2 THE COMPUTING PROFESSION

After studying this chapter, you should:

- *understand what is meant by the terms profession and professional, and be aware of the main professional bodies in the field of information technology;*
- *be familiar with BCS Code of Conduct and understand the obligations that it imposes on members;*
- *understand the concepts of reservation of title and reservation of function in the context of professional responsibility for public safety.*

2.1 THE CONCEPT OF A PROFESSION

Words like **profession** and **professional** are used in many different ways. Professional footballers are footballers who make their living from the game. Professional employees are employees of a certain status, who are expected, within limits, to put the interests of the organisation they work for above their own convenience. To describe someone as a real professional implies that they can be relied on to carry out their work competently and conscientiously regardless of the circumstances. A professional piece of work means a piece of work that meets established standards of quality. However, the terms can also have negative overtones – professional fouls are fouls committed deliberately by professional footballers who calculate that, on the balance of probabilities, the outcome will be in their favour.

There is no single definition of a profession. The meaning of the word depends on who is using it and what the context is. However, if we look at a range of occupations that would commonly be described as professions – lawyers, doctors, dentists, accountants, veterinary surgeons, architects and so on – we see that there are a number of characteristics that most of them have in common:

- Substantial education and training are required in order to practise the profession.
- The members of the profession themselves decide the nature of this training and, more generally, control entry to the profession.
- The profession is organised into one or more professional bodies.
- Members of the profession are expected to conduct their professional activities in accordance with codes of conduct laid down by the professional bodies and enforced by them.

Many, but by no means all, professions also enjoy a sort of monopoly: either the use of a certain title, such as architect, or the carrying out of certain functions, dentistry for example, or both, may be restricted by Act of Parliament to members of certain professional bodies. We shall discuss this in more detail later in this chapter.

A professional body usually starts by a group of people coming together because of a shared interest in a particular type of activity. There are many professional bodies in Britain and they cover a very wide range of professions, including the law, medicine, many different branches of science and engineering, accountancy, architecture, surveying and many others. BCS, The Chartered Institute for IT (BCS) was set up in 1957 as the British Computer Society by a group of people working in the new and expanding field of computers, who wanted the opportunity to exchange ideas. It currently has about 70,000 members. The Institution of Engineering and Technology (IET) is the other main body in the UK that includes information technologists among its members. It was formed in 2006 by a merger of the Institution of Electrical Engineers, which was set up in 1871 by people with an interest in the developing field of electrical engineering, and the Institution of Incorporated Engineers. It covers electrical engineering, electronic engineering and a number of other fields in addition to IT, and has a membership of around 150,000.

Although the role of professional bodies in the USA is somewhat different from their role in the UK, there are two professional computing bodies based in the USA whose importance is worldwide and immense. The Institute of Electrical and Electronic Engineers (IEEE) is a professional engineering society based in the USA but with members and activities spread worldwide. It was under the aegis of the IEEE that the first professional society in the field of computing was founded in 1946. This was the IEEE Computer Society (IEEE-CS); today it has over 100,000 members. It was closely followed by the **Association for Computing Machinery**, universally known as the ACM. This was founded in 1947 and now has over 75,000 members. Like the IEEE-CS, it is primarily an American organisation, but it has members and activities in many countries.

2.2 ROYAL CHARTERS

In the UK, any organisation that believes its main objectives are in the public interest can enter into discussions with the Privy Council with a view to being awarded a *royal charter*. A royal charter is a formal document, written in rather quaint language and signed by the monarch, which establishes the organisation and lays down its purpose and rules of operation. As they grow into mature organisations, most professional bodies seek and obtain a royal charter.

BCS was awarded its royal charter in 1984. The Institution of Electrical Engineers was awarded its first charter in 1921 and the IET received its charter in 2008, shortly after the merger.

The charter of BCS sets out very clearly the purposes of the institution:

> to promote the study and practice of Computing and to advance knowledge and education therein for the benefit of the public.

There follows a lengthy list of things that the institution is authorised to do in order to fulfil these purposes. The most important of these can be summarised as follows:

- establishing a code of conduct to regulate the way members of the body behave in their professional lives and a disciplinary procedure to discipline members who breach this code;
- promoting education in the field of computing;
- setting standards of education and experience that must be met by people wishing to become members of the body;
- establishing mechanisms for disseminating knowledge of good practice and new developments to its members, typically through publications and conferences but also through the use of the internet;
- to promote and support standards and codes of practice;
- to advise government and regulatory bodies about matters within its area of expertise.

In the following sections we shall look at the way that BCS addresses some of these functions.

2.3 PROFESSIONAL CONDUCT

The BCS charter specifically requires BCS to 'establish and maintain a sound ethical foundation for the use of computers...'. All professional bodies are under a similar obligation; this, indeed, is one of the most important characteristics of a professional body. It is normally done by laying down a code of conduct to which their members are required to adhere. A **code of conduct** sets out the standards of behaviour that members of the body are expected to follow in their professional life. Sometimes the code is called a code of ethics. It looks outwards, in the sense that it is concerned with the relationship between members and society as a whole. Although all codes of conduct have much in common, they also have significant differences, if only because the nature of the activities of different professions places different temptations in the path of their practitioners.

Codes of conduct should not be confused with codes of **practice**, which are concerned with the way in which the professional activities should be carried out.

BCS's Code of Conduct is currently divided into the following sections (please consult the BCS website for the latest version at www.bcs.org/codeofconduct):

1. The Public Interest
2. Professional Competence and Integrity
3. Duty to the Relevant Authority
4. Duty to the Profession.

2.3.1 The public interest

This section requires members to be aware of and comply with aspects of the law and regulations that govern acting in the public interest. For example, members need to safeguard public health, protect the environment, have due regard for privacy and human rights and avoid discrimination.

Some of these elements can cause problems for members working for clients or companies in countries whose governments practice or encourage systematic discrimination on, for example, grounds of race, religion or sexual orientation. Information systems developed in such countries often have such discrimination embedded in their design – this was certainly the case, for example, in some government information systems developed in South Africa during the era of apartheid. The effect of this clause is to forbid members of BCS from working on such systems.

The section is also concerned with the rights of third parties as well as copyright and intellectual property (which will be discussed in detail in Chapter 11).

Finally, the section invites members to take any opportunity to address the so-called digital divide, that is, the inequality that exists, for whatever reason, among different groups with respect to their ability to benefit from information and communication technologies. It includes, on the one hand, the lack of appropriate skills amongst many elderly people, which means they cannot take advantage of technologies that could very much improve the quality of their lives. On the other hand, it includes the gap between the way that middle-class children in Britain can use these technologies and the lack of facilities for children in rural Africa to do the same.

2.3.2 Professional competence and integrity

This section addresses what has been, and to some extent continues to be, a serious problem for the IT industry. Only too often, individuals and companies claim to be able to undertake work that they are not competent to carry out, and this leads to system failures. One of the most serious system failures, that of the London Ambulance Service's Computer Aided Despatch System, in 1994 (see Further Reading section), was caused, at least in part, by a small software company claiming expertise that it did not have. It was not deliberate deception: the company in question had so little expertise that it failed to recognise that the system required expertise that it did not have.

Under this section members are also required to keep their professional skills up to date and be familiar with the legislation that is relevant to their professional activities. Thus, web developers building an ecommerce site for a retail company are required to be conversant with legislation such as the Consumer Protection (Distance Selling) Regulations 2000 (see Chapter 14). A software engineer working on a railway signalling system would not be expected to be familiar with those regulations but should be familiar with the regulations laid down by the Rail Safety and Standards Board.

2.3.3 Duty to the relevant authority

This section starts by saying that members should carry out their professional duties with 'due care and diligence', that is, with the proper care and attention. This is what society has the right to demand of any professional.

The term 'relevant authority' means the person or organisation that has authority over what you are doing. If you are employed by an organisation, this is likely to be your employer; if you are an independent consultant, it will be your client; and if you are a student, it will be your school, college or university. In some cases, there may be several relevant authorities; for example, if you are a part-time student who is also employed part time, then the relevant authority as far as your work as a student is concerned will be your school or college but the relevant authority in your employment will be your employer.

According to this section, behaving professionally towards relevant authorities means, in particular, avoiding the following:

- *Conflicts of interest*: These are situations in which there are incentives that might encourage you to do things or take decisions that are not in the best interests of your relevant authority. If, for example, you have been asked by your employer to recommend a payroll package for your company and it happens that your sister works in the sales section of a company that supplies such a package, you might well be tempted to recommend that package, whether or not it is the most suitable for your company's needs. In such circumstances, you should explain the situation to your employer and suggest that it might be better to ask someone else to recommend a suitable package.
- *Disclosing confidential information without permission*: Confidential information may include technical information about a company's products, its financial position, sales leads and so on. (The law relating to confidential information is covered in more detail in Chapter 11).
- *Misrepresentation*: This is a failing that occurs only too often in the software industry. In their eagerness to make a sale, sales staff in particular, but also technical staff, will claim that software that they are selling will do things that, in fact, it will not, or they will claim their company is competent to do things that it cannot. Although most people will try to avoid making claims that they know are wrong, in many cases they will be prepared to claim things of which they are uncertain, if the claims seem plausible. The Code forbids such behaviour.

2.3.4 Duty to the profession

Like other professionals, information systems professionals have not always had a good press. System developments have been plagued by delays, budget overruns and complete failures, and these have been well publicised. Too often, the systems themselves do not meet the needs of their users. And information systems professionals have, on occasions, been perceived as behaving in an unprofessional manner. The purpose of this section of the Code is to impress on members what is expected of them in order to uphold the reputation and good standing of BCS in particular, and the profession in general.

2.3.5 Status of professional codes of conduct

Like most professional bodies, BCS has procedures that allow it to take disciplinary action against members who infringe the Code, with expulsion as the ultimate sanction. Where membership of the professional body confers a licence to practise, as in the case of the Law Society for example, this is a very serious punishment, since expulsion deprives expelled members of the right to earn their living in their chosen profession. Even in the case of BCS, expulsion or other sanctions, although not directly affecting a member's ability to earn a living, can certainly affect their professional standing. A member who has been subject to disciplinary action can thus take the matter to the civil courts, which will expect the disciplinary proceedings to have been conducted in accordance with the rules of natural justice. This places limits on the extent to which codes of conduct can be enforced.

Most codes of conduct contain some very precise rules and some rather vague or aspirational ones. Clause (e) in the *Duty to the Profession* section of the BCS Code of Conduct is an example of a very precise rule. It states:

> [You shall] notify BCS if convicted of a criminal offence or upon becoming bankrupt or disqualified as a Company Director and in each case give details of the relevant jurisdiction.

This is quite clear. There is little doubt about what it means and, in any specific case, it should be clear whether a member has complied with this rule. There is no difficulty in taking action against a member who has broken this rule.

The first clause of the *Public Interest* section, on the other hand, is much vaguer:

> [You shall] have due regard for public health, privacy, security and wellbeing of others and the environment.

Although no one can quarrel with this precept, there may not be general agreement as to whether a particular development is or is not consistent with improvement in public health, safety and the environment. Some people would regard any work carried out for the nuclear industry as being detrimental to public health, safety and the environment. Others will argue that the use of nuclear power stations to generate electricity is beneficial to the environment because it avoids carbon dioxide emissions. It would thus be unreasonable for the Institute to take disciplinary action against members working in the nuclear industry, even though many other members might feel passionately that such work was dangerous to health, safety and the environment.

2.4 EDUCATION

BCS promotes education in a number of ways:

- it runs its own system of professional examinations and grants approval to suitable organisations that provide courses to prepare students for them;

- it accredits degree programmes offered by universities and other institutions of higher education;
- it designs and franchises short courses leading to qualifications in specific areas.

2.4.1 Higher education

BCS offers examinations to students in higher education. These consist of three stages, the **Certificate**, the **Diploma** and the **Professional Graduate Diploma**. As well as the normal written examinations, projects are assessed at Diploma and Professional Graduate Diploma levels. The Professional Graduate Diploma with the project is considered to be the equivalent of an honours degree.

A few other computer societies operate examination schemes. The Australian Computer Society has, for a number of years, operated its own system of examinations, somewhat comparable with the BCS Certificate and Diploma examinations but without the project. The IEEE-CS has recently introduced a scheme that allows someone with 9,000 hours of appropriate professional experience to take an examination set by the Society and, if successful, to be registered with the IEEE as a Certified Software Development Professional.

2.4.2 Accreditation and exemption

The term accreditation is used with a confusing variety of related meanings. In the present context, it refers to the process by which a professional body recognises specific academic awards made by specific institutions of higher education as satisfying, wholly or partly, the academic requirements for professional membership. Awards that are recognised in this way are referred to as accredited awards and the courses that lead to them are referred to as accredited courses. It is in this sense that the term is used by a range of professional bodies in such fields as medicine, law, engineering and science.

In deciding whether to accredit an award, BCS takes into consideration:

- the academic content of the programme, to see whether it meets the Institute's requirements, which are based on the computing benchmark statement produced by the UK Quality Assurance Agency for Higher Education;
- the quality of the learning and teaching facilities provided for students, including laboratory facilities and staff qualifications;
- the quality control and assurance procedures of the institution offering the award.

The process involves a written submission and a visit by a BCS panel during which there will be meetings with both staff and students.

2.4.3 Professional certifications

BCS offers a substantial range of qualifications, known as certifications, which are achievable through short courses. The courses are intended as training courses for staff working in the industry. Typically, they last around 40 hours.

Courses are available in a wide range of topics including, for example, business analysis, sustainable IT, IT governance and information security, project management and support, and software testing.

At the level of the computer user rather than the systems developer, BCS manages and promotes the European Computer Driving Licence (ECDL) in the UK on behalf of the ECDL Foundation. This is a European-wide qualification, which enables people to demonstrate their competence in computer skills. 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.

2.5 THE ADVANCEMENT OF KNOWLEDGE

The royal charter of BCS states very specifically that one of its objects is to advance knowledge of computing, and many other professional bodies include this among their objects. In practice, however, much of the research that contributes to the advancement of knowledge takes place in universities and in research establishments both public and private. As a result, professional bodies tend to be more concerned with the dissemination of knowledge through their publications, conferences that they organise or sponsor and various other activities.

One of the first actions of BCS when it was formed was to establish *The Computer Journal*. The first issue was published in 1958 and it has been published regularly ever since. The journal carries articles that present the results of research carried out in industry, in research establishments and in universities all over the world. The IET publishes a number of journals covering various topics in IT, including *IET Software*, which concentrates on new developments in software engineering, and *IET Networks*.

Most of the articles in *The Computer Journal* and the IET journals are targeted at specialists. For the information systems professional who is not engaged in research and development, the three most useful publications are probably *Computer* (the flagship publication of the IEEE-CS), *IEEE Software* and the *Communications of the ACM*. These contain authoritative articles on new developments and current issues written at a level that practising professionals can understand.

BCS also supports a considerable number of specialist groups. These groups bring together people with interests in specific areas. They cover a wide range of specialist areas, from artificial intelligence to software testing, from human computer interaction to law. They are particularly effective in spreading knowledge of good practice because they bring together practitioners from different organisations, all working in the same field, who learn from each other. Many specialist groups have gone on to develop an extensive range of resources, from books and reports to special software, to disseminate knowledge about their specialist topic.

2.6 CONTINUING PROFESSIONAL DEVELOPMENT

For many years, little attention was given to how professionals kept their knowledge up to date after qualifying. Thus, it was possible for a doctor, a dentist or a solicitor

to practise for 40 years without any formal requirement to update their knowledge. Of course, most professionals were aware of the need to do this and would take whatever opportunities are available. Nevertheless, these opportunities might not be readily available and the pressures of day-to-day work might make it difficult for busy professionals to take advantage of them.

The increasing rate at which new knowledge was becoming available and existing knowledge was being used in new ways led, in the 1970s, to increasing concern that professionals should keep their qualifications up to date and this process became known as **continuing professional development** (CPD). It can be defined as the systematic maintenance and improvement of professional knowledge and skills throughout an individual's professional working life.

2.6.1 CPD services to individual members

In common with other professional bodies, BCS supports CPD both by providing a formal structure through which it can be recorded and assessed, and by providing some of the means by which it can be achieved. For example, all members of BCS receive a copy of its monthly publication, *ITNOW*, which helps to keep them aware of new developments and current topics of interest to the profession. Additionally, the Institute provides its members with many opportunities for CPD through its branches and specialist groups. These provide an opportunity for members to meet together to share experiences, talk about common problems and listen to talks about new developments both technical and professional.

Although CPD serves to encourage professionals to keep their expertise up to date, there is a real danger that the knowledge and experience that qualified a member for a professional grade within the Institute may atrophy if they are not used. Accordingly, BCS offers a service to allow members to revalidate their skills every five years so that they can demonstrate to employers that these skills have been maintained.

2.6.2 Career development and CPD services to the industry

For many years, managing IT staff presented problems to their employers. The chronic shortage of qualified and experienced staff together with the rapid pace of change made the problems particularly acute for large user organisations. Such organisations were faced with the problem of where to place IT specialists in their staffing structures. Because of their scarcity, such staff could command high salaries but, elsewhere in the organisation, such salaries would be associated with substantial managerial responsibility. IT staff were anomalies who provoked both envy and disdain among their colleagues.

BCS started to tackle this problem in the mid-1980s with the development of the Industry Structure Model (ISM) – now SFIAplus, an enhanced model based on the Skills Framework for the Information Age (SFIA). The SFIA is a common reference model for the identification of IT skills, which has been developed by the SFIA Foundation, a not-for-profit organisation set up and owned by BCS, the IET, the Institute for the Management of Information Systems and e-skills UK, an industry body.

Such a model means that a large employer has a systematic way of structuring IT roles and is therefore in a much better position to address the problems referred to above.

2.7 REPRESENTING THE PROFESSION

Professional bodies are widely regarded as the source of the most authoritative advice on their disciplines. It is normal, therefore, for them to be consulted by the government about changes in the law as it affects the discipline or is affected by it. This consultation may extend over a period of several years, as happened, for example, when BCS was consulted over the EU Directive on Data Protection and the 1998 Data Protection Act. As well as such official consultation, professional bodies are also regularly invited to talk to groups of members of parliament who are interested in their disciplines.

Professional engineering bodies are also routinely asked by standardisation bodies, such as the American National Standards Institute or the British Standards Institute, to nominate members of committees developing standards in the field. Indeed, the IEEE itself runs the standards-making process in the field of local area networks through its Project 802.

Individual BCS members are also able to influence and shape policy by playing an active part in discussions and contributing to consultations from government and other bodies on a wide range of professional, economic and societal issues through joining the BCS 'policy hub'.

2.8 MEMBERSHIP GRADES

BCS has three major membership categories: standard grades, professional grades and chartered professional status. Membership in the professional grades requires degree level qualifications in IT or substantial experience. For chartered professional status, both degree level qualifications and substantial experience are required.

The criteria for membership in the professional and chartered professional grades are flexible but, for that very reason, they are complicated. The BCS website should always be consulted for precise and up-to-date information.

Membership at any level requires a commitment to compliance with the Institute's Code of Conduct. There are two professional grades: Member and Fellow, and members are entitled to use the letters MBCS after their name. Fellow is the most senior professional grade. It is open to applicants who can demonstrate a minimum of five years' IT practitioner experience and hold a senior IT position or who have an established reputation of eminence or authority in the field of IT. Fellows may use the letters FBCS after their names.

To achieve Chartered IT Professional (CITP) status you will be a professional Member or Fellow and will have spent at least three of the last five years working in an IT role carrying significant responsibility, full accountability and presenting a challenging range of complex work activities. Chartered IT Professionals are entitled to use the letters CITP after their names, along with their membership post-nominal (MBCS or FBCS).

In addition to awarding CITP status, the Institute is licensed by the Engineering Council to award Chartered Engineer (CEng) status and Incorporated Engineer (IEng) status, and by the Science Council to award Chartered Scientist (CSci) status.

2.9 RESERVATION OF TITLE AND FUNCTION

As mentioned at the beginning of this chapter, in certain cases, where it is considered to be in the public interest, the members of a profession may be granted some sort of legal monopoly. There are two different ways in which this can be done. First, the use of the name of the profession may be restricted to those people who are appropriately qualified. A restriction of this sort is called **reservation of title**. In the UK, for example, the Architects Act 1997 makes it a criminal offence to call yourself an architect unless you are registered with the Architects Registration Board.

Secondly, the law may state that certain activities are restricted to people with appropriate qualifications or to members of particular specified professional bodies. This is called **reservation of function**. For example, in England and Wales, only members of the Institute of Chartered Accountants in England and Wales and the Association of Certified Accountants are allowed to audit the accounts of public companies. Auditing accounts is an example of reservation of function where there is no corresponding reservation of title. Anyone can call himself or herself an accountant, provided this is not done for fraudulent purposes.

An example where both reservation of title and reservation of function apply is veterinary surgery. Under the Veterinary Surgeons Act 1966, you are not allowed to call yourself a veterinary surgeon unless you are registered with the Royal College of Veterinary Surgeons (RCVS); in order to be registered you must have the proper qualifications. And, subject to certain limitations, it is a criminal offence to carry out surgical procedures on animals unless you are registered with the RCVS.

In the US, title and function are usually reserved not to members of professional bodies but to people whose names are on a register maintained by a state government. In the UK, a somewhat similar provision has been in operation for many years for doctors and dentists. Recent developments have shown a tendency for the UK to move further in the same direction. For example, until the passage of the Architects Act 1997, it was an offence to 'practise or carry on business under any name, style or title containing the word "architect"', unless you were a member of the Royal Institute of British Architects (RIBA). The 1997 Act established the Architects Registration Board, registration with which now replaces membership of the RIBA as the requirement for calling yourself an architect. The reason for this change is that professional bodies are often seen as white-collar trade unions, which use their monopoly power to limit competition and maintain high charges for their services, while doing little to enforce the codes of conduct that they publish.

Whatever the mechanism adopted, there are strong arguments for protecting the public by ensuring that only suitably qualified people are allowed to practise professions in which unqualified people can do serious damage, be it physical or economic. It was a series of civil engineering disasters that led to the introduction of a licensing scheme for engineers in the USA in the 1920s and 1930s. A number of disasters can be traced directly to lack of professional competence on the part of the software engineers who developed the systems. Therac 25 (see the Further Reading section) in the US and the London Ambulance System in the UK are only two of many examples that show how the professional incompetence of software developers can lead to avoidable deaths. In both these examples, the developers lacked any professional qualifications in software engineering and were ignorant of such elementary topics as the risks of concurrent access to shared memory and the dangers of dynamic memory allocation, as well

as many more advanced topics. Although the immediate cause of the failure of these systems was programming error arising from ignorance of elementary topics, these errors occurred in a context that showed a much broader lack of professionalism. It is not surprising, therefore, that there have been calls for the compulsory registration of software engineers and for legislation to ensure that software engineering activities are carried out under the supervision of registered software engineers.

Some members of the profession have advocated a legal requirement that all software must be written by registered software engineers, or at least under their supervision. Such a regulation would be impossible to enforce. The number of people qualified to be registered as software engineers is vastly fewer than the number of people developing software. If such a regulation were introduced, the amount of new software that could be developed would be enormously reduced or, more likely, software development would go underground. Furthermore, there would be considerable opposition to the regulation. Many software developers would see it as an attempt to establish a monopoly by a small number of people with specific qualifications, with the intention of pushing up their own earnings. The public would share this view and see the move as unnecessary, because most software is not critical.

It would be more realistic and more defensible to require that the design and implementation of all 'critical' systems should be under the control of a registered software engineer; in the UK, this would probably mean a chartered engineer or a CITP whose experience and qualifications are in software engineering. By a critical system we mean a system whose failure to operate correctly could result in physical injury or loss of life, or catastrophic economic damage. Society is justified in demanding that such systems are designed and implemented by properly qualified and experienced engineers.

One difficulty is that the boundary between critical and non-critical systems is not always well defined. Although it is clear that an air traffic control system should be considered critical, because a failure can result directly in loss of life, should we consider a medical records system to be critical, because the loss of information concerning, say, a patient's allergy to penicillin could in some circumstances lead to the death of the patient? A second difficulty is that many software engineers have not studied the rather specialised techniques needed for working on critical systems. Nor, for the jobs they are doing, is it necessary that they should.

In the UK context, compulsory reservation of function for software engineers, even for critical systems work, is unlikely to be realistic except as part of a move towards reservation of function for engineers more generally. The UK has shown no inclination to follow the US in making registration of engineers compulsory and there is little likelihood of this happening. If anything, it is indirect pressures from the Health and Safety Executive or from insurers providing professional indemnity insurance that is likely to increase the emphasis on registration as CEng or CITP.

In the US, the certification and registration of software engineers remains a contentious issue, although there has been some progress towards integrating software engineering into the more general schemes for registration of engineers. However, since such registration is carried out at the level of the individual state, progress is extremely slow.

A large number of vendor or product specific qualifications are now available and serve further to confuse the situation. Although such qualifications are useful for demonstrating

that individuals have specific expertise, they are of little relevance when it comes to ensuring that critical systems are built by people who know what they are doing.

FURTHER READING

The websites of the main professional bodies referred to in this chapter are as follows:

- BCS, The Chartered Institute for IT
  www.bcs.org
- Institution of Engineering and Technology
  www.theiet.org
- IEEE – Computer Society
  www.computer.org/portal/web/guest/home
- Association for Computing Machinery
  www.acm.org

All four websites include the organisation's code of conduct/ethics, as well as much information about the organisations and the way they function. The websites of BCS and the IET also include the full text of their royal charters.

Websites of the two international bodies connected to BCS:

- International Federation for Information Processing
  www.ifip.or.at
- Council of European Professional Informatics Societies
  www.cepis.org

Website of the SFIA foundation:
www.sfia-online.org

The authoritative description of the London Ambulance Service disaster was published as follows:

Thames Regional Health Authority. (1993) *Report of the Inquiry into The London Ambulance Service*. Communications Directorate, South West Thames Regional Health Authority.

This report and some related material are also available on the web:
www0.cs.ucl.ac.uk/staff/A.Finkelstein/las/lascase0.9.pdf

The Therac 25 disaster is described in a number of books and articles, such as the following readily available source:

Leveson, N. and Turner, C. S. (1993) 'An Investigation of the Therac-25 Accidents'. *IEEE Computer*, 25, No. 7, 18–41.

An updated version of the paper is also available on the web:
http://sunnyday.mit.edu/therac-25.html

3 WHAT IS AN ORGANISATION?

After studying this chapter, you should know and understand:

- *the different ways in which an organisation can be become a legal entity;*
- *the situations for which the different types of legal entity are appropriate;*
- *what a limited company is and why it is the preferred legal form for a commercial organisation;*
- *what is meant by the terms* takeover, merger, management buyout *and* outsourcing;
- *the most important ways in which the law regulates limited companies.*

3.1 THE ROLE OF ORGANISATIONS

An organisation is a group of people working together in a formal way. Our life in a modern society is dominated by our interactions with organisations. We go to school and to college; schools and colleges are organisations. We or our friends and relatives go to hospital; a hospital is an organisation. We have a bank account; a bank is an organisation. We take the examinations of BCS; it is an organisation. And we work for a company or a government department, both of which are organisations. We may even set up a business of our own and thus create an organisation ourselves. However, as we mentioned in Chapter 1, organisations need to have a legal existence. In this chapter we shall describe the different ways in which an organisation can acquire a legal existence, concentrating on the idea of a limited company because this is the most important type of commercial organisation.

A very broad distinction can be made between commercial organisations, which are in business to make money, and public organisations or other non-profit-making bodies. This distinction is reflected in the different procedures used to set up the organisations and the different ways in which they are governed. Most of this chapter will be concerned with commercial organisations but in the last section we shall look briefly at non-commercial organisations.

3.2 COMMERCIAL ORGANISATIONS

The law offers several different ways of setting up and operating a commercial organisation. Depending on the circumstances, the business may be operated as a sole trader, a partnership, a cooperative or a limited company.

A **sole trader** is an individual who runs his or her own business. There are no legal formalities attached to becoming a sole trader; you become a sole trader simply by starting to run a business. If the income of your business is large enough you will need to register with HM Revenue & Customs (HMRC) for VAT (value-added tax) purposes, and you may need to negotiate with HMRC about your income tax status but neither of these is necessary simply in order to become a sole trader.

A sole trader is personally liable for all the debts of the business so that all the trader's assets, including the family home, are at risk if the business fails. For this reason, anyone who is in business in anything other than a very small way should not operate as a sole trader. It is usually better to form a limited company, as discussed later in this chapter.

If a group of people carry on a business with a view to making profits, and the business is not a limited company, then the law will treat them as being in a **partnership**. This will happen whether the people in question intend it to or not. The legal framework governing partnerships was established in the Partnership Act 1890 and has since been changed only in minor ways. The Act has important consequences for people going into business together.

The most important consequence of the Partnership Act is that the liability of the partners is unlimited and that the partners are **jointly and severally** responsible for the partnership's liabilities.

What does this mean in practice? Suppose that you and a friend are working together to write software for local company. Your friend is doing most of the work and you have agreed that he will get most of the money. Unfortunately, his software doesn't work and the company decides to claim damages for the harm it has suffered because of the defective software. You own a house and a car and have money in the bank; your friend doesn't. The company can sue you for the entire amount of the damages, despite the fact that it was your friend's software that didn't work.

A second problem with partnerships is the difficulty of making changes in the ownership. If one of the partners wishes to leave the partnership, perhaps to retire, how much money are they entitled to receive in return for relinquishing their share of the partnership? And how do the remaining partners raise this money? In the extreme case that one of the partners dies, how much is due to his or her estate?

Partnerships are mainly used in professions such as the law, medicine or architecture. The bodies that govern these professions have often insisted that their members practise in partnerships because the draconian rules regarding liability are seen to be a way of discouraging recklessness and ensuring the probity of the professionals concerned.

A more recent innovation is the **limited liability partnership** (LLP), which was introduced in the Limited Liability Partnership Act 2000. Unlike an ordinary partnership, an LLP is a corporate body, that is, it is a legal person and has a continuing existence independent of its members. The members of an LLP have a joint or collective responsibility to the extent that this is agreed when setting up the partnership but they have no responsibility for each other's actions. The LLP structure is commonly used by such professionals as

accountants, solicitors and patent attorneys but is being increasingly used by groups of professionals such as management consultants and even web designers.

Another way in which an organisation can acquire a legal existence is as a **cooperative**. They are important in fields such as agriculture and enjoy a special legal status. They are, however, unusual in the information systems industry and we shall say no more about them.

By far the commonest form of commercial organisation, however, is the limited company. It is also the most suitable form of organisation for most businesses. Most of the remainder of this chapter will be dedicated to describing this type of organisation.

3.3 LIMITED COMPANIES

There are three principles that are fundamental to the concept of a limited liability company:

- The company has corporate legal identity, that is, it is a legal person, completely separate from the people who work in it or the people who own it.
- The ownership of the company is divided into a number (usually large) of shares. These shares can be bought and sold individually. The people who own these shares are known as the members of the company or shareholders. If the company is profitable, it may decide to distribute some or all of the profit to shareholders, in proportion to the number of shares that each of them holds. Profit distributed to shareholders in this way is known as a dividend.
- In the event that the company incurs debts or other legal liabilities, the owners of the company have no obligation to pay these. The most that shareholders stand to lose is the money they paid for their shares.

The UK recognises two main types of **limited company**, the public limited company (plc) and the private limited company. The essential difference is that a plc can, if it so wishes, offer its shares for sale to the public but a private limited company cannot. The name of a private limited company will end with the word Limited or Ltd, for example Augusta Technology Ltd, while the name of a public limited company will end with plc, for example, Lloyds Bank plc.

In return for the privileges, particularly limited liability, that the status of being a limited company confers, a limited liability company has certain obligations. It must provide details about itself to Companies House. This is a government agency that handles the formation and dissolution of UK companies, receives and stores information about companies that is required by law, and makes such information available to the general public. Companies must produce annual accounts (see Chapter 6) and an annual report; these must be submitted to Companies House and will be publicly available. Some of the

reporting requirements are eased for small companies, while there are more stringent requirements for companies whose shares are quoted on a stock exchange.

Until the middle of the 19th century, the only way to create a limited company was through an Act of Parliament or the issue of a royal charter, both very slow and expensive routes. The modern idea of the limited company was developed through a number of acts of the UK parliament in the middle of the 19th century and was rapidly taken up in other countries. It has played a very important part in subsequent economic development, which would probably have taken place much more slowly if the convenient mechanism offered by the limited company had not been available.

It can be safely said that the three principles stated at the start of this section hold in any country that recognises the concept of a limited company. Within this framework, however, the details vary widely from country to country (as does the terminology – in particular, the term corporation is commonly used in the US to denote a large limited company). Several countries (New Zealand, Canada, Australia, for example) have enacted legislation in recent years that simplifies the law relating to companies.

The UK government carried out a review of company law that was trailed as being a complete overhaul that would greatly simplify the law. It resulted in the Companies Act 2006. This act proved to be **consolidating** act, that is, an act that brought together into a single place all the provisions relating to company law, which were previously distributed through many pieces of legislation. This undoubtedly made it easier to understand the existing law and some useful new provisions were introduced. Nevertheless, pressure from those who had a vested interest in the status quo meant that many opportunities for simplification were missed. The Act contains 1,300 sections, making it one of the longest and most complicated pieces of UK legislation.

3.4 SETTING UP A COMPANY

A limited company is created by a group of people each agreeing to subscribe a certain amount of money to set up an organisation to pursue some stated goal and to register the organisation as a limited company in accordance with the law. In the UK the process of setting up a limited company is straightforward and it can be done online, quickly and cheaply. It is not necessary to employ a lawyer or an accountant, although this may be advisable if you have little experience of dealing with formal documents.

The commonest way of setting up a company is to buy an 'off-the-shelf' company. There are a number of company formation agents that set up companies with a standard constitution; they hold a stock of such companies, which never actually trade, and they sell them to customers wanting a company through which to run their business. Once the customers have bought the company, they can make changes to its constitution, including its name, at their leisure.

The alternative is to create a company specifically to meet the requirements of the business. The process of registering the business is quick and cheap; the Registrar of Companies offers a same day service for less than £100. In practice, however, there are decisions to be made and forms to be completed, with the result that the process is likely to be slower and more expensive than buying a shelf company.

There are only a few countries in which companies can be set up as cheaply and as conveniently as in the UK or the USA. At the other extreme, in some countries it can take up to six months to register a new company and the cost can run into several thousands of pounds.

3.5 THE CONSTITUTION OF A LIMITED COMPANY

When a new company is incorporated, it is necessary to produce a memorandum of association signed by the founding shareholders. This simply states their wish to form a company under the Companies Act 2006 and the agreement of each of them to take at least one share. (Up until 2009, the memorandum of association was a longer and more complicated document.) The document must be filed with Companies House, the central repository of information about companies registered in the UK.

In order to become incorporated, in addition to the memorandum of association the company requires **articles of association**. These are much more complicated and technical. They relate to such matters as the number of directors, how directors are appointed and removed, what their powers are, what happens when new shares are to be issued, what process is required in order to modify the articles, and so on. In order to simplify the setting up of companies, the Companies Act 1948 included a specimen set of articles of association, which have been regularly updated; these were known as *Table A*. Following the Companies Act of 2006, these were replaced by a set that are now known as **model article**. Most new companies adopt these model articles as the basis of their articles of association and specify only the way in which their articles differ from the model ones.

Once a company has been registered, the memorandum of agreement and the articles of association are deposited at Companies House and are public documents, in the sense that anyone may visit Companies House and inspect them. It often happens in private companies that the shareholders wish to conclude a further agreement among themselves. Such an agreement is called a **shareholders' agreement**. It might, for example, say that, if a shareholder wishes to dispose of shares, the recipient of the shares must be a person acceptable to the remaining shareholders. Unlike the memorandum and the articles, a shareholders' agreement is not a public document.

3.6 DIRECTORS

In small companies, it may well be that the shareholders run the company directly but this is not feasible if there are more than a handful of shareholders; in any case, some shareholders may not wish to be involved directly in the day-to-day operations of the business. The law requires that the shareholders appoint directors to take responsibility for running the company on their behalf.

In small companies, the shareholders may actually be directors or at least be in regular contact with them. In large public companies, however, the shareholders have very little opportunity to influence the directors. To compensate for this, the law makes directors subject to certain obligations.

First, the Companies Act 2006 lays down that the overall duty of a director is to promote the success of the company for the benefit of its members as a whole, having regard to the following factors:

- the likely consequences of any decision in the long term;
- the interests of the company's employees;
- the need to foster the company's business relationships with suppliers, customers and others;
- the impact of the company's operations on the community and the environment;
- the desirability of the company maintaining a reputation for high standards of business conduct;
- the need to act fairly as between members of a company.

More specifically:

- Directors must act in good faith and for the benefit of the company. Suppose, for example, that you are a director of a small company that writes software and that someone approaches you to have some software written. If you decided that you could do this yourself in your spare time rather than having it written by the company, you would not be considered to have acted in good faith for the benefit of the company, and you could be required to pay the company compensation for the loss of the contract.
- Directors must exercise the skill and care in carrying out their duties that might be expected from someone of their qualifications and experience. This means, for example, that a director with long experience of purchasing computers who signed a contract to buy a computer system that was not suitable for the use the company intended to make of it might be ordered by a court to pay back to the company the cost of the computer. Furthermore, directors must take the same care as an ordinary person might be expected to take on his or her own behalf.
- A director who has an interest in a contract made with the company (e.g. owning an office cleaning company that the company is thinking of employing) must disclose this interest to the board of directors. The model articles stipulate that the director must not be allowed to vote or be counted in the quorum when the matter is discussed but, in the case of a small company, this may well be varied.

The obligations described above can be described as domestic, that is, they are obligations owed to the company. In addition, there are certain external or legal obligations that the directors must fulfil:

- Directors are required to keep themselves aware of the company's financial position and not allow it to continue to incur debts when they know or should

have known that the company will be unable to repay them. If they fail to do this, a court can make them personally liable for the company's debts.

- The directors are responsible for drawing up the company's annual report, including its accounts, and for filing this report with Companies House. We shall explore this in more detail in Chapter 6.
- The directors are responsible for ensuring that the company complies with all relevant provisions of the law. Although the company itself, having a legal existence, can be prosecuted for criminal breaches of the law, in some cases directors can be made personally responsible. Thus the Health and Safety at Work Act 1974 provides that in appropriate circumstances a director or other senior manager can be criminally liable if a company is found to be in serious breach of the Act.

Many companies have both executive directors and non-executive directors. Executive directors are normally also employees of the company, with specific responsibility for certain areas of its activities. Non-executive directors are directors who act in advisory capacity only. Typically, they attend monthly board meetings to offer the benefit of their advice and serve on committees concerned with sensitive issues such as the pay of the executive directors and other senior managers; they are usually paid a fee for their services but are not regarded as employees. It is important to realise that, legally, the duties and responsibilities of non-executive directors are precisely the same as those of the executive directors.

Every public company must have a company secretary; private companies can choose not to have a secretary. The company secretary is legally responsible for keeping the various records that the company has to maintain and for submitting various statutory returns to Companies House in Cardiff. He or she will normally also take responsibility for a variety of related matters. The company secretary is often also a director. Small companies often appoint an outsider, typically a solicitor or accountant, as company secretary, because such people are likely to have the necessary professional expertise.

3.7 TAKEOVERS, MERGERS AND OUTSOURCING

Limited companies, whether private or public, are, on the whole, short-lived. They disappear, not because they fail – although, of course, some do – or are wound up for other reasons, but because they are taken over by other companies.

3.7.1 Takeovers

How and why do such takeovers take place? The commonest scenario in the IT industry is of a private company, A, being taken over by a larger company, B, probably but not necessarily a public one. The mechanism of such a takeover is that B acquires all the shares of A, paying for them either in cash or in its own shares or in a mixture of both. It is likely that the shareholders of A will also be its directors and that much of the value

of the company derives from the skills of these people and their contacts. Accordingly, there may well be an agreement that they will work for B for, say, the next three years.

Why might the owners of A want to sell the company? First, although as the owners of a successful small company they will be quite wealthy on paper, they are probably only able to pay themselves a comparatively modest salary and they certainly don't feel wealthy. Furthermore, their wealth on paper is critically dependent on the continued success of the company and probably vulnerable to a change in market conditions. By selling the company, they are able to convert their paper wealth into real money and, at the same time, protect themselves against fluctuations in the value of the company. A second reason for wanting to sell the company may be the need for further capital investment.

One reason why B may wish to buy A is that A has intellectual property or high level skills that complement those of B. In one such case, A was a small company that had developed software for automatically carrying out failure mode analysis on the electrical system of a car, that is, it would predict the result of all the different possible ways in which the electrical system could fail. Such an analysis, formerly done by hand, is a requirement before a new model of car can be put on the market. Although A's technical development had been successful, it did not have the resources to market its software successfully. B was a large US-based multi-national company that produces electronic design automation tools. A's software complemented B's software perfectly and B already had excellent access to all its potential customers. B bought A, and A's software became one of B's products and continued to be maintained and developed by staff who had developed it originally.

A very different type of takeover occurred in 1991, when the British software house SD-Scicon, which specialised in defence and other hi-tech systems, was taken over by the American company Electronic Data Systems (EDS). EDS was in the business of providing IT services to large organisations, particularly in the field of health services. It showed no interest in SD-Scicon's traditional markets and rapidly shed the considerable number of highly skilled professional staff who worked for the company. It used the acquisition of SD-Scicon as a means of getting a foothold in the much more profitable market for IT services in the UK but SD-Scicon effectively lost its identity and completely disappeared.

In contrast, when EDS itself was acquired by Hewlett-Packard for $13.9 billion in 2008 it was able to retain its identity, staff and structures, although it now trades as HP Enterprise Services. In this instance, Hewlett-Packard wanted to enter the large and profitable area of IT services and it chose to do so by acquiring a company that was a major player in the field. To have broken up EDS would have defeated the purpose of the takeover.

In cases such as these last two examples, where the company being acquired is a public company, the stock exchanges on which the companies' shares are quoted impose strict regulations in an attempt to prevent improper exploitation of the situation.

REASONS FOR TAKEOVERS

From the point of view of the owners and managers of the acquiring company, the fundamental reasons for taking over another company are to make more money and to get bigger. In more detail these amount to:

- expanding the customer base. This occurs particularly when the company taken over offers services similar to those of the buying company but in a different geographical area;
- expanding its range of offerings. This occurs when the company taken over offers products or services that are complementary to those of the buying company, for example, when a company offering a human resources package acquires a company that offers a payroll package;
- acquiring new staff. There has been a shortage of high quality IT staff for most of the past 40 years and this has prevented many companies expanding as they would have wished. Taking over another company can be a quick way of acquiring additional staff;
- economies of scale. The larger company's human resources (HR) department, for example, may be able to take on HR responsibilities for the company being taken over, without itself requiring any extra staff. It is frequently claimed that such savings will result from a takeover but the reality is that the savings are usually small and often negligible;
- vertical integration;
- eliminating a competitor.

These benefits do not come without risks. The acquisition in 2007 of the Dutch bank ABN AMRO by a consortium including the Royal Bank of Scotland is a recent example of an acquisition that, far from yielding the expected benefits, resulted in disaster for the purchaser. There are many similar, if less well-publicised, examples in the IT industry.

3.7.2 Mergers

In a takeover, one company gains control of another by acquiring a majority, if not all, of its shares. Although the terms takeover and merger are commonly used synonymously, strictly speaking there is a difference. In a merger, the two companies come together on equal terms. A common mechanism is that a new company is set up, which acquires all the shares of the merging companies in exchange for its own shares; the merging companies themselves cease to exist.

Mergers in this strict sense are comparatively uncommon. A good example, however, was the merger of the two telephone operating companies Bell Atlantic and GTE to form Verizon Communications Inc. This merger, completed in June 2000, was one of the largest mergers in American industrial history. There is a risk that mergers on this scale can have a serious effect on competition and work against the public interest. For

this reason, they may be subject to examination under monopolies legislation (anti-trust legislation in the USA). It took two years to obtain complete approval of the merger of Bell Atlantic and GTE.

3.7.3 Management buyouts

It may happen that some of the senior employees of a company decide to purchase the company from its existing owners. This is known as a management buyout. It will usually require a lot of capital to do this and the purchasers will need to borrow this. However, the lenders are likely to demand that the purchasers shoulder a significant part of the risk by raising a substantial amount of capital, for example, by mortgaging their homes. At first sight a management buyout looks praiseworthy – the people who are running the company become its owners. In practice, there are many potential conflicts of interest. The management may run the company down over a period before bidding to buy it, thus reducing its apparent value and the sum they have to pay to buy it. Once they have bought it, they rapidly build the company up again before selling it at a considerable profit.

3.7.4 Outsourcing

Outsourcing is contracting out activities or processes from one business to another. Fifty years ago, large companies would employ their own cleaners, their own gardeners to look after their grounds, their own maintenance staff and painters to look after their premises, their own catering staff to run the staff canteen, and so on. Nowadays all, or most of, these activities will be outsourced, that is, contracted out to other, specialist companies. More surprisingly, perhaps, so will the processing of the company's payroll and the maintenance of staff records. Theatres and airlines outsource the sale of tickets. And some organisations outsource the whole of their IT operations.

Historically, outsourcing in the UK was associated particularly with IT and the civil service and was introduced by the Conservative government under Margaret Thatcher that came to power in 1979. The Conservative party was committed to the politically popular goal of reducing substantially the number of civil servants. By outsourcing the provision of government IT services, the number of civil servants could be cut dramatically. At the same time, there were good reasons for thinking that this might lead to an improvement in the quality of those services – the civil service had difficulty in recruiting and retaining high quality IT staff, while specialist outsourcing companies, not being subject to the same staffing restraints as the civil service, had fewer problems.

As a result of this policy, which has been accepted by all succeeding governments, of whatever complexion, almost all government operational IT is now outsourced. The policy has been by no means universally successful and there have been many examples of serious problems. However, it must be borne in mind that the size and scope of government IT systems is much greater than that of systems in use in private industry. If outsourcing companies have often failed to appreciate this, so also have politicians and civil servants.

ARGUMENTS FOR OUTSOURCING

Outsourcing is now widely practised by private industry as well as by the public sector. The arguments put forward in favour of outsourcing IT provision can be summed up as follows:

- It frees management to concentrate on the core business of the company.
- It makes the costs of IT more visible and therefore easier to control.
- Specialist companies are able to produce and operate more effective systems because:
  - they have much wider experience of system development than do user companies;
  - they can justify employing highly specialised staff;
  - working in a specialised IT company provides a better career path for IT staff than working for a user organisation.
- Overall, it saves money.

There is an element of truth in all these points but there is also a danger that the company that outsources too much of its IT provision may lose control and understanding of its own operations.

Outsourcing is often associated with **off-shoring**, that is, moving activity to other countries. Thus, companies in Britain may outsource software development to companies in India. The reason for doing this is straightforwardly one of cost. Well qualified and experienced software engineers in India earn much less than they do in the UK and there are plenty of them available.

Employment issues connected with outsourcing are considered in Chapter 9 and outsourcing contracts are discussed in Chapter 12.

3.8 NON-COMMERCIAL BODIES

3.8.1 Statutory bodies

Roughly speaking, about 80 per cent of jobs in the UK are in the private sector and provided, on the whole, by limited companies. The remaining 20 per cent are in the public sector – local government, the National Health Service, education, the police, the armed services and so on. It is in the nature of the public sector that it deals with data on a much larger scale than most private sector organisations – very few private companies have as many as a million customers but the Department for Work and Pensions holds records for everyone in the UK over the age of 16 – about 50 million people. Because of the large numbers involved, such public sector bodies make great demands on IT services; they employ many IT staff directly and many more work for

private sector companies that provide IT services to the public sector. Large public sector IT projects also have very poor record of success, precisely because of their size.

Many public sector organisations come into existence by statute, that is, by Act of Parliament. Such organisations are often referred to as statutory bodies. Frequently the organisations themselves are created by secondary legislation. In the terms of object-oriented programming, the Act of Parliament defines a class of organisations, specifying their structure, their duties and their powers. Secondary legislation is then used to create objects belonging to that class, that is, specific instances of it. Thus, in the field of local government, the Local Government Act 1992 created the class of unitary authorities together with a body, the Local Government Commission, which would make recommendations for the creation of specific unitary authorities; these authorities would then be created by secondary legislation. The unitary authorities themselves are empowered to create and run schools and certain other public services.

The overall objective of the directors of a limited company is fairly straightforward even if achieving them is difficult: they have to run the company in order to make as much money for the shareholders as they reasonably can, while having due regard to the interests of the employees and certain other defined considerations. If the shareholders are unhappy they can either sell their shares or, if enough of them are unhappy, they can vote to replace the directors. If the directors fail to run the company profitably it will ultimately be forced to close or it will be taken over.

The position in the public sector is very different. The overall objective of a public body is to provide some sort of public service such as keeping the roads in an area in good condition, providing education for children or administering state pensions. There are no shareholders but everyone has an interest in seeing that the body does its job satisfactorily. But profitability is not a measure of success and the option of closure if the body does not perform satisfactorily is not usually acceptable. There thus needs to be some mechanism for making the management of the body accountable to the general public.

Many different mechanisms have been adopted to achieve accountability in the public sector. At the level of national and local government, accountability is achieved through the ballot box. Members of Parliament and local councillors are elected for limited terms and they take responsibility for the activities of national and local government respectively. However, their role is fundamentally different from that of directors of a company. Company directors – or, more precisely, executive directors – are expected to run a part of the company and are usually selected on the basis of their ability to do this. Members of Parliament and local councillors are elected to represent the public and to contribute to council policy making, rather than to the carrying out of policy. The national government and local councils employ professionals – civil servants, engineers, IT staff, social workers, teachers and so on – to carry out their policy. There is often a tension between politicians, who are motivated by policy issues, and the professionals, who are motivated by practical considerations. Too often, professionals feel that the politicians are stick-in-the-muds who are opposed to all change, while the professionals feel that the

councillors have their heads in the clouds and don't understand the practicalities. A particular problem that frequently arises is that politicians decide that a change to, say, the social security system is required. They fail to realise how long it will take to make and test the necessary changes to the IT systems and insist that the changes are implemented too quickly. The result is that the system fails and causes serious problems for some members of the public. The IT professionals – or, increasingly often, the company to which the development is outsourced – are blamed for the failure. In most such cases, the blame should be shared: on the one hand, those responsible for setting over-ambitious goals and timescales and insisting on them, against professional advice, must take their share of the blame but, on the other hand, outsourcing companies are too eager to sign lucrative contracts whose timely fulfilment depends on a lot of very optimistic assumptions.

3.8.2 Other non-profit-making bodies

As well as statutory bodies, there are very many organisations whose activities are generally seen to be in the public interest and which are not intended to be profit-making. Such organisations include professional bodies, such as BCS or the Institute of Physics, political parties, charities such as Oxfam or Christian Aid and so on. Such organisations usually take the legal form of a **company limited by guarantee**. In this case, rather than subscribing for shares, the members agree that, in the event that the body has to be wound up, each will pay a small fixed amount (typically £1) to cover liabilities. A company limited by guarantee is not allowed to distribute its profits to its members. It can apply for charitable status and for the grant of a royal charter.

Like most of the larger professional bodies, BCS is a company incorporated by royal charter and a registered charity. The royal charter states that 'the government and control of the Institute and its affairs shall be vested in the Trustee Board'. This means that the Trustee Board performs the functions of the board of directors of company and of the trustees of a charity. The Trustee Board consists of the President, Deputy President and the immediate past President, all of whom serve for one year, plus the four Vice-Presidents and five other members. All the members of the Trustee Board are elected by the Council, which consists of the members of the Trustee Board, together with 27 members elected directly by the membership of BCS and the chief executive, who is the only member who is a paid employee of BCS.

An organisation the size of BCS is much too large to be run solely by its members and so, like most professional bodies, it is run by a combination of full-time employees and volunteers from amongst its members. The structure described in the previous paragraph seems, on the face of it, to ensure control of the Institute rests firmly with its members. In practice, however, the short tenure of the senior elected officers and the limited amount of time that members, who have full-time professional commitments elsewhere, can devote to BCS business, mean inevitably that the senior full-time employees have a great deal of influence over BCS policy and the way it is carried out.

FURTHER READING

The UK government has a website that describes in simple language the duties of a director of a private limited company:

www.gov.uk/running-a-limited-company

The Corporate Responsibility (CORE) Coalition has produced a much more sophisticated guide to directors' responsibilities, which can be found at:

http://corporate-responsibility.org/wp-content/uploads/2009/09/directors_guidance_final.pdf

The Companies House website provides detailed information about registering a company, filing a company's annual return, changing a company's details and so on:

www.companieshouse.gov.uk