their employer's development programme meets high standards that are independently validated;
- accelerated route to BCS membership.

Further information can be found at www.bcs.org/pda.

Career Developer

Organizations at the heart of government and leaders in the energy, pharmaceuticals and other industries are adopting BCS Career Developer as a hosted service via the internet. This powerful web-based solution helps employers define, manage and develop the IT skills within their organization. Correctly used as part of a professional development programme, Career Developer helps to ensure that the required skills are available to deliver projects on time. This product enables organizations to assess how closely current staff skills match business requirements and then to develop professional skills as part of a structured training and development programme.

An organizational skills inventory is built using the SFIPlus standard to provide consistency and traceability. With more than 250 tasks defined, team members can benchmark their skills and experience against SFIPlus in agreement with their manager. Team leaders and managers write job descriptions for all the positions in their teams and BCS Career Developer will show how well the skill needs of the business are met by the skills available (a gap analysis). When skills gaps have been assessed, Career Developer can be used to help develop staff to provide the missing expertise as part of appraisal, training and development cycles. Managers and staff agree development goals together and use Career Developer and SFIPlus as tools to help them ensure that goals are achieved. Further information can be found at www.bcs.org/careerdeveloper.

Skills Manager

This product is designed for companies looking for a software solution to help them identify and effectively manage the IT skills within their organization and to match business requirements against their employees' IT skills. Skills Manager creates a database of all IT staff, their skills and specialisms, and benchmarks these against SFIPlus standards to identify skills gaps and identify what skills are needed for particular projects. Corporate job descriptions for industry-recognized roles can be generated using SFIPlus and these define the level and work activities demanded by the position and the knowledge, skills, training and development that the post-holder will require. Skills Manager is a browser-based application available as an internet-hosted solution. It was developed in partnership with InfoBasis, a leading provider of skills management business solutions. Further information can be found at www.bcs.org/skillsmanager.

IT Job Descriptor

Available from May 2006, the new BCS IT Job Descriptor service is a browser-based solution using the SFIPlus standard to enable employers quickly to establish IT-industry job descriptions, staffing requirements, competencies, training to recognized standards and skills shortages.

IMPROVING THE SKILLS OF IT USERS

BCS is committed to raising national IT literacy standards and offers a range of qualifications to suit everyone. BCS manages and promotes many of these products in the UK under licence from the European Computer Driving Licence Foundation (ECDL-F), a not-for-profit organization dedicated to helping to raise the general level of computer skills in society and providing access for all to the information society. Further information about ECDL-F can be found at www.ecdl.com.

European Computer Driving Licence (ECDL)

ECDL is the world's leading end-user computer skills certification programme, available in 140 countries and translated into 36 languages. [Outside Europe the qualification is known as the International Computer Driving Licence (ICDL).] It is designed specifically for those who wish to gain a basic qualification in computing to help them with their current job, develop their IT skills and enhance their career prospects. No prior knowledge of IT or computer skills is needed to study for the ECDL.

ECDL was adopted as the reference standard for NHS staff in England in 2001. The NHS ECDL programme is managed by Connecting for Health for the NHS working closely with BCS.

Further information about ECDL can be found at www.ecdl.co.uk. For information about the NHS ECDL programme visit www.ecdl.nhs.uk.

equalskills

Specifically designed to address the needs of those intimidated by computers, equalskills is a short, staged training and assessment programme with a certificate awarded upon successful completion. The programme is informal and easy to use and shows newcomers to IT the very basics of computing from learning how to switch on a computer and use a mouse to exploring the internet for the latest holiday bargains. Further information can be found at www.bcs.org/equalskills.

e-Citizen

This qualification has been developed for individuals with little computer use experience who want to understand and use the internet and participate in the new information society. e-Citizen is designed to give people the tools they need to get onto the web, but also an awareness of the issues and dangers. The syllabus covers basic IT skills, using email, navigating the web and accessing information, using online services and simple web page creation. Further information can be found at www.ecitizen.co.uk.

BCS ITQ

BCS ITQ is aimed at anyone who uses IT in their job. It is a flexible qualification designed to build on candidates' existing skills and qualifications such as ECDL and encourage new learning. BCS ITQ gives people the ability to pick and choose the areas that they want to cover, be it for a business wanting to focus on improving certain IT skills within their workforce or for individuals looking to develop IT expertise. The qualification incorporates a set of different units, depending on the particular areas and skills levels the candidate needs. Units cover topics such as internet and intranet, email, specialist and bespoke software, spreadsheets, word-processing and presentation software. Further information can be found at www.bcsitq.co.uk.

BOX 8.3 TRADE UNIONS AND OFFSHORING: AMICUS

Amicus is the second largest union in the UK, with more than 1 million members drawn from both the public and private sectors and the largest union in the private sector. The union is in active discussion with a number of key companies in the ICT sector, with the aim of striking agreements to safeguard the future jobs and careers of employees affected by offshoring. Amicus estimates that, on average, an investment

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of £5,000 per employee for retraining and reskilling can produce a revenue return of £50,000 through redeployment (Skyte, 2005). 'Globalization may be an economic reality, but employers must continue to invest in people, skills and technology rather than engage in a race to the bottom', according to Peter Skyte, National Officer at Amicus.

In 2005 Amicus reached a landmark deal with global IT services company Computer Sciences Corporation (CSC), aimed at safeguarding the interests of employees faced by offshoring (Amicus, 2005). The agreement is believed to be the first of its kind in the IT sector and the first with an American company anywhere in the world. It covers CSC's world sourcing capability that delivers application services to clients from the optimal combination of onsite, regional, nearshore and offshore centres staffed with skilled IT professionals in a variety of locations worldwide.

For CSC it aims to provide flexibility to be able to offer customers equal or improved services at advantageous prices, enhancing competitiveness and delivering greater value. For Amicus it aims to safeguard job security and the skills and careers of its members and the workforce in general.

Key features of the agreement include:

- full and early consultation with Amicus on CSC's globalization strategy and proposals before decisions are made;
- a company commitment to the principle that its world sourcing activity in the UK will not result in the need for compulsory redundancy;
- redeployment to jobs of similar career value and terms and conditions of employment for those affected by work relocation;
- a share of continuing financial savings to be invested in skill development of the UK workforce;
- encouraging high standards of terms and conditions of employment with third-party suppliers and a commitment in new contracts to follow the company's Code of Ethics and internationally recognized guidelines covering employment rights and conditions.

9 Supporting Innovation and Celebrating Excellence

'The UK deservedly has an international reputation for outstanding science and technological discoveries. However, using these advances to bring commercial success has been a harder nut to crack, despite the fact we have a long line of individual entrepreneurs who act as inspiring role models', wrote Alun Michael, Minister for Industry and the Regions in *Computing* (Michael, 2005). 'We live in a world that continually raises the bar of performance, posing significantly greater challenges to us from other countries than we have had in the past' (Michael, 2005).

Never has it been so important for UK-based IT professionals to use their skills and knowledge to exploit the possibilities that IT offers, to innovate and improve. This places new demands on us.

'There needs to be a convergence of understanding between IT experts and non-experts so that there can be a constructive dialogue to drive value from new synergies through bringing together the two domains of knowledge. How are organizations to innovate if the technologists do not explain the potential benefits to their non-technical colleagues in terms they can understand and act on?' asks Dr Edward Truch, Director at the Centre for Innovation in IT (Truch, 2005). 'IT professionals must embrace the business application, be prepared to stand on the bridge between disciplines and get involved in the strategic business decisions. Much of innovation, on which businesses increasingly rely for success and survival, comes from the intermediate spaces between departments and disciplines' (Truch, 2005).

Compared with some of our overseas competitors, in the UK we are often reticent to celebrate our achievements and successes. Many of the world's leading innovators are to be found in the UK. Amongst the World Economic Forum's Technology Pioneers 2006 there are eight UK companies. Out of a total of 36 Technology Pioneers, only the USA boasts more companies than the UK. To be selected as a Technology Pioneer, a company must be involved in the development of life-changing technology innovation and have potential for long-term impact on business and society (World Economic Forum, 2005).

BCS has for many years celebrated and promoted the best of the UK's success stories through the Professional IT Awards scheme. This chapter includes examples of recent award medallists.

BOX 9.1 PROMOTING RESEARCH AND DEVELOPMENT (R&D) IN THE UK: INTELLECT'S CAMPAIGN

There was good news for the IT industry in the Chancellor's pre-Budget report in December 2005. He announced that the government would support innovation by improving the R&D tax credit scheme, to ensure that specialist tax inspectors deal with all small business tax claims and that these inspectors would be trained to understand software and engineering R&D processes.

Tom Wills-Sandford, Director of Public Affairs at Intellect, writes about the Intellect campaign that lies behind these announcements:

(Continued overleaf)

Innovation and R&D are not the same thing but they are strongly linked. You can innovate without R&D, but exploitation of R&D will always lead to innovation. Intellect has long been concerned about the low level of R&D in the UK, as indeed has HM Treasury. Currently we invest 1.9 per cent of gross domestic product in R&D. The government's target is 2.5 per cent by 2014, even though the European Union's target is 3 per cent by 2010.

Intellect has campaigned on this issue for several years. An R&D tax credit for small and medium businesses was introduced in 2000, and for larger companies in 2002. The small and medium business scheme provides a much greater financial benefit, and if the business is loss making (and therefore in no position to benefit from a tax credit) the company can actually get cash back. This scheme is credited with ensuring the survival of a number of hi-tech businesses. On the other hand, the large company scheme provides a 25 per cent tax credit on eligible R&D expenditure, which after corporation tax is a 7.5 per cent benefit. When ineligible costs such as premises and IT services (in support of the R&D) are excluded, we estimate that the incentive is somewhere between 3.75 per cent and 5 per cent of the project cost.

We believe that the tax credit should also be an incentive to multinationals to undertake R&D in the UK. Intellect has characterized the large company incentive as in the 'noise level' and not a sufficient incentive to invest in the UK. HM Treasury has consistently stated they have no plan to increase the rates.

Tax inspectors who lack expertise have regularly dismissed software development and engineering design projects. Inspectors find it easier to grasp the significance of new molecules (in pharmaceutical research) or chip design than software development. One tax inspector even turned down a claim because the work used a standard computer language – a bit like saying you can't build an interesting home if you use bricks!

After much campaigning by Intellect, HM Treasury and HM Revenue and Customs have now agreed that tax inspectors need some training in the software industry. We hope that Intellect will start running these courses in 2006 using industry professionals.

CENTRE FOR INNOVATION IN IT

The Centre for Innovation in IT was formed by KnowledgePartners to promote thought leadership in the delivery of innovation through IT. The aim is to bring together business practitioners, industry leaders and experts to help organizations facing new IT innovation challenges. BCS is a key sponsor, alongside EDS, Microsoft and Unisys. Research is carried out in collaboration with InfoLab21 and the Management School at Lancaster University. The Centre has built on the experience of establishing the Knowledge Management Forum at Henley Management College, developing an international reputation and collaborating with thought leaders around the world. Current research activities include innovation and business value; IT governance; and transformational outsourcing. Edward Truch, Director of the Centre, observes:

Our research has found that successful IT-enabled innovations blend hardware and software assets with business capabilities to generate a novel process, product or service. Technology alone is not enough.

Companies using IT to innovate rarely have all the necessary competencies in-house. They need to adopt an open approach, identifying the gaps and seeking out constructive ways to bring the required new skills on board. The barriers to innovation include:

- pressure for quick wins in terms of sales volumes;
- financial assessment techniques that give priority to risk minimization;
- failure to recognize the limitations of technology and an emphasis on what worked in the past rather than what is needed for the future;
- organizational structures and financial systems built around current products, technologies and market segments that are inflexible and inhibit change.

Company culture is key – strong leadership that supports innovation is pivotal. An environment that encourages communication and knowledge sharing across organizational boundaries is vital.

BOX 9.2 CELEBRATING SUCCESSFUL UK PROJECTS (1): SCOTTISH EXECUTIVE

The Scottish Executive's eProcurement Scotl@nd service is enabling the entire Scottish public sector to win the cost savings and efficiencies of eprocurement. The project, to design and implement the service, was arguably the world's most ambitious ever undertaken in the eprocurement field, its scope being nothing less than the public sector of an entire nation. The service makes it easy for suppliers, from multinationals to local small and medium businesses, to work with the public sector. More importantly, it is making Scotland a better place to do business, promoting investment, employment and economic activity.

The eProcurement Scotl@nd programme was a BCS business achievement award medallist in 2005. It was also a winner of the Aberdeen Group Best Practice Award 2005, a finalist in the eGovernment Europe Awards 2005 and a winner of the Information Management Award 2004 for business-to-business commerce.

Following an international competition the Scottish Executive selected a bid led by CapGemini that included Elcom's PECOS Internet Procurement Manager and Dynamic Trade Centre offerings. Elcom provides a fully hosted eprocurement solution, a common platform that includes e-sourcing capabilities as well as the transactional purchasing functionality. The service is designed to carry out transactions with any supplier, from small and medium businesses to multinational companies, supporting the Scottish ministers' intention of making Scotland the easiest and best place to do business with the public sector.

The underlying objective of the service is to accelerate large-scale change in the conduct of public sector procurement in Scotland. eProcurement Scotl@nd is a business change programme that sits at the heart of the Efficient Government agenda, locking procurement practice and process improvements into place through the use of 'e' tools, driving forward public sector excellence, encouraging investment, employment and economic activity. The take up of the system is well ahead of schedule.

The target of 50 public sector organizations using eProcurement Scotl@nd by the end of 2005 was exceeded. More than 10,000 suppliers have received orders through the system and this figure is expected to grow as major organizations that are currently implementing the system begin live roll-out. The Scottish Executive believes that more suppliers are enabled on eProcurement Scotl@nd than any other public sector eprocurement programme in Europe.

eProcurement Scotl@nd recognized the need to use existing ICT service management and programme management skills within the Scottish Executive. Ian Burdon, Programme Sponsor, and Steve Murray, of the Scottish Executive, believe that

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understanding business needs is more important than IT knowledge. Most of their IT professionals are hybrids of a sort: business orientated rather than technology specialists.

As to the future of IT professionals we have no doubt that those that take the time and have the ability to understand particular business areas will contribute more to the success of that business than those that don't. More than likely businesses that can offer a career path to IT professionals will reap more benefit than those that try to resource on a piecemeal basis from wherever they can get the skills. Having said that, most businesses can't afford to resource the wide breadth of IT skill-sets required nowadays – so will inevitably have to look somewhere externally.

This information was provided by eProcurement Scotl@nd.

Further information on eProcurement Scotl@nd can be found at www.eprocurementscotland.com.

BCS PROFESSIONAL AWARDS

BCS award schemes have been recognizing outstanding achievement in IT and IT management for more than 30 years. The BCS IT professional awards have established an unrivalled reputation for integrity, thoroughness of judging procedures and the high standard of winners. To win a BCS award has always been regarded as the pinnacle of achievement, conferring prestige and recognition upon the winners, and also upon the organizations that they represent.

Standards of sophistication and skill in the IT world are continually developing. The role of IT and its effective management is critical in most, if not all, areas of business. These awards recognize, promote and honour excellence, professionalism, innovation and outstanding achievement by individuals and groups. The BCS IT professional awards are a showcase of talent and achievement in the IT profession, illustrating the high standard of management, development and commitment to excellence within these organizations.

Major topic areas include:

- technology (four categories), encompassing excellence in computing, within the context of business value and social benefit;
- business achievement (five categories), for excellence in IT management and for impact on organizational performance;
- individual excellence (10 categories), including IT trainer, IT director, IT project manager and IT consultant.

New categories recently introduced are:

- women in IT, for organizations demonstrating how they have enhanced opportunities for women in IT;
- mobile computing, for organizations demonstrating how they have implemented a mobile strategy;
- investment in security, for organizations that demonstrate excellence in a business-orientated approach to information security.

The BCS IT professional awards present an important opportunity to recognize and celebrate the outstanding achievements and successes of all UK IT practitioners.

This information was provided by Anna Duckworth, BCS Head of Corporate Marketing. Further information can be found at www.bcs.org/awards.

BOX 9.3 CELEBRATING SUCCESSFUL UK PROJECTS (2): ROYAL BANK OF SCOTLAND

The Royal Bank of Scotland Group acquired Churchill Insurance in September 2003 and decided to integrate this business with its own Direct Line Insurance to form the UK's second largest general insurer. The combined organization operates from a single business operations model and a common IT platform, whilst servicing many brands: as well as Direct Line and Churchill the business/IT platform services scores of blue chip partner brands. In 2005 the Direct Line/Churchill integration was a BCS business achievement award medallist. Steve North writes about this highly successful programme:

The key dates were:

- November 2003 – business/IT integration plan agreed;
- April 2004 – first Churchill policies sold off common (Direct Line-based) platform;
- January 2005 – application systems integration complete;
- December 2005 – all Churchill policies migrated to common platform on renewal;
- end December 2005 – infrastructure integration complete and Churchill IT fully decommissioned.

The speed of execution was phenomenal. The Royal Bank of Scotland Group was committed to driving the integration as quickly as possible as financial benefits were very large and the programme had the potential to be disruptive to normal business. The total Royal Bank of Scotland Insurance application development headcount was 400, but the project had to ramp up to 700 staff within weeks. Clearly a key success criterion was fast issue resolution and decision-making. There were many different business units involved and managers had to sustain and grow current businesses as well as support integration. This led to significant day-to-day conflicts that had to be expertly handled by the IT team who, unusually, were driving the businesses rather than responding to them.

Of paramount importance was maintaining customer service. This was especially difficult given the speed of IT change, which meant taking well-judged risks with clear mitigation plans. The need for excellent risk management, coupled with business tensions, led to the creation of special governance bodies. The Chairman of Royal Bank of Scotland Insurance chaired a weekly Executive Steering Group, which took the really hard trade-off decisions to keep both business growth but especially integration on track. A group IT executive chaired a twice-weekly Technology Integration Board to drive through the IT integration. Key business and IT heads attended these sometimes gruelling sessions and ensured that if risks were taken they were fully understood and bought into, and that contingency plans were robust.

The project was a resounding success. The most aggressive schedule possible was set and met, budgets were tightly managed and the financial benefits and payback period beat the plan. This was a shining example of very tight inter-working between IT and business, together with an absolute commitment to deliver.

INFLUENCING ACADEMIC RESEARCH

As the learned society for computing and computer science, BCS plays a significant role in the development of the academic discipline and research carried out in the UK. Mike Rodd, BCS Director of Learned Society and External Relations (and an Honorary professor at several UK universities), comments:

A high percentage of the original research which resulted in, and continues to fuel, the computer revolution originated in the UK. Regretfully, to the economic detriment of the nation, much of this research has been exploited elsewhere. Still to this day, however, the UK leads the world in many significant areas of research and it is essential that we maintain this key unique advantage. BCS is, therefore, determined to do everything possible to assist in setting and sustaining the UK's research agenda, especially through active support for the Engineering and Physical Sciences Research Council (EPSRC), the UK Government's leading funding agency for research and training in engineering and the physical sciences. BCS also is one of the two parent bodies of the UK Computer Research Council, a membership organization established to promote the very best in UK research.

In 2006 BCS is organizing the third in a series of conferences, *Grand Challenges in Computing*, dedicated to setting the research agenda for the next decade (Hoare and Milner, 2005; McGettrick *et al.*, 2005).

International reviews

Introduced and organized by the relevant research council, regular international reviews provide a broad perspective on the research activity in a particular discipline in the UK. In each review an invited panel of international leading researchers benchmarks the strength of the UK research activity against world competitors and highlights any gaps or missed opportunities. The panel visits a number of UK research groups and has access to a wide pool of experts and supporting data.

An international review of UK research in computer science in 2001 found strength and international leadership in the following areas:

- logic semantics and formal methods within the theory community, as well as activities in quantum information processing;
- programming language design, enhanced by strength in logic, semantics and software engineering;
- technologies that contribute to system trustworthiness, including software engineering, security and dependability;
- architectures and algorithms for the design of real-time and embedded systems;
- artificial intelligence areas of speech engineering and computational linguistics, machine learning, artificial neural networks, computer vision and automated reasoning;
- human-computer interaction;
- bio-informatics.

The review warned that the UK's position was at risk and that the quality of research was declining in some fields. The global market for highly skilled computer scientists was very competitive and academic salaries and working conditions in the UK were not competitive. Many academics therefore pursue careers in industry. Research funding was low by international standards and processes for awarding grants lacked flexibility and discriminated against research proposals in high-risk or novel or interdisciplinary subjects.

BOX 9.4 LARGE-SCALE COMPLEX IT SYSTEMS INSTITUTE

As IT systems become larger and more complex, businesses critically need to be able to specify, analyse and predict system behaviour. The International Review of

(Continued)

Computer Science and a workshop organized by EPSRC identified a significant shortage of skilled personnel with relevant experience. There is an urgent need to improve understanding of large-scale complex systems to support the growth of the UK's knowledge economy and the implementation of IT strategies in private and public sector organizations.

A new Institute in Large-Scale Complex IT Systems is being established, funded by EPSRC in partnership with industry. The Institute's research will focus on understanding what it is about large-scale systems that makes them so complex and difficult to manage. Researchers will identify issues that cut across different industrial sectors and investigate how to design systems.

Key objectives for the Institute will include:

- being a conduit for knowledge transfer, including the formal capture of real-world experiences;
- generation of relevant expertise and appropriate training;
- focusing on real-world problems and application domains;
- being recognized as a world-class centre, attracting internationally leading researchers and users;
- drawing on expertise from many different disciplines;
- work on current problems extrapolating to future user needs, generating principled approaches, identifying cross-cutting issues and the need for new tools;
- connecting with and being complementary to existing initiatives, within the UK, the European Union and beyond;
- achieving industrial impact via joint academic and industrial work focused on a 3–10-year timescale.

The Institute will train researchers to doctorate level in aspects of large-scale complex IT systems, with students spending 25 per cent of their time training in universities and the rest of their time in industry.

Further information can be found at www.epsrc.ac.uk/researchfunding/programmes/ict/lscits/institute.htm.

A new international review will be carried out in 2006 with a wider remit, encompassing all ICT research. The objective is to assess the current state of UK-based research, identifying strengths and weaknesses and recommending, primarily to government, future funding strategies. The exercise is extremely important for any academic research organization and the role of BCS is, therefore, vital. BCS is one of four organizations coordinating the review, the other organizations being IEE, Intellect and EPSRC.

BOX 9.5 CELEBRATING SUCCESSFUL UK PROJECTS (3): DRIVER AND VEHICLE LICENSING AGENCY (DVLA)

On 10 January 2006, Transport Secretary Alistair Darling, with the help of super model and amateur racing driver Jodie Kidd, officially launched DVLA's Electronic Vehicle Licensing (EVL) service. The formal launch of EVL represented a huge milestone in the government's modernization agenda. The service was developed in response to

(Continued overleaf)

customer demand, which showed that up to 60 per cent of the UK mainland population expressed a keen interest in the ability to tax their vehicles online or over the telephone. EVL was a joint initiative between DVLA and IBM, demonstrating the ability of the public and private sectors to work together for the benefit of the consumer.

EVL was first introduced in February 2004 and aimed to make it easier for motorists to buy road tax or declare a Statutory Off-Road Notification (SORN), by allowing customers to carry out these transactions through the internet or by telephone. The service was initially introduced to invited customers whose vehicles did not require an MOT certificate. Since September 2004, take-up of the service has been growing progressively. In July 2005, the service was extended to include Heavy Goods Vehicles (HGV) and Public Service Vehicles (PSV) tax classes. Payments can be made by debit or credit cards.

Expansion of the service is dependent on the roll-out of the new computerized MOT database at the Vehicle and Operator Services Agency (VOSA). From then on increasing numbers of motorists will become eligible to take advantage of the electronic channels for relicensing their vehicles.

Press coverage of the national launch was extensive, taking in national newspapers such as the *Sun* and *Telegraph* as well as Radio 1's News Beat and Steve Wright's Drive Time on Radio 2 and a series of 25 local radio interviews. The national launch was only the start of raising the EVL profile. A series of regional launches in 2006 that began in Wales continued covering several major cities the length and breadth of the UK, ending in Glasgow and Edinburgh.

This information was provided by Sue White and Carolyn Williams, Customer Services Directorate, DVLA.

10 BCS Thought Leadership Role

BCS has a pivotal role to play in the IT profession's response to globalization. We need to develop a good understanding of our strengths compared with the best in the world so that we can use the new opportunities that global sourcing offers to nurture and grow the UK's IT profession. Anna Duckworth, BCS Head of Corporate Marketing, writes about BCS's thought leadership role:

As the leading learned and professional society for IT, BCS aims to ensure that it is always at the forefront in thought leadership and promoting growth in, and awareness of, the underlying science, techniques and applications of IT. It does this by providing opportunities for experts from research and practice to exchange views. In a rapidly changing scientific and technologically driven world, essential to this process is the bringing together of key players from a wide range of disciplines and industrial sectors.

By performing these traditional learned society roles BCS also provides vehicles for disseminating the outcome of these interactions to both the public and private sectors. The ways in which BCS achieves this include:

- thought leadership debates;
 - These debates tackle specific hot-topics, with invited audiences of both BCS members and key decision makers across the IT spectrum. Topics have included intelligent infrastructure, electronic patient records and network surveillance. A full list of thought leadership debates is given in Appendix D (see also pages 68–70). Further information can be found at www.bcs.org/thoughtleadership.
- forums;

The forums have been set up for areas in which BCS has a major focus interest, such as education and training, engineering and technology, management, security and health informatics, and all are led by major players in their respective fields.
- specialist groups;

The BCS specialist groups address specific sectors of interest, supporting a wealth of opportunities for working with professional colleagues (see also page 40).
- learned society awards programme;

The Learned Society Awards Committee is responsible for a number of nationally significant academic awards and prizes.
- prestige public lectures;

Annual lectures organized by BCS include: the Turing Lecture (in association with the IEE); the Lovelace Lecture; the Roger Needham Lecture; the RSI lecture (in association with the Royal Signals Institute).
- publishing.

BCS is committed to serving the professional and academic needs of its members through publishing. For over 40 years BCS has published academic journals, newsletters, magazines and computing books (see also page 42).

THOUGHT LEADERSHIP DEBATE: THE KNOWLEDGE-BASED ECONOMY – WHAT CAN THE UK DO TO AVOID LOSING OUT TO THE FAR EAST?

This debate took place in January 2006 and was introduced by two speakers: Richard Sykes, Chair of Intellect's Outsourcing Group and formerly ICI Group Vice-President IT, and Mari Sako, Said Business School, Oxford. The discussion was very positive, highlighting that the UK is currently in a strong position. Some of the key points to emerge are described below.

Given that wage levels in countries such as India and China are relatively low, it is hardly surprising that the trend to offshore IT services is gathering pace. Most of the services provided by India and China are, however, still fairly low level. As time goes by we can anticipate that offshore services will move up the value chain. This has happened elsewhere: the Japanese car and Taiwanese electronics industries began by manufacturing entry-level products but have now moved on to developing their own-brand products. The timescale for moving up the value chain in service industries is expected to be much shorter than for manufacturing thanks to the global use of up-to-date ICT technologies.

The UK is, however, currently in a strong position. It has the seventh largest economy in the world and the fourth in terms of services. The UK has a trade surplus in computing and information services, lying fifth in the world behind India, Ireland, the USA and Germany in 2003 according to the World Trade Organization. Britain's trade surplus in business services is bigger in absolute terms than that of the USA, even though our economy is 10 times smaller. What is more, the UK's surplus is growing over time.

Not only does the UK have a flexible workforce, some communities have shown that they can reinvent themselves as world trade patterns change. One example is Leeds, a former textile area that has reinvented itself to become a financial services centre.

A widely shared view was that the UK must appreciate that offshoring is happening and embrace the trend. It should not try to put up barriers but take a confident, outward looking stance. The UK derives great benefit from its trading networks and UK companies should be encouraged to exploit globalization. The focus needs to be on more than just technology because competitive advantage does not come from technology alone but from people: their experience, skills and competencies. Education, training and qualifications all have a role to play. Equally, the UK needs to be an attractive place for companies to be based. The government can help to create an environment that is not excessively constrained so that companies find it easy to do business in the UK.

Both government and professional organizations have a role to play in sustaining the UK's competitive advantage in the IT service industry. BCS can contribute by promoting professionalism. Innovation, learning, professional standards and a business-friendly environment, supported and encouraged by government measures, will all help the UK to maintain its current strong position in the global IT services trade market.

Nigel Shadbolt, BCS Deputy President, chaired the debate:

Our debate highlighted the strengths that lie in the UK and the opportunities that globalization opens up for IT professionals. BCS is committed to building a strong profession for the future and we have many initiatives that will help us meet the new global competition with confidence. We cannot, however, be complacent – we need to be alive to the fact that we need to raise our professional standards to match the best in the world.

A full report of this debate can be found at www.bcs.org/thoughtleadership.

BOX 10.1 WORLD LEADERS (1): THE UK'S FINANCIAL SERVICES SECTOR

The UK has a strong and vibrant financial services industry. The sector is one of the most significant users of offshore resources in the UK for data centres, non-customer facing processing centres and call centres. According to a recent PricewaterhouseCoopers survey, the scale of offshoring in the global financial services sector is set to virtually double by 2008. Those companies that offshore jobs solely to cut costs, however, or do not approach projects with caution, will not reap full benefits, such as improved efficiency and increased shareholder value (PricewaterhouseCoopers, 2005).

Roger Baker, Peter Golden and Geoff Webster of the FINSIG specialist group write about new and emerging job opportunities for IT professionals in this sector:

The sector's regulator, the Financial Services Authority (FSA), strictly reviews all proposals for significant offshoring before permitting them. The FSA supervision and inspection leads to banks' subsidiary operations being managed directly 'hands-on' from the UK, rather than left to independent offshore organizations.

This impacts the labour market:

- basic developer jobs are reducing;
- IT operations, software support and applications support continue to be outsourced onshore and then, after a period of a year or two, transferred offshore;
- IT product developers also move standard development offshore, although specification and final testing tends to remain in the UK;
- Indian banking solutions are gaining traction in the global market, which may lead to a loss in core product revenues and job opportunities in UK-based technology product suppliers and to compete these companies may also have to move work offshore or specialize in the more niche market products or solutions.

A new breed of hybrid financial services business/IT professionals are, however, thriving. They ensure requirements are specified and met, use agile methods and work within new global delivery models. These UK IT professionals manage the sourcing selection process, specifying business, process and IT requirements and project managing the supply. Value chain analysis and core value propositions are used to analyse and propose which processes should be offshored or retained in-house, identifying the types of services and processes that can be most successfully developed and run offshore. As business service and federated computing models mature, this trend will accelerate.

Taking a holistic approach is often a valuable tool for these hybrid professionals; processes cannot simply be outsourced as they currently exist; they may be problematic, inefficient, damaged and held together by informal arrangements and key onshore staff. Simplification and systems redesign are needed first, generating significant UK onshore business systems analysis and design activity (and then process and IT design) before an optimized offshore solution can be created.

Alongside these hybrid professionals, and related as mentioned to the FSA supervision, a number of UK staff are being retained in-house to manage all aspects of the offshoring relationship: day-to-day operational control, supervision, audit, review and performance management. These staff also interpret changing business needs, which may mean that systems and processes are resited onshore or moved to a different offshore location.

BOX 10.2 WORLD LEADERS (2): THE UK'S MOBILE INDUSTRY

The UK is at the very vanguard of the fast growing entrepreneurial mobile industry. With close to 65 million in use, there are now more mobile phones in the UK than people. Britain is a world leader in the development of novel mobile applications, from employee communications via texts to meter readings, from remote monitoring of sick patients to people and parcel tracking. From 1985 the UK had two network operators, Vodafone and Cellnet, rather than a single monopoly and this helped spawn a vibrant and innovative support industry. Britain has also taken a leading role in the development of GSM and has become a global media hub, leading to the creation of new mobile services such as news alerts, ring-tones, games and mobile email. In 2004, UK mobile voice and data revenues overtook fixed-line voice revenues for the first time (Leyland and Eastwood, 2005).

'Aggregators such as WIN (Wireless Information Network) are building applications that save companies significant amounts of money. One example is a service for the AA that reduced the incidence of recalls to its breakdown call centre by 80 per cent', writes Mike Short, Chairman of the Mobile Data Association (Short, 2005). 'Companies such as Volantis are helping companies such as the FT, Egg, Norwich Union, Interflora, Ladbrokes and dozens of others to create fully functional mobile versions of their services' (Short, 2005).

The UK mobile industry has reached a critical mass, not only in terms of technology providers but also in the exploitation of the opportunities opened up by mobile. Vast global markets are emerging as GSM coverage extends to more than 200 countries and two billion users.

Mobile technology today is an indispensable business tool. The challenge is integrating its use with existing systems and processes to maximize business benefits. Mike Short believes the mobile industry in the UK has come a long way in helping organizations address these issues, 'There is no better place to be building mobile products and services and there is no better way to help organizations give themselves an edge, not just in local markets but internationally too' (Short, 2005).

In 2005, BCS introduced a new mobile computing award, reflecting the pace of evolution in this market. The first winner of this award was eCourier. The eCourier system brings clients and couriers directly together through the combination of mobile devices, GPS and an intuitive and easy to use online booking system. The system processes all delivery requests, minimizing the need for human intervention. Additionally a street-level tracking module allows clients to follow the GPS-informed movements of couriers assigned to their deliveries and another module automatically despatches proof of delivery emails containing the recipient's digital signature. Together, these systems provide unprecedented levels of efficiency, reliability, transparency and customer confidence.

THE IMPLICATIONS FOR THE UK OF COMPUTING DEVELOPMENTS IN THE NEXT 20 YEARS

The BCS Management Forum is commissioning a research study to look at the effect of computing developments on the UK economy and its society over the next 20 years. The output from the study will include an academic paper and a companion business report. The research will address three main challenges:

- (1) Do we want the UK to be G8 or G20 in 20 years' time?

- The UK needs to change and adapt in order to remain competitive in the world economy. How will ICT contribute to this? What must BCS do in order for this to happen successfully in the light of emerging economies, particularly China, India and Korea but also European accession countries, learning from our experiences and investing significantly in education and infrastructure?
- (2) Computing will dictate many more forms of work in future. How should BCS influence computing-related employment?
- We want to retain a stable society, with widespread prosperity. Many of the successful businesses of the future will export their value through ICT systems. What factors make these knowledge businesses successful? How can these new opportunities be encouraged so that positive impact will be felt in terms of employment? There is a risk that we will concentrate investment so that some sections of society will benefit more than others. The developing information infrastructure should bring widespread benefits, but might further widen the social and rural divide. What should BCS do to influence these developments?
- (3) How should BCS ensure that people can reach their full potential in a technical and information-rich society?
- As the UK economy becomes even more strongly focused on providing services we must ensure that people are prepared and motivated to deliver the customer value required to ensure UK business remains competitive. We need to develop all the elements of a knowledge economy and invest in them. Ultimately we want people that are happy but realistic about what is possible, and businesses that have world-class competitive advantages to deliver the global value to expand our economy. What role could BCS have in achieving this vision?

BOX 10.3 WORLD LEADERS (3): THE UK'S GAMES INDUSTRY

Reuben Edwards, University Dean at Lancaster University, and Paul Coulton, Forum Nokia Champion, who are both directors of m-ventions Ltd, write about the UK's games industry and the opportunities it offers for IT professionals:

One of the key advantages that UK developers offer is the ability to create innovative solutions as offshoring needs strictly specified requirements and software designs, based on well-known patterns, to be effective. Thus projects are often divided between countries, with the more sophisticated tasks kept in house and simpler tasks transferred overseas (although this is likely to change as skills, ability and experience improve in these countries).

Console and PC games represent significant pieces of software, easily broken into components that may be outsourced. Two of the largest games developers are currently offshoring work to countries such as Taiwan, China, Korea and India.

There is also a growing dependence on game engines such as Quake and Unreal, which means that increasingly large proportions of the development budget are being spent on cinematographers, composers, actors and artists from the film industry.

The development of games for mobile phones is an increasingly large market. Lower budgets and limited technical resources (memory, screen, graphics and power) require

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highly skilled programming coupled with the ability to develop innovative programming solutions. These games are also much smaller in scale and scope and so small companies tend to keep development in-house, although as the market has grown there has been a period of amalgamation, with smaller game development companies being swallowed up by the larger game developers (for example, the acquisition of Bluebeek by Mforma).

One of the major problems for mobile game developers is porting and testing (significantly more so than for console programmers), with a major game requiring testing on hundreds of different devices and for large position-complex games as many as 60 or 70 different versions. For companies such as EA this accounts for the largest part of their development budget. Here is where offshoring can support UK developers who are able to outsource device testing and porting to cheaper overseas partners.

The value placed on the skills and abilities of UK professionals is demonstrated by the significant level of development in the UK of software for Brew phones (common in the USA and South-East Asia), despite the fact that there are no Brew phones available in the UK and that these games are being sold purely overseas.

CASE STUDIES INITIATIVE

This new BCS initiative is a component of the Professionalism in IT Programme (see pages 18–20). Although several research projects have found that there is a wealth of best practice guidance available, professionals are often unaware of this advice or have difficulties applying best practice principles. The aim of the case studies programme is to promulgate lessons learnt in successful projects and to use the expertise demonstrated by BCS Professional IT Award winners and medallists.

The case study material will be written up in two formats:

- magazine-style material for award winners, highlighting achievements, the keys to success, barriers overcome and business impact;
- research papers, analysing roles, capabilities, results, relationships and competencies, all linked to professionalism in ICT work.

Case studies will be prepared for a selection of the 2005 award winners. The process will be embedded in the BCS Professional IT Awards programme from 2006 onwards.

BOX 10.4 INVESTING INTO THE UK

Global sourcing is one of the most significant forces shaping today's business environment. While countries with low wage levels can offer obvious cost advantages, this is not the only factor influencing offshoring decisions. Proximity, political and security risk, macroeconomic stability, regulatory environment, tax regime, labour regulation, labour skills and infrastructure all play a part. The Economic Intelligence Unit's 2005 ranking of global offshoring environments shows that Ireland and the UK are the highest ranked western European countries, in positions 27th and 29th respectively. Although wage levels are relatively high in both countries, this is offset at least in part by attractive labour markets, favourable business environments and English language skills (Economist Intelligence Unit, 2005).

Writing for *Computing* (Pedder, 2005), William Pedder, Chief Executive of the Inward Investment Group at UK Trade and Investment, notes that the UK's IT sector is attracting European investment in three key areas: inward investment projects; venture capital investments; and investment in IT capital goods and services. The

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UK led Europe in both the amount in IT and the number of venture-backed deals in 2004. By halfway through 2005, UK companies had captured nearly 38 per cent of all venture capital deals in Europe.

The UK is particularly well positioned to attract investments that capitalize on the convergence of the IT, telecoms and media sectors. Investment is also attracted to the many centres of excellence in digital media, communications, computing and 3G/wireless technologies.

In a real sense, the UK is the leading market in Europe for investment in convergence innovation. Investors who are already established in the UK have become part of a technology ecosystem that is bringing life to the vision of a truly adaptive enterprise and digital lifestyle with high mobility and ubiquity of access to high-fidelity content as core organizing principles.

PEDDER (2005)

Appendix A: SFIA Skills-Set

Strategy and planning	Information strategy	Information management
	Advice and guidance	Consultancy Technical specialism
	Business and information systems strategy and planning	Research Innovation Business process improvement Strategic application of information systems Business risk management Information security Information assurance
	Technical strategy and planning	Systems architecture Emerging technology monitoring Continuity management Software development process improvement Network planning Methods and tools
Development	Systems development	Systems development management Data analysis Systems design Network design Database design Programming and software development Safety engineering Website specialism Systems testing
	Human factors	Systems ergonomics Content creation Non-functional needs analysis Usability evaluation Human factors integration
Business change	Business change management	Business analysis Programme management Business process testing Change implementation planning and management Organization design and implementation Benefits management
	Relationship management	Stakeholder relationship management

Service provision	Infrastructure	Configuration management Change management Capacity management Systems software Security administration Radio frequency engineering Availability management Financial management for IT
	Operation	Data protection Application support Management and operations Network control and operations Database administration Service level management
	User support	Network support Problem management Service desk and incident management
Procurement and management support	Supply management	Procurement Supplier relationship management Quality management Quality assurance
	Quality management	Quality standards Compliance audit Safety assessment Project office Asset management Information systems coordination
	Resource management	Client services management Professional development Resourcing
Ancillary skills	Education and training	Education and training management Training materials creation and maintenance Education and training delivery Account management
	Sales and marketing	Marketing Selling Sales support

Source: www.sfia.org.uk

Appendix B: BCS Specialist Groups

All the BCS specialist groups are listed on www.bcs.org/groups.

Advanced Programming	www.bcs.org.uk/siggroup/advprog
Artificial Intelligence	www.bcs-sgai.org
BCS Women	www.bcs.org/bcswomen
British APL Association	www.vector.org.uk
British Human Computer Interaction	www.bcs.org.uk/hci
Business Information Systems	www.tlaconsultancy.co.uk/bcsbis/bissg.php
Computer Arts Society	www.computer-arts-society.org
Computer Conservation Society	www.bcs.org/sg/ccs
Computer Graphics and Displays	www.bcs.org/groups/graphics
Configuration Management	www.bcs-cmsg.org.uk
Consultancy	www.bcs.org.uk/siggroup/consultancy
Cybernetic Machine	www.bcs.org.uk/cybergroup.htm
Data Management	www.bcs.org.uk/sg/datamgt
Electronic Publishing	www.epsg.org.uk
Financial Services (FINSIG)	www.bcsfinsig.org
Formal Aspects of Computing Science	www.bcs-facs.org
Fortran	www.fortran.bcs.org
Geospatial Specialist Group	http://geospatial.bcs.org
Health Informatics (London and South East)	www.hilsesg.bcs.org
Health Informatics (Northern)	www.bcs-nmsg.org.uk
Health Informatics (Nursing)	www.bcsnsg.org.uk
Health Informatics (Primary Health Care)	www.phcsg.org
Health Informatics (Scotland)	www.scotshi.bcs.org.uk
Health Informatics (South West)	www.bcs.org/groups/hisw
Independent Computer Contractors	www.bcs-icc.org.uk
Information Retrieval	http://irsg.bcs.org
Information Risk Management and Audit	www.bcs-irma.org
Information Security	www.bcs-issg.org.uk
Information Systems Methodology	www.bcs.org/groups/ism
Internet	www.isg.org.uk
Law	www.bcs.org/groups/law
Mathematics Programming	www.bcs.org/groups/mathematics
Methods and Tools	www.bcs.org/groups/methods
Natural Language Translation	www.bcs-mt.org.uk
Open Source	oss.bcs.org
Parallel Processing	www.bcs-ppsg.org.uk
Pattern Analysis and Robotics	www.patternrecognition.school.com
Payroll	www.bcs.org/groups/payroll
Performance Engineering	www.cee.hw.ac.uk/~pjbk/perfeng
Project Management	www.proms-g.bcs.org
Quality	www.bcs.org.uk/sg/quality

Royal Air Force (RAF)	www.bcs.org/groups/raf
Requirements Engineering	www.resg.org.uk
Scottish Testing	www.scottest.org.uk
Service Management	www.smsg.bcs.org
Sociotechnical	www.sociotechnical.org
Software Practice Advancement	www.bcs-spa.org
Software Process Improvement Network	www.spin.bcs.org
Software Testing	www.sigist.org.uk
Wireless Information Technology	www.witsg.org

Appendix C: BCS Publications

Finance for IT Decision Makers. A Practical Handbook for Buyers, Sellers and Managers (2nd edn). Michael Blackstaff

1-902505-73-5 (ISBN 13: 978-1-902505-73-2). Cover price: £30.

Size: 246 x 172mm. Paperback: 288pp approx. Published June 2006.

Practical Data Migration. John Morris

1-902505-71-9 (ISBN 13: 978-1-902505-71-8). Cover price: £30.

Size: 246 x 172mm. Paperback: 192pp approx. Published May 2006.

Business Analysis. Debra Paul and Donald Yeates (eds)

1-902505-70-0 (ISBN 13: 978-1-902505-70-1). Cover price: £25.

Size: 246 x 172mm. Paperback: 286pp approx. Published May 2006.

A Pragmatic Guide to Business Process Modelling. Jon Holt

1-902505-66-2 (ISBN 13: 978-1-902505-66-4). Cover price: £30.

Size: 246 x 172mm. Paperback: 187pp. Published September 2005.

Professional Issues in Information Technology. Frank Bott

1-902505-65-4 (ISBN 13: 978-1-902505-65-7). Cover price: £20.

Size: 246 x 172mm. Paperback: 248pp. Published May 2005.

Invisible Architecture: The Benefits of Aligning People, Processes and Technology. Jenny Ure and Gudrun Jaegersberg

1-902505-59-X (ISBN 13: 978-1-902505-59-6). Cover price: £25.

Size: 246 x 172mm. Paperback: 104pp. Published March 2005.

Business Process Management: A Rigorous Approach. Martyn A. Ould

1-902505-60-3 (ISBN 13: 978-1-902505-60-2). Cover price: £35.

Size: 246 x 172mm. Paperback: 364pp. Published January 2005.

A Guide to Global Sourcing: Offshore Outsourcing and Other Global Delivery Models.

Elizabeth Anne Sparrow

1-902505-61-1 (ISBN 13: 978-1-902505-61-9). Cover price: £25.

Size: 246 x 172mm. Paperback: 196pp. Published November 2004.

Project Management for IT-Related Projects: Textbook for the ISEB Foundation Certificate in IS Project Management. Bob Hughes (ed)

1-902505-58-1 (ISBN 13: 978-1-902505-58-9). Cover price: £20.

Size: 210 x 297mm. Paperback: 148pp. Published August 2004.

A Manager's Guide to IT Law. Jeremy Newton and Jeremy Holt (eds)

1-902505-55-7 (ISBN 13: 978-1-902505-55-8). Cover price: £25.

Size: 246 x 172mm. Paperback: 180pp. Published July 2004.

Appendix D: BCS Thought Leadership Debates

Computing/IT as a subject for 16–19 year olds: What should we be teaching? Why? How? What are the barriers to success?

Date: 24 April 2006

Venue: Royal Society, London

Speakers: Professor Jon Crowcroft, University of Cambridge and Andy Puttock of BT who is one of the employers on the e-skills UK Diploma Development Partnership

Where is the Science in e-Science

Date: 27 February 2006

Venue: Royal Institute of Public Health, London

Speakers: Carole Goble, University of Manchester, and Robert Gurney, University of Reading

The Knowledge Based Economy

Date: 16 January 2006

Venue: Royal Society, London

Speakers: Dr Richard Sykes, Intellect's Outsourcing Group, and Professor Mari Sako, Said Business School, Oxford

IT Professionalism and Successful IT Enabled Business Change

Date: 28 November 2005

Venue: Royal Society, London

Speakers: John Leighfield, Research Machines, and Jean Irvine, Change Leadership Network

The Effectiveness of Grand Challenges in Computing Research

Date: 25 October 2005

Venue: Royal Institute of Public Health, London

Speakers: Professor Robin Milner, University of Cambridge, Professor Richard Durbin, Sanger Institute Cambridge, and Dr Andrew Fitzgibbon, Microsoft Research

Open Access in Academic Publishing

Date: 5 October 2005

Venue: Royal Society, London

Speakers: Professor Derek Law, Strathclyde University, and Sally Morris, ALPSP

Identity Management: A Must Have or A Lost Cause?

Date: 6 September 2005

Venue: Royal Society, London

Speakers: Russ Davis, COO Senselect Ltd, and Stefan Fafinski, CEO 1871 Ltd

Intelligent Infrastructure

Date: 11 July 2005

Venue: Institute of Directors, London

Speakers: Professor Philip Blythe, Newcastle University, and Will Stewart, OST, DTI

What's so Different about Electronic Patient Records?

Date: 16 May 2005

Venue: Institute of Directors, London

Speakers: Anthony Nowland, Health Informatics Consultant, Personal Health Systems Ltd, and Professor David Ingram, University College London

Public and Government Engagement with IT

Date: 5 April 2005

Venue: The House of Lords, London

Speakers: Professor Brian Collins, RMCS Cranfield University, and Mr Chris Earnshaw, Chairman of the Police IT Organization

Why are Complex IT Problems Different?

Date: 16 March 2005

Venue: Royal Society, London

Speakers: Ian Glenday, Head of Gateway Process at OGC (formerly at Esso), and John Bailey, CIO of Bechtel

Architecture for Cognition (*Foresight*)

Date: 10 February 2005

Venue: Institute of Directors, London

Speakers: Steve Furber, University of Manchester, and Neil Burgess, University College London

Where is a Precautionary Approach ... (*Foresight*)

Date: 25 January 2005

Venue: Royal Society, London

Speakers: Fred Piper, Royal Holloway College, and Karen Sparck Jones, University of Cambridge

Is Network Surveillance Possible? (*Foresight*)

Date: 16 December 2004

Venue: Institute of Directors, London

Speakers: Dave De Roure, University of Southampton, and Simon Watkin, Home Office

Women in IT

Date: 14 December 2004

Venue: RIBA, London

Speakers: Catriona Campbell, the Usability Centre, Rebecca George, DTI Forum for Women in IT, and Kathy Rittweger, co-founder of the internet service Blinkx

Future Vision (*Foresight*)

Date: 25 November 2004

Venue: Institute of Directors, London

Speakers: Sir Michael Brady, University of Oxford, and Edmund T Rolls, University of Oxford

When Brains meet Technology (*Foresight*)

Date: 16 November 2004

Venue: Institute of Directors, London

Speakers: Lionel Tarassenko, University of Oxford, and Richard Morris, University of Edinburgh

Designing ICT for Crime Prevention (*Foresight*)

Date: 26 October 2004

Venue: Institute of Directors, London

Speakers: Paul Ekblom, Home Office, and Nic Holt, Fujitsu

Ethical Computing

Date: 13 September 2004

Venue: Royal Society, Edinburgh

Speakers: Keith van Rijsbergen, University of Glasgow, and Richard Susskind OBE, IT adviser to the Lord Chief Justice of England

Scale, Complexity and Software

Date: 5 May 2004

Venue: Institute of Directors, London

Speakers: David Cliff, Senior Scientist at Hewlett Packard Laboratories, and Michael Jackson, independent consultant

Trust and Provenance

Date: 15 March 2004

Venue: Worshipful Company of Information Technologists, London

Speakers: Christopher Millard, Partner at Linklaters and Jeremy Barnett, Chairman of the Bar Council IT panel

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