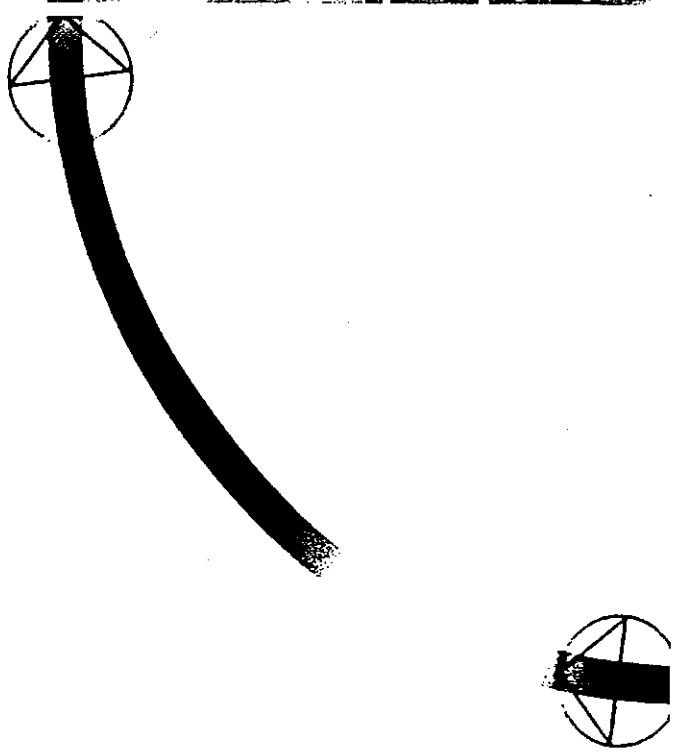
Understanding Actuarial Management:

the actuarial control cycle



Institute of Actuaries of Australia

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Chapter 2: Being Professional

by Clare Bellis

2.1 Introduction

When you decided to become an actuary, you were not just choosing a career. You were entering a profession. We hope that, as an actuary, you will find opportunities for interesting and rewarding work. These opportunities will in many cases be open to you, not solely because of your own qualities, but also in part because of the fact that you are a member of the actuarial profession. You will have a good reputation even before you start to prove yourself; a reputation which has been earned by other actuaries in the past. People will trust your opinion and will make decisions based on your input. You will be respected as a professional. You will be entrusted with important work, and given a good deal of freedom to use your own best judgment on how to carry out that work. These are the benefits of joining the profession, obtained for actuaries over long periods of professional work done with integrity and high standards. In return, you need to conduct yourself in a way which justifies that trust, and contributes to the reputation you share with other actuaries. That means approaching your work with a professional attitude. In this chapter, we will look at what being professional means.

We will start by considering what we mean when we say that some occupations are *professions*. We'll take many of our examples here from the medical profession, because most people have had some experience with doctors. Then we will look at how the concept of professionalism relates to the actuarial profession in particular. We will only scratch the surface of what you need to know about being professional. Actuarial professional bodies such as the Institute of Actuaries of Australia require you to attend one or more short courses in professionalism before you can work as an actuary, and such courses deal in depth with practical examples of professional issues you may meet in practice. Our goal in this chapter is for you to understand the concept of professionalism and how it shapes the way in which actuaries work.

> Exercise 2.1.1
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> Before you go on to read any further in this chapter, think of three or four occupations which you feel sure are professions. Then think of three or four occupations which you feel sure are not professions. Don't agonise over your choice – just list those which come quickly to mind.

Exercise 2.1.2

Write down the characteristics which you think distinguish a profession from an occupation which is not a profession. For example, most people would say that a professional occupation requires a lengthy period of specialised training/education. You might find it helpful to think about the differences between the two sets of occupations which you listed in your answer to Exercise 2.1.1.

2.2 What is a profession?

2.2.1 The characteristics of a profession

Defining a *profession* is not a simple task. Different people use the term to mean different things, and the meaning has shifted over time. It is a value-laden label, not just a description: to describe yourself as a member of a profession is to claim certain qualities, not simply to state a fact about yourself such as being right- or left-handed. Many varied occupational groups aspire to the label, and the definition therefore tends to be tailored to fit the characteristics of the group which is doing the defining.

Attempts to define a profession often start by making a list of characteristics or essential features, as you were asked to do in Exercise 2.1.2. If we were to compare all the lists of characteristics of professions that have ever been written down, we would find that most of their elements fall into three main categories: knowledge-related, value-related, and organisational elements. Knowledge-related elements include such characteristics as specialised knowledge and long training. Value-related elements include such things as ethical behaviour and a commitment to provide a service for the public good. Organisational elements, such as a national body with disciplinary powers, support the knowledge- and value-related elements.

For example, consider the definition of *professional body* in the presidential address delivered to the Faculty and Institute of Actuaries UK in 1997 (Ferguson 1997, p.4):

> From several definitions of a professional body I have distilled the following:
> (a) its primary object is to serve the public and the public interest;
> (b) it supports its members individually and enhances their status collectively;
> (c) it is a learned society which encourages research and facilitates the exchange of ideas between its members;
> (d) its members have a specialist skill;
> (e) it awards a qualification, frequently with designatory letters, to members who attain the requisite standard in its examination of their ability to practise its specialist skills;
> (f) it provides the means for, and may require, members to maintain their skill by continuing professional development (CPD);
> (g) it establishes codes of conduct and standards of practice within which members are required to operate; and
> (h) it has a disciplinary procedure to ensure members comply with its codes of conduct and uphold its professional standards.

We could call the version of the definition of profession which encompasses all three strands – knowledge-related, value-related and organisational – the full version. There are other less comprehensive definitions in common use. This is one reason why it is difficult to pin down any discussion of professionalism. Some people use *profession* to describe any knowledge-related occupation, and therefore would consider computer programming, for example, as a profession. Teaching has knowledge-related and value-related aspects, and some people would include teachers in their list of professions but exclude computer programmers. Other people would exclude teaching if teachers were not considered to have a controlling professional body, as distinct from a trade union, ie if teachers were not considered to possess the organisational characteristics.

> **Exercise 2.2.1**
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> For each point listed by Ferguson, consider whether you can fit it into one or more of these categories: knowledge-related, value-related, or organisational.

> **Exercise 2.2.2**
>
> Repeat Exercise 2.2.1 for the list of characteristics which you drew up in Exercise 2.1.2.

2.2.2 The theory about why professions exist

Drawing up lists of characteristics is a useful starting point, but it does not amount to a definition. Occupational groups can, and often do, assemble all the various elements listed – set up an organisation, introduce a training program and examinations, write a code of conduct, and so forth – but still fail to gain the status of a profession in the eyes of the public. There are many theories about how and why some occupations succeed in achieving the status of a profession while other occupations do not, but we will not pursue that question here. For our purposes, what is important is why professions exist, ie what is the result of public recognition of an occupation as a profession and what is the purpose which that serves.

The result of being recognised as a profession is that members of that occupation are granted a monopoly over an area of work and are also given control over their work. Monopoly in this context means that members of the profession are seen as the only people capable of performing certain tasks, and in most cases this is enforced by legislation. Control means that it is accepted that only members of the profession can decide how those tasks should be done, and thus a profession is permitted to be self-regulating.

Consider the following definition from a textbook on the economic theory of professions (Foley, Shaked and Sutton 1982, p.2):

> [a profession is] a group of individuals who are granted monopoly powers in the provision of certain labour services, with the object of ensuring a supply of services of a higher quality than would otherwise be achieved – a definition which presupposes imperfect information on the part of consumers as to the quality of

service offered by any particular individual, at least ex-ante, but possibly ex-post also.

So according to this definition the purpose of a profession is

- to provide a solution to the problem of imperfect information; and
- to ensure higher quality services than would otherwise be provided.

In what sort of services is it impossible to assess the quality of the work, even after it has been performed? We find this situation in work which is complex, which cannot be reduced to a set of rules which can be applied mechanically, but which requires an expert bringing a broad and deep practical knowledge and theoretical understanding to find the best solution to fit the specific case.

Why professions are granted monopoly powers

How does allowing a monopoly ensure higher quality? Consider the following situation.

Suppose some individuals are each recognised in their local area as experts in providing a particular service of the complex type described above. They have invested their time, and possibly their money, in becoming expert and building their personal reputations. They get together and give themselves a name – let's call them Team A. By teaming up and pooling their reputations, in effect vouching for each other, they can build their local, individual, reputations into a widely known reputation for the team. Soon every potential customer in the country knows that a member of Team A can provide the particular service well.

But then suppose that other people, let's call them the B-workers, begin to offer what appears to be the same service, more cheaply than Team A.

Scenario 1: Customers believe that the B-workers provide the service as effectively as Team A. Team A is forced to cut prices too. Since it is impossible to judge the quality of the services, competition will be based on price alone. Prices will be driven down to the bare minimum. The service-providers will cut corners wherever they can; even if an individual would like to take the time to do a good job, it is impossible to do so and still earn a living. There will be no economic incentive for anyone to spend time or money on becoming expert, as the experts get paid no more for their services than the incompetent.

Scenario 2: Team A takes steps to prevent Scenario 1. If there are B-workers who really are as good as Team A, these B-workers can be invited to join Team A, which they will probably be happy to do, to be able to charge Team A prices. Team A will assess these B-workers in some way to make sure that they are really up to the A standards. Then Team A can be confident that its members alone have the expertise to offer the service. Team A could carry out some public relations work, to persuade the customers that Team A really is the only choice. It may be able to demonstrate results: for example, although it may be hard to judge whether an individual doctor chose the best treatment for an individual patient, because some patients get better despite the wrong treatment, and others get worse despite the right treatment, the results for a number of patients treated by one group of doctors can be compared with results for patients treated by a different group of doctors. Alternatively, Team A may be able to persuade the customers that it alone has the correct theoretical approach underlying its work. For example, for many years the orthodox medical profession in Western cultures was able to discredit alternatives such as homoeopathy and acupuncture by disparaging their theoretical bases.

In practice, it is difficult to persuade all the customers, even if Team A truly does provide the only effective service. Team A will probably try instead to persuade the government that customers need to be protected from themselves, and prevented by legislation from choosing anyone but a member of Team A to provide the service. The government won't want to create a monopoly unless it is really necessary. It will need to be persuaded that Team A offers a service which is effective. It must also believe that the service is an important one. If the service isn't important, it doesn't matter if customers choose non-effective providers.

The government will be more willing to grant Team A a monopoly if Team A can help the government meet its own objectives. Professions generally play an important part in the regulation of society. (By now, it should be clear to you that when talking about Team A we are talking about a profession.) The objectives of regulation of the financial sector are discussed further in Chapter 4. We will return to the subject of the role of actuaries in regulation in 2.5 below.

We have described a scenario which has brought into existence an occupational group which is recognised as a profession – Team A. Let's now consider how Team A must behave as a result of its professional status.

2.2.3 How professions must behave

Once a profession has been granted a monopoly position, it can ensure the quality of service by setting out standards which the members must meet. It can set out the theory and the practical knowledge which all the members must have at their fingertips every time they provide their service. This is more than just a credential such as a university degree or other educational qualification provides. If you have a BSc degree, say, you can put those letters after your name for the rest of your life, even if you have forgotten everything you learned in your degree course, or if what you learned has been disproved by subsequent discoveries. By contrast, membership of a profession can be suspended or withdrawn, so it functions as an ongoing signal that you are fully up to date.

Setting standards

A profession will also require that its members apply the theory and knowledge appropriately. This includes methodology for doing particular types of work, or for approaching particular problems, and also general issues such as prohibiting members from unfairly taking advantage of their customers. The required standards of behaviour may be implicitly understood, with members absorbing ideas of what is acceptable practice during formal or informal discussions with each other. Or the profession may appoint a committee of its members to produce written standards. In many cases such written standards won't be detailed or prescriptive. Remember, the essence of a profession is that its service can't be reduced to a series of written rules, and therefore that the expert must be allowed to use judgment to find the best solution for each unique case.

Enforcing standards

How can a profession know if its members are meeting its standards, if the standards rely on judgment? The answer is, members are judged by other members. If a member's competence is called into question, a disciplinary committee of fellow members will

consider the circumstances and whether the judgments made by the member were reasonable. If a member is sued in court for professional negligence (in effect, the member is sued for claiming the benefit of being in a profession without meeting that profession's standards), then other members of that profession will be called to testify whether the member's actions were acceptable or not by their standards. The monitoring process may be formalised, and this is discussed further below.

A profession may be able to keep its favoured position, even if a small proportion of its members is believed not to have met its standards, as long as it acts firmly to discipline the transgressors. But if a significant proportion of members are found to have failed to meet the standards, the whole profession will lose the confidence of the customers and/or the government. Being a member of that profession will then cease to be of value. The members will have to start all over again to establish their individual reputations. If their main credential of expertise was gained through their association with the discredited profession, this will be very difficult and costly. The customers and the government will no longer have a reliable source of the important service which the profession used to provide. Everybody loses. So it is essential that every member of the profession always meets the professional standards, and keeps an eye on the other members to make sure that they do so too.

The need for ongoing research and public relations activity

A profession will also lose its status, even though members perform the service to its standards, if the customers and/or the government come to believe that those standards are too low. This could happen if the profession does not update its theory, knowledge and practical methods to keep up with scientific and technological advances and other changes in society. So the profession as a whole has to make sure that it keeps working to find ways of improving the standard of the service which its members provide. This may involve individual members carrying out research, and/or providing financial support to members who specialise in research. Another possible cause of a loss of confidence in a profession could be non-members persuading the customers and/or the government that they can provide the service just as effectively as that profession. Every profession therefore needs to devote some effort to its public relations work.

So it is important that all members support the profession's collective efforts to continuously improve the quality of its standard of service, and also, though this is not as essential as maintaining quality, strive to maintain the public standing and reputation of the profession.

Monopoly powers must not be exploited

The final danger which a profession must avoid is yielding to the temptation to exploit its monopoly. There are many forms of exploitation – let's consider two possible forms. The profession could set its standards too high – imagine if doctors insisted on putting every patient through a battery of expensive tests before treating the simplest minor ailment. Or the profession could restrict the supply of its services by making it very hard for anyone to join the profession. If a profession is suspected of these or other monopolistic behaviours, then the government is likely to step in and make its own rules, for example about what standards apply and what is required of new entrants. Such rules may well be less optimal than allowing the experts, ie the profession itself, to decide what is appropriate.

The responsibility for education

There is a sense in which a profession has a monopoly, not only over the provision of its service, but also over its area of knowledge and theory. It must not restrict access to this knowledge and theory. That would be unacceptable in modern society – unlike medieval times, when guilds kept outsiders from knowing the 'mysteries' of their crafts, or even a century ago, when women and minority groups were not permitted to enter medical schools. Thus professionals have to be involved in making their knowledge and theory accessible, ie in education. As with research, this may be carried out by many members (perhaps in a mentoring-style relationship in the workplace) or by members who specialise in this responsibility (perhaps in a university).

Now we can see why the characteristics of professions include those knowledge-related and value-related elements (and the organisational elements to support them). The knowledge-related elements arise because a profession will only be given the monopoly and allowed to be self-regulating if it provides complex services which require expert judgment based on knowledge and theory. The value-related elements arise because a profession and all its members individually are trusted to maintain standards at the right level and not to exploit the monopoly.

> **Exercise 2.2.3**
>
> Discuss to what extent 2.2.3 explains the characteristics listed by Ferguson in 2.2.1.

2.2.4 Public Interest

Professions usually place a high priority on the objective of serving the public interest. For example, it is the first point listed by Ferguson (1997) in the excerpt quoted in 2.2.1, and is also prominent in the comments from Daykin (2000) quoted in 2.3.4. But what does it mean? We shall see below that there are a number of possible interpretations. This is an area of some debate, and you should have regard to the code of conduct of your particular professional body.

Public interest = Providing a valuable service?

The most limited interpretation is that it is in the public interest that the service which the profession provides should be available. We established in 2.2.2 that an occupation will only achieve the status of a profession if the service which it provides is important for society, ie the public. The actions described in 2.2.3 are all taken to ensure that the service is available at the appropriate standard and at a fair price. So these actions benefit the public, as well as the profession. (Even the public relations activities benefit the public, by keeping them from misguidedly trying to obtain the service from ineffective providers – if we accept that only the profession can provide the service effectively.) It is appropriate that professions should state that they exist to serve the public interest, to remind themselves of their responsibilities as set out in 2.2.3. Few professionals, if any, would disagree with at least this limited interpretation of the public interest objective.

Public interest = Putting clients' interests first?

The next level of interpretation is that the public consists of clients and potential clients, and that members of professions should put their clients' interests first. This view gives rise to some issues which we will consider below under the headings *Conflicts of interest, Competing stakeholder interests* and *The regulatory role of professions.*

Public interest = Concern for wider community?

Consider the following argument. Only the profession truly understands its service, and it effectively has a monopoly over the knowledge and theory underlying its service. Therefore the profession has a responsibility to ensure that the service is not misused, and that society makes the decisions that it would do if it possessed direct access to the knowledge and theory.

This argument can be taken to the most extreme interpretation: that serving the public interest means that every action taken by members of professions should be in the interests of society as a whole. While this view may appeal to our nobler instincts, there are problems with it. Society is made up of many groups and individuals, often with competing interests. A profession has skills in a particular area of expertise; it is unlikely to have skills that qualify it to make judgments about what is best for the whole of society.

To adapt an argument from Carne (2002): The strictest interpretation of the public interest objective would lead us to the conclusion that no actuary should assist a company to sell financial products which do not offer the best value for money available in the market.

But what if the company uses the higher prices to subsidise other products sold to less fortunate sectors of the community, or if it passes the profits to shareholders who consist of charities? Maybe there is a community benefit after all.

More generally, it is widely held to be the case that a vibrant economy depends on active competition. Competition requires that rival products should fight for market share, even though one product might be demonstrably inferior. If one believes in the Invisible Hand described by Adam Smith (broadly that, although individuals pursue their own advantage, the greatest benefit to society as a whole is achieved by their being free to do so), one has to accept that it is wholly counter-productive to ask one group in society, professionals, to abandon the interests of their clients (or themselves) in favour of the community as a whole.

Carne concludes that, whilst professionals should not assist, or encourage, their clients to do something which is known to be in breach of a law, regulation or professional standard, clients should not be denied the option to pursue a course of action (or be advised about the option to pursue an action) which may appear to be against the interests of the community at large. The wider, and often unpredictable, consequences may be beneficial to the community after all.

The role of the professional body in serving the public interest

In the debate about how professions should best serve the public interest, a distinction is sometimes drawn between the members of the profession and the professional body.

If there are important matters affecting the public interest which only the profession can understand, then the profession has a responsibility to make the issues clear, to enable the public to make an informed decision. It is appropriate for the professional body to make a statement, rather than placing responsibility on the individual members involved. The professional body may find it awkward to criticise practices or projects in which its members are involved, but if the public interest really is at risk, then the organisation will realise that in the long run, damage to the whole profession is likely to result from not speaking out.

Conflicts of interest

Trust is an important part of professionalism. It follows from the client's inability to fully and accurately assess the quality of the service. The client trusts you, simply because you are a professional, and you must not abuse that trust to further your own interest. For example, doctors certainly shouldn't choose which drugs to prescribe on the basis of which drug company they own shares in. This is sometimes extended to a view that professionals must avoid any possibility of a conflict between their interests and their clients' interests, so that for example doctors should not own any shares in drug companies.

Actuarial codes of conduct do not necessarily have a flat prohibition on conflicts of interest. Instead they may require that, if there is or might appear to be a conflict of interest, the member must consider whether it is improper to provide the service. If the service is provided, the conflict must be disclosed. The reasons for not having a flat prohibition are as follows. First, there are sometimes circumstances where complete independence is not achievable. It is better to disclose the lack of independence than to pretend it does not exist. Secondly, the person best suited to give the advice may not be the most independent. A rule which prevents the most expert adviser from accepting the appointment is not in the client's interest and is more likely to be breached than to be observed.

Disclosure of the lack of independence must be made clear to all the relevant parties. It would not be acceptable for a conflict of interest to be disclosed, for example, only to the client who hired the actuary, leaving third parties who rely on the actuary's advice to be unaware of it.

Competing stakeholder interests

We have argued above that professionals must have regard to their clients' interests ahead of their own, but that it is not practical nor necessarily desirable to expect professionals to have regard to the interests of the whole of society.

A somewhat intermediate position arises when there is more than one stakeholder with an interest in a task for which an actuary has been engaged to give advice. These interests may be competing. For example, one party may benefit if the actuary leans to the optimistic side in making any assumptions, and another party may benefit if the actuary leans to the pessimistic side. It is sometimes argued that an actuary can deal with such situations by giving an objective opinion which does not lean to either side. This may be better for all concerned than putting all stakeholders to the expense of obtaining their own actuarial advice. However, at the very least, the actuary should reflect on the various interests involved.

The regulatory role of professions

Professions often perform a regulatory role. For example, suppose that on the day you were due to sit a university examination you were unwell. The university will probably make some allowance, such as permitting you to sit the examination at a later date, but only if you can provide confirmation of your illness from a doctor. In this case, the medical profession is acting as part of society's regulatory system, by defining what is sickness and what is health.

In 2.5 below we will look in more detail at the regulatory roles of actuaries.

Exercise 2.2.4

Suppose that an actuary is employed by a corporation to give advice on the design of the long-term contracts it offers to the public. The corporation is looking for a competitive angle, something which will make the contracts appear more attractive than those offered by the competition without costing the corporation more. Assume that this occurs in a country which does not have any laws to restrict the corporation's choices. Are there any professionalism issues to be considered by the individual actuary or by the professional body? Consider this for each of the following types of contract:

- a long-term savings contract with a complicated structure designed to disguise the expense charges;
- a life insurance policy which pays out if the insured person is diagnosed with a particular disease which is very much feared but actually much less common than generally realised;
- a mobile phone (or cellphone) plan which appears to offer many opportunities for free calls, but with restrictions which the corporation's records show usually result in the customers not using their free calls.

2.2.5 Professional advice is individual

One final point to note is that the whole concept of a profession, as a solution to the need for judgment in applying expertise, assumes that individuals provide the particular service. The service cannot be provided by a corporation, unless the corporation is clearly under the direct control of individual members of the profession. Some professions, including the actuarial profession, allow their members to operate as incorporated firms, but only with this direct control by members.

This distinction between individual and corporate service-providers became an issue for the actuarial profession when employer-sponsored superannuation schemes[4] were first established in large numbers in a form which required actuarial advice. Life insurance companies and insurance brokerage firms offered contracts which packaged together administration, insurance and investment services along with actuarial advice. The actuarial profession had to make it clear that actuarial advice could be given only by individual actuaries. Where the insurance company or brokerage company provided actuarial

[4] *Superannuation fund* or *scheme*: an Australian expression for what other countries call a *pension fund, scheme,* or *plan*.

recommendations, these had to be addressed to the particular superannuation scheme client by an individual actuary or actuaries employed by the company.

2.2.6 The alternative to professions, and the pressures on professions

It is worth considering how society would function without the concept of professionalism, because that gives us an insight into the pressure on professions, and a picture of what will happen if professions generally lose the trust of society.

Freidson (2001) provides a useful model. He argues that the concept of a *profession* is a third mode of organising the division of labour in production, an alternative to two other modes which are well known to economic theory, namely the *market* and *bureaucracy* (either the corporate firm, or state direction of production).

In the market mode, the consumer controls by his or her purchasing decisions what is produced and by whom, and thus the division of labour is under the consumers' control. In the bureaucratic mode, decisions are made by managers in a hierarchy of delegated responsibility, and thus the division of labour is under managerial control. In a profession, those doing the work have control over what is done, how and by whom (ie only by people admitted as members of the profession), and thus the division of labour is under the profession's control.

Freidson's model is useful, because it helps us to understand the twin pressures on the survival of professions. On the one hand consumers want more say, and are no longer prepared to put blind faith in the wisdom of the professional. On the other hand, managers want more control. For example, in the middle of the 20th century, doctors in countries such as Australia and the USA had a great deal of control over what treatments to prescribe for their patients. At the beginning of the 21st century, consumers are demanding more say in their treatment, requesting particular treatments or more actively seeking out alternative practitioners. On the other side, the managers employed by the governments and health insurers, which meet much of the cost of health care, are limiting the treatments which they will pay for, effectively taking out of the doctors' hands some of the decisions about treatment.

Professions have come under much greater scrutiny in recent years. At one time, professions were able to persuade society that they needed certain restrictive trade practices, such as fee-fixing and a ban on advertising, in order to maintain the quality of their services. Professions were often specifically exempted from legislation which banned other people from such anti-competitive activities. Society is now less willing to accept this. Professional bodies have to demonstrate that such monopoly power as they hold is essential to maintaining quality, and is not abused for economic gain.

The role of professions in regulation has also changed. Governments which have historically delegated many decisions to the discretion of individual practitioners now require more formal standards of practice. The standards may be drawn up by the professional body, so in this sense the profession is still in control despite the loss of autonomy of individual practitioners. However, government officials will be involved in negotiating the standards. Thus on the one hand, the willingness of regulators to entrust the decisions to professions has reduced. On the other hand, the ever-increasing complexity of society means that regulation that consists of hard and fast rules is ineffective. Professions

provide a more flexible mode of regulation, as professionals follow the spirit and not just the letter of the law.

It is also worth observing that bureaucracies have developed a less strict hierarchical form in recent years, with greater autonomy for many employees. And technological advances mean that there are fewer and fewer truly routine jobs. Thus the distinctions between professionals and other workers are blurring somewhat. Nonetheless, professions are still a distinctive type of occupation with special privileges and responsibilities.

> Exercise 2.2.5
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> 'A professional qualification is like a brand-name franchise. Franchisees individually have to measure up to the standards of the brand-name. And they have to contribute to work that boosts the value of the brand-name, like advertising and developing new products.' Discuss.

2.3 The concept of a profession in different societies

Actuaries increasingly work in an international environment, and it is quite likely that your work will bring you into contact with other countries and other ways of doing things. It is therefore important for you to understand that the concept of a profession is not the same in all societies. According to Freidson (2001), non-English languages do not commonly have a specific word for occupations which control their own work, although some have recently adopted the word profession for this purpose. The full version of the concept of a profession, with all its knowledge-related, value-related and organisational elements, is strongly located in an Anglo-American context. In fact some observers think that in its most traditional form it is specifically English.

2.3.1 Evolution of the concept of a profession in England

In order to understand the current status of professions throughout the world, it is useful to consider a brief history of how professions emerged in England, and then compare this with other countries. Freidson (1986) traced the semantic history of the word profession in English. The oldest usage was 'avowal or expression of purpose'. It implied religious and moral motives to dedicate oneself to a good end. By the 16th century, profession had been extended from its original religious connection and was used for all three of the university-educated occupations of divinity, law, and medicine. These three occupations were learned, and hence associated with the elite, who held the monopoly over formal learning. They were also carried out by high-born men, generally in the service of members of the elite. These occupations thus had high status. They shared other characteristics. All three were concerned with the well-being – spiritual, financial or physical – of individuals, who were obliged to put their trust in members of these occupations if they wished to consult them. Thus their work carried an aura of special importance, distinguishing them from occupations which supplied more mundane needs. The requirement of trust encouraged further development of the value-related elements.

The ongoing commercialisation and industrialisation of England in the 18th and 19th centuries created new skilled occupations. These included jobs such as actuary, accountant

and engineer. The three *learned professions* provided an established category into which members of the new occupations could be fitted.

By the middle of the 19th century the term profession was being applied to a range of occupations and carried the knowledge-related and value-related connotations. The organisational aspects followed, with a multitude of all sorts of learned societies and professional organisations being founded in England between about 1840 and 1890. (The first actuarial body, the Institute of Actuaries, was founded by English and Scottish actuaries in 1848.)

Incidentally, just to confuse matters, at the same time as the word profession was acquiring this special meaning, it also became a general term for any way of earning a living. This usage is not the standard meaning today, but it still exists in expressions such as professional sports-player, ie a person whose paid job is to play sport.

2.3.2 Contrasting histories of the concept of a profession in England, France and the USA

Burrage (1990) offers an explanation of the different development of professions in England, France and the USA in terms of the political history of these countries. Developments in France influenced many other countries in Europe, and in turn the countries they colonised. Burrage's hypothesis can be summarised as follows.

Until the 17th century, occupations were organised in a similar way across Europe. All crafts and trades were organised into self-regulating, anti-competitive guilds, which educated new members by apprenticeships. The learned occupations among these trades had a higher status, as mentioned above.

As centralised monarchies became stronger in England and France, there were attempts to reduce local power and privileges, including those of the guilds. In France, the monarchy became an absolute power. The revolution which swept away the French monarchy in the late 18th century also led to a very centralised government. The French revolutionaries abolished the corporate institutions of both manual and learned occupational groups, because such institutions were seen as antipathetic to the ideals of egalitarianism and the sovereignty of the people. These ideals persisted in the public consciousness and created resistance to attempts, by the lawyers for example, to regain their privileges of self-regulation. When the need for trained expertise was identified, the government itself established schools of medicine, engineering and law. The old ideas of a self-regulating occupational group controlling entry by apprenticeship largely disappeared from the French professions.

In England, there was no major radical upheaval comparable to the French Revolution. This meant that medieval structures survived into the modern age, and, unlike the French, the English did not develop a popular ideology of equality and individual rights. The old professions such as law continued with self-regulating structures and entry by apprenticeship, and this model was followed by the new professions. Education in professional subjects was only slowly transferred to the universities, and the process is still incomplete.

The English professional ideal was imported into the USA, but met with resistance from the populist ideology, which opposed the elitism inherent in the professions as anti-

democratic. The professional bodies were weaker than their English counterparts and more subject to government intervention. Burrage argues that the apparent success of the American Medical Association (AMA), for example, which is often cited as the world's most powerful lobby group, has been overestimated by many observers. The AMA has no direct control of medical schools, and has to persuade its member bodies to follow its policies, having no disciplinary powers over individual doctors.

2.3.3 The nature of the actuarial profession in Britain, North America and Continental Europe

The differences in the development of the concept of a profession identified by Burrage in England, France and the USA seem to fit well with the historical differences in the organisation of actuarial work in these countries. We can make the following broad generalisations:

- in Britain, and in other countries such as Australia and South Africa which derive their institutions from England, the actuarial occupation is well organised, with a large extent of self-regulation, and with the education and examination of students firmly under the control of the profession itself. In these countries, the governments have historically left considerable authority to the actuarial organisations and to individual actuaries in matters such as the valuation of life insurance liabilities;
- in Continental Europe, actuaries have been regulated more by the state than by their own organisations, and education and examination are also under the control of the state-run universities;
- the USA occupies an intermediate position. The governments of the individual states have historically retained more control over regulation of life insurance, for example, and the actuarial bodies are segmented. Canada in turn lies somewhere between the British and US models.

This is the historical position, but the international differences are narrowing. In Britain, governments have taken back some of the freedom which they had allowed the actuarial profession in regulation, requiring more prescriptive standards and less room for individual discretion. In North America, regulators have been allowing some more scope for professional judgment. Thus the British and North American models are converging. In Europe, the move to harmonise credentials under the European Union has been reducing the differences between the British and Continental European models. For example, in some European countries where the education of actuaries used to be entirely left to the university system, a professional body has been formed and has either influenced the university syllabus or introduced its own post-university education and examination process.

2.3.4 The emerging actuarial profession in other countries

We have noted above that when new occupations, such as actuaries, arose in England, they were influenced by the model of the old-established professions of divinity, medicine and law. In the same way, as actuarial services emerge in economies which had not previously seen a need for actuarial science, the users and providers of these actuarial services are influenced by the model of established actuarial professions in other countries. Here are some comments from Daykin, the UK Government Actuary who has been active in the

UK and other actuarial bodies in extending the practice of actuarial science to many countries which had not previously had a tradition of either actuaries or professions, or where such traditions had been suspended (Daykin 2000, pp.361-362):

> It has been a particular challenge to work on establishing, or strictly, in some cases, re-establishing, the profession in the countries of central and Eastern Europe, after a period when professions were not recognised or permitted. Indeed, the self-regulatory structure and emphasis on ethical standards seem strangely alien to the ways in which these countries developed under Communism. Those who have participated in our educational courses [special short courses run in these countries by the Institute and Faculty of Actuaries] have generally done so either because of their interest in a new application of mathematics or because of their need for practical tools to equip them to work in insurance, pensions or finance. What we have sought to do, however, is to open their eyes to the concept of a profession, and the importance of developing a profession in their countries, rather than just training a group of technicians or specialist mathematicians. In particular, this has required a focus, amongst other things, on:
> - practical applications, as well as sound theory;
> - high ethical standards, and willingness to serve the client, the employer or the wider public interest;
> - a willingness to accept public interest roles for individual actuaries, such as the Appointed Actuary of an insurance company;
> - organising together to form a cohesive body with self-regulatory characteristics;
> - a readiness to contribute to the debate on public and social issues; and
> - the maintenance of standards of competence and enhancing the reputation of members of the profession.
>
> This seems to be particularly difficult to achieve in a large country such as Russia, where appreciation of the sociological concept of a profession (or, indeed, of ethics more generally) is not widespread. In China different issues arise, because of the level of government control within society. Developments in smaller countries, such as the Czech Republic, Slovakia, Poland, Hungary, Croatia, Slovenia, Latvia, Lithuania and Estonia have been encouraging, however, and suggest that our concept of a profession can be implemented into almost any democratic society.
>
> ... A good deal of further reflection is needed on this topic, in particular as the profession begins to see substantial growth in completely different social and religious traditions, such as in China and in the Arab world. The focus on public interest may be even more readily understood in these other cultures, where corporate or societal responsibility tends to take preference over individualism. In this sense the value of a profession may be understood, although the concept of self-regulation may present difficulties.

2.4 The role of the professional body

2.4.1 General comments

We have noted above that the full version of a profession has organisational elements. These are conducted through a professional body. Usually there is only one such body in a jurisdiction – a state or provincial body if this level of legislation is important, otherwise a national body. This is partly because, as we saw above, a profession presupposes a

monopoly. In addition, the professional body will usually serve as a channel for discussion between the government and the profession, and it is difficult for two competing bodies to fill this role. Sometimes though, for historical reasons, there will be more than one body. This is a natural situation if the different bodies cover different specialisms; then really we could think of each specialism as a separate profession. For example civil engineers and electrical engineers might have separate bodies, or these occupations might find they have enough in common to combine into one body. In some countries there are separate associations for actuaries working in life insurance and those advising employer-sponsored superannuation schemes. If there are two or more bodies whose members provide the same service, this tends to be an unstable situation. One organisation will probably become dominant and will eventually absorb the others, or the bodies may become very similar to each other, and work together in many ways.

We will now consider how the actuarial profession is organised.

2.4.2 The actuarial profession: the international level

The actuarial profession is more international than many other professions. Most professions have multi-national conferences and educational societies to facilitate the exchange of ideas, but generally their services are provided only in their local environment, and therefore any standards of practice they develop only have to apply to the local jurisdiction. Doctors, for example, usually only treat patients in their local area. But some professions, notably actuaries and accountants, may be involved in advising multi-national corporations which operate in many countries. The International Actuarial Association (IAA) serves as a forum to enable the actuarial profession to deal with issues at the international level. It is an umbrella association of professional actuarial bodies around the world.

The criteria for an organisation to become a full member of the IAA encapsulate some of the key features of a professional body. For full membership of the IAA, a professional actuarial body must have:

- an acceptable code of conduct;
- an acceptable disciplinary procedure;
- if it issues written standards of practice, an acceptable procedure for drafting and enforcing the standards;
- a commitment that the education of its fully qualified members at least meets the minimum education guidelines set out by the IAA. (To give you an idea of this minimum standard: if you study this book as part of a practical actuarial course after completing a set of courses in technical actuarial material, your education will probably meet those guidelines.)

The IAA has no power over the individual national bodies, but its criteria are influential. Associations have made changes to the way they are organised to ensure that they meet the criteria for full membership.

Actuarial associations which do not meet the criteria can be observer members of the IAA.

Exercise 2.4.1

Are there other features of a professional body which are not explicitly listed in the IAA's criteria above?

2.4.3 The national level

The IAA website, at www.actuaries.org, lists the bodies which are full members of the IAA. This is a useful way of seeing which professional bodies operate in which countries. You can find websites for most of these national professional bodies from the links page maintained by the IAA or the links page of one of the national bodies, such as the Faculty and Institute of Actuaries (www.actuaries.org.uk) and the Institute of Actuaries of Australia (www.actuaries.asn.au).

You will see that in most cases there is only one professional actuarial body in a country. There are a few exceptions, generally arising from historical reasons. The UK has two bodies, the Institute (based in England) and the Faculty (based in Scotland), but in recent years they have combined for many of their activities. The USA has several different bodies. The American Academy of Actuaries was established to provide a single voice for the whole US profession in dealing with government and making statements on matters of public interest.

There are also actuarial organisations which are not professional bodies as such, but exist to facilitate discussion. These include students' societies, local societies, and associations of consulting actuaries or other groups of actuaries with special interests in common.

Although professional bodies which aspire to full membership of the IAA must commit to the minimum education guidelines, this does not mean that every full member body organises its own pre-qualification education. For example, the Actuarial Society of Hong Kong admits as Fellows those who are Fellows of the Institute, Faculty or Society of Actuaries, or of the Institute of Actuaries of Australia. The Canadian Institute of Actuaries admits those whose educational qualifications meet the level of a Fellow of the Society of Actuaries or Casualty Actuarial Society, but also requires completion of its own Practice Education Course. Many bodies, particularly in Europe, admit as fully qualified actuaries those who have completed approved actuarial degrees at university.

2.4.4 Professional standards

Code of conduct and other professional standards

The professional actuarial body will have a code of conduct, sometimes referred to as a *professional conduct standard* or *code of ethics*. This sets out broad principles of how actuaries should behave, in any area of actuarial work.

Some important issues of actuarial professional conduct are discussed further in 2.6 below. You should also consider the examples of codes of conduct which are included in the CD-ROM.

A fundamental part of the code of conduct, whether explicitly stated or not, is that actuaries should only take on tasks which they are competent to perform. Whether or not

there are any formal requirements for specialist qualifications or prior experience in a particular area of work, individuals must apply their own professional judgment to assess whether they have the necessary knowledge, skills and practical experience.

In addition to the code of conduct, the professional body may issue written standards of practice. This may not be essential. If all members clearly agree, through the formal education process and through formal and informal discussion among themselves, on how a certain task should be done, then there may be no need to have a written standard about that task. However, there are other reasons to have standards. The advantages of having a written standard include:

- it provides a useful checklist of what should be done, and since it reflects agreed practice, it will not restrain competent and conscientious actuaries from doing what they would have done anyway;
- it protects the client, and others who may indirectly rely on the actuary's work, by ensuring the actuary does a complete and thorough job using appropriate methods;
- it protects the actuary, who might otherwise be pressured by a client into omitting essential parts of a task in order to save time or money, or into using unacceptable methods in order to arrive at the answer the client would like (particularly when carrying out work which will be relied upon by third parties);
- it also provides an actuary with some protection from allegations of unsatisfactory performance, since it sets out a minimum standard of work;
- it satisfies regulators that actuaries will perform a task to a given standard.

The disadvantage of having a written standard is that it is difficult to specify methods which apply in every situation. Remember that the very purpose of a profession is to deal with problems calling for discretionary judgment, which cannot be reduced to a set of rules. Standards are usually therefore written in fairly general terms, with a requirement on the actuary to consider what methods and assumptions it is appropriate to use in the particular case. An actuary who does not take the steps a reasonable actuary should have in a particular case, will not escape blame just because the standard did not specifically say that those steps should be taken.

Types of professional standard

A professional body will often distinguish three types of standard. Terminology varies between different professional bodies. The three types are as follows:

- the first type of standards, often called *Professional Standards*, will set out accepted practice, and an actuary would need to have a very, very good reason not to follow them. If an actuary decides it is appropriate not to follow the Professional Standard in a particular case, this should be disclosed and justified.
- the second type of standards, often called *Guidance Notes*, are issued for guidance and may set out a recommended practice, where there is no clear consensus of what is the accepted practice. Actuaries should disclose if they decide not to follow the guidance, but departure from a Guidance Note would not in itself be unprofessional conduct.
- the third type of standards are called *Mandatory Guidance Notes* in Australia. Actuaries must follow them, or decline to perform the work covered by the

Mandatory Standard. These standards often result from the requirement of some third party, such as a regulator, to have an objective standard of practice.

Exercise 2.4.2

Review 2.2.3 and 2.2.4 above, and then draw up a list of issues you would expect to see covered in a professional code of conduct.

Exercise 2.4.3

Choose an actuarial body (perhaps the one you belong to, or intend to join) and obtain a copy of their code of conduct. (Some examples are included in the CD-ROM). Compare this code with your list from Exercise 2.4.2. Are there items in the code that are not on your list? Why do you think they are there? Do they make sense in terms of what you have learned about professionalism? Are there any items on your list not in the code? Do you think they should be in the code? If so, why?

Exercise 2.4.4

Choose an actuarial body (perhaps the one you belong to, or intend to join) and, for each of the three categories mentioned above, obtain an example of a standard issued by that body. For each example, discuss:

(a) What are the main features of the standard?

(b) Can you see why the standard was issued in the category it was (eg as Guidance Note and not as Professional Standard or Mandatory Guidance Note, etc)?

(c) What scope does it leave for the discretion of the individual actuary?

2.5 The regulatory role of the actuary

2.5.1 General comments

We mentioned above that professions often play a part in the regulatory system, and this is true of actuaries. Different countries will have different roles for actuaries set out in legislation. Legislated roles are most common in life insurance, but are also found in other areas of insurance and in employer-sponsored superannuation schemes. Actuaries may also be allowed, because of their actuarial qualifications, to give investment advice or other financial advice to individuals without meeting some of the licensing requirements for these services.

We won't consider the roles in different practice areas in detail here, because the legislation varies from country to country, and changes over time. Instead, let's consider some of the broad functions which actuaries provide.

2.5.2 Prudential supervision

Chapter 4 will discuss the objectives of regulators. Among other things, it will discuss why some types of financial institution, such as insurance companies and banks, are considered to need prudential supervision. By prudential supervision, the regulator aims to reduce the risk that policyholders and depositors and other vulnerable individuals will suffer losses from the collapse of an institution.

If you look at the Actuarial Control Cycle, you will see that much of it can be applied to keeping a financial institution from failure. The institution needs to understand the risks it is taking, and not rashly sell products or otherwise take on commitments which may expose it to unexpected problems. It needs to charge sufficient prices or otherwise generate sufficient cash inflow, and then set aside sufficient assets, suitably invested, to cover the liability for its commitments plus a margin for safety. To do all this, it needs to analyse its experience and build models of the future.

Regulators may control many of these things by rules. For example, banks have often had limitations placed on the sorts of products they can offer, and what assets they can invest in, and have been required to use specific formulae to calculate what is a sufficient safety margin. The banks may be allowed to use their own models in some circumstances, but the regulators will generally be closely involved in considering the suitability of the modelling process.

In other cases, the regulators may delegate some or all of the activities that support prudential supervision to actuaries. The directors of the financial institution may be required to seek actuarial advice to design products, to set prices, and/or to determine what amount of assets should be held, or indeed they may be required to have an actuary's overview of the whole of the operations of the institution. The actuary may have to approve what is done, or simply provide advice, which the directors can choose to take or to ignore. In the latter case the directors may however be held accountable for losses resulting from ignoring the actuarial advice.

Non-legislated regulatory-type roles

An actuary may well have a regulatory-type role even if there is no government regulator or legislation. By this we mean that the institution can use the involvement of an actuary to demonstrate that it is financially sound. In fact this situation was a major part of actuarial work long before there was any legislation for prudential supervision. For example, from the early 19th century, life insurance companies in Britain regularly published the results of actuarial assessments of how solvent they were (ie how sufficient their assets were to cover their liabilities), in order to encourage people to buy their life insurance policies. It was only after the collapse of some life insurance companies which had not been taking actuarial advice that laws were introduced requiring companies to obtain regular actuarial assessments of solvency. Similarly, when employer-sponsored superannuation schemes promising benefits related to final salaries were established in Australia, the employers usually committed to making contributions at the rate recommended by an actuary as being sufficient to meet the promises. It was only much later that it became a legal requirement to have the solvency of such superannuation schemes monitored by actuaries. Booth (1997) discusses the role of the actuarial profession in the regulation of financial services and argues that the British actuarial profession, through evolving naturally to meet the market's need for a regulatory service, developed a sophisticated flexible mechanism of professional

standards which was superior to any form of regulation which a government regulator could provide.

Transmission of your advice to third parties

You must always be aware that advice you provide to a financial institution may be relied on by third parties who believe that, because you are a professional, you are independent, competent and conscientious. For example, suppose that you are consulted by a company set up to grow olive trees. This sort of operation is not generally covered by prudential regulation. You consider all the aspects of their planned operation: how much money they intend to raise in the form of equity and debt, how the operation will be managed, the projections for harvests and sales of olives, the risk management procedures in place, and conclude in your report that the proposal is sound and that there is little risk that the debt cannot be repaid. You then discover that the company is approaching potential lenders and quoting the professional opinion of an actuary that the debt is very low risk. You would be particularly alarmed if you now remember that, since you know nothing about the likely harvest per tree or future prices for olives, you relied entirely on the company's own figures for your projections. When you prepared your report you should have taken into account exactly this possibility, that the company would be using your words to persuade others.

> **Exercise 2.5**
>
> In the situation of the olive tree farm described above, what steps should you have taken to avoid the potentially misleading use of your report?

2.5.3 Other areas where actuaries are involved in disclosure of information

In providing information about the soundness of financial institutions, as described in 2.5.2, the actuary's role is really to provide information that interested parties cannot obtain otherwise. There are a number of other areas where actuaries are involved in providing information. Again, in some cases the actuary's role may be set down in legislation, and in other cases the organisation which is making available the information may choose to have an actuary involved so that third parties can have confidence in the information.

For example, actuaries may provide information about savings products with different structures for charging for expenses, so that purchasers can make an informed comparison.

Another example is placing a value on the outstanding liabilities under life insurance and general insurance[5] policies. The value has to be realistic. If the figure is too low, the insurance company will not have enough money set aside to meet claims when they become payable. If the actuary overestimates the liabilities, this will understate the profit reported for the year, and mislead investors as well as upsetting the tax collector. (We will discuss the measurement of profit further in Chapter 16. But broadly speaking, if a policy is issued during the year, at the end of the year the profit from that policy will consist of the premiums received, plus the investment return, minus the claims, minus the expenses,

[5] *General insurance*: also called *non-life insurance* and, particularly in North America, *property and casualty insurance*.

minus the amount set aside to meet the liability to pay claims and expenses in the future. Thus the value placed on the liabilities directly affects the amount of profit recorded for the year.) In practice the actuary has often been expected to come up with a single figure to serve two purposes: the prudential goal of being reasonably confident of holding enough money, and the informative goal of realistically estimating how much profit was earned. The profession is now finding ways to handle this situation, and this is discussed in the later parts of this book. A similar problem can arise in distinguishing between how much an employer should prudently contribute to a superannuation scheme and how much the scheme has actually cost during the year, which will impact on the employer's reported profit. The accounting profession also has standards for such areas of work which actuaries must take into consideration.

2.5.4 Fair treatment

Another regulatory-type role for actuaries involves ensuring that when financial institutions have discretions over terms and conditions, the individuals affected are fairly treated. Historically, this was a very important role for actuaries in relation to with-profit life insurance business. Sherris (1987) analyses this role in terms of the economic theory of principal/agent and transaction costs. Traditional with-profit life insurance policies promised to pay a fixed guaranteed benefit and in addition gave the policyholder a right to participate in profits which were unknowable at the outset. There was no set formula by which the insurance company would calculate how much profit to allocate to each policy. Instead, an efficient solution to the problem of resolving these incompletely specified contracts was to delegate the allocation of profits to a person whom both parties (the company and the policyholder) agreed was independent, expert and impartial, ie a member of the actuarial profession.

The documents which set up a life insurance company would therefore specify that an actuary would decide at regular intervals how much profit should be allocated to each policy, and would also decide what terms would be offered on a policy which was altered or surrendered, and that the actuary should have regard to what was equitable, ie fair to all concerned, in making these decisions. This required actuaries to make decisions which weighed up various competing interests. For example, delaying distribution of the profits is beneficial to those who hold their policies for a long time, as they will have greater security while their policies continue, but is unfavourable to those whose policies terminate relatively early. Improving the company's competitive position by paying relatively generous profits to the policy types which are still on sale at the expense of the policy types which are no longer sold is probably unfair, but may be fair if all the policies benefit from economies of scale from the increased sales.

A similar role is often given to actuaries in employer-sponsored superannuation schemes. The rules of the scheme will set out the benefits payable in most circumstances, but in special cases where it is difficult to specify what would be appropriate, the actuary is given the responsibility of deciding what is equitable.

Actuaries have tended to take the view that they have special expertise in making decisions about what is equitable. There are certainly some general principles which can be learned, and you will read more about them in Chapter 18. However, some critics would say that actuaries have been overconfident about their ability to make wise decisions when adjudicating between competing interests. For example, historically actuaries have felt

comfortable advising both the employer and the trustees in the operation of employer-sponsored superannuation schemes. There is some justification for this practice, because until fairly recently, the employer would generally appoint the trustees and the employing company itself might actually be the trustee, so there was a general lack of awareness of the need for independence. However, in fact the trustees are there to look after the interests of the scheme members, and these interests can be different from those of the sponsoring employer.

Another issue where actuaries have to consider what is fair can arise in relation to pricing products. Anti-discrimination legislation may allow an exemption for discriminatory pricing, provided it is supported by actuarial evidence.

2.5.5 Appointed actuary role

In a number of jurisdictions, regulators have created the special role of Appointed Actuary of an institution. (The terminology may vary.) Under these requirements, the institution must at all times have a single individual who takes overall responsibility for the sorts of actuarial advice described above. The legislation creating the role of Appointed Actuary will typically:

- specify who is qualified to be an Appointed Actuary: this may require credentials or experience on top of the standard actuarial qualification;
- set out the responsibilities, eg the Appointed Actuary may oversee some or all of price setting, distribution of profits, valuation of liabilities, etc, and will usually be required to prepare reports for the regulators;
- clarify the process for reporting on these responsibilities. Usually the Appointed Actuary must have direct access to provide advice to the Board of Directors. Sometimes the Appointed Actuary may have the final decision on some matter, or the role may be to ensure that the Board has good advice in making the decision;
- empower the Appointed Actuary to obtain from the institution whatever information is necessary to fulfil the role;
- perhaps most importantly, place a responsibility on the Appointed Actuary to inform the regulator about the institution's activities if the Appointed Actuary feels that intervention by the regulator is necessary. This is called a 'whistle-blowing' role.

The principle behind having a single individual taking the role is that it means the Appointed Actuary can see the whole picture, instead of having a number of actuaries each focusing on different aspects. In practice, for a large institution the Appointed Actuary will have to delegate much of the work to other actuaries, but will still retain the overall responsibility.

2.6 Other issues of professionalism for actuaries

In this section we will touch on other issues which have not been fully examined above.

2.6.1 Monitoring standards within the actuarial profession

All actuaries have a joint responsibility for the standards of the profession. This means that you not only have to make sure that your own behaviour is up to standard, but you must also take steps if you see other actuaries failing to meet the standards. You don't have to manage this responsibility alone. You can consult other members of the profession in confidence. The professional body will usually have a professional guidance committee whom you can ask for advice, but as a first step you can talk the issue over with any experienced member of the profession. Some professional bodies have created a special role of senior actuary, who is a nominated person in each company which employs actuaries. The senior actuary takes responsibility for overviewing the professional conduct of other actuaries employed there and also will deal with any activities of the company which may affect the profession, for example if the company is purporting to give actuarial advice which is not attributable to an individual actuary or actuaries (see 2.2.5 above).

Until recently, most professional actuarial bodies have generally relied on self-monitoring and the threat of disciplinary action to ensure that members follow the standards. At the time of writing however there is increasing pressure on all professions for more formal monitoring. This could take a number of forms. One is a requirement to submit to the professional body a self-assessment of compliance after a piece of work is completed. The Canadian Institute of Actuaries has had this requirement for some years for Appointed Actuaries in life insurance. The requirement of the Institute of Actuaries of Australia to report each year compliance with the requirements of the Continuing Professional Development standard is another example. Another possibility is peer review, requiring members to check that they are in line with common practice by submitting their work for inspection by other members of the profession, ideally actuaries from a different employer, but at least not someone under the first actuary's direction. This might be required before or after the work is released to the client, and might be for all work or for a random sample, and might cover all types of work or only specific types, such as work performed in statutory regulatory roles. A useful discussion of the issues is found in Compliance/Peer Review Working Party (2000).

Note that formal peer review does not mean checking the data and calculations in a piece of actuarial work. This should be done as a matter of course. It is more a matter of checking whether the correct approach and methodology has been used and the standards of work met – including whether sufficient checking of data and calculations has been carried out.

Peer review is a positive component of professionalism, and actuaries should consider whether it is appropriate to seek peer review of their work, whether or not there is any formal requirement to do so.

2.6.2 Materiality

The materiality of your work, ie how important is the result, is always an issue you should bear in mind. While you must follow the professional standards, this can involve more or less work to suit the materiality of the task.

This will also involve your professional judgment as to which parts of the task will require the most attention in the context of the particular job.

2.6.3 Independence of employed actuaries

Auditing of accounts is explicitly required to be done by outside firms of auditors, not by employees of the audited company. Despite this, the Appointed Actuary, a role somewhat similar to an auditing function because it is designed for the benefit of third parties, is often an employee. An argument often advanced in support of this situation is that an employee is in a better position to know what is really going on in the company. However, since consulting actuaries are also accepted as Appointed Actuaries, this argument is not strong. Sherris (1987) discusses whether an employed actuary can still be independent. He concludes that an employee can still function as an independent professional as long as remuneration is fixed and not dependent on results. We can also see that consulting firms can become just as dependent on their clients for income as any salaried employee – consider Enron and its auditors at Arthur Andersen[5].

Some actuaries have long held the view that an actuary who is filling a regulatory role, such as Appointed Actuary, should not also hold a managerial position such as Chief Executive Officer (CEO), since the actuary may well be in the position of standing in the way of the wishes of the management. The UK regulator in the changes it is currently proposing to the Appointed Actuary role will specifically require that the actuary filling a statutory role in life insurance should not also be Chairman or CEO or hold other posts which could give rise to conflicts of interest. Similarly the Approved Actuary under Australian general insurance legislation may not be the CEO or director of the insurer.

2.6.4 Data quality

The need for quality data is emphasised in later chapters. We will simply mention it here because it is one of the biggest areas where pressure is placed on professionalism: data is always difficult and expensive to obtain in a timely manner and you will often be pressured to come up with answers from inadequate data. Be careful! Even where you think this is not a problem, check the data for reasonableness and set out in your report what data you have used and the checks you have made.

2.6.5 Reliance on other experts

In carrying out a task, an actuary may have to start with work done by others. You should disclose this. The professional standard will usually say that you can take data which has been audited as reliable. There are special considerations when using models designed by others. The Casualty Actuarial Society standard on this provides some useful guidelines:

- the actuary's effort to understand and evaluate the model should be consistent with the materiality;
- you should form a view of the experts who designed the model:

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[5] Enron was a gas pipeline company which built up a massive energy trading business. Fox (2003) describes its spectacular history. In 2000 Enron reported the 7th highest revenues of any company in the USA, before becoming the largest bankruptcy in US history in 2001. Arthur Andersen, one of the 'big five' accounting firms, provided auditing and business consulting services, and earned $58 million in fees from Enron in 2000. When investigations began into Enron's related party transactions in 2001, Andersen employees shredded Enron documents. The firm of Arthur Andersen was found guilty of obstruction of justice, and forced to close its auditing business. In the inquiries following the Enron failure, questions were raised as to whether audit problems contributed to the rapid rise and fall of Enron's share price, and whether Andersen failed to carry out its auditing responsibilities properly because its independence was compromised by its aggressive pursuit of income growth from auditing and consulting fees.

- you should have some idea of how the model works, how it has been tested, validated and calibrated;
- you should consider whether the model is appropriate for your purpose;
- as always, you should check results for reasonableness.

The use of models is further discussed in Chapter 8.

You may also have to call in an expert to advise in areas in which you don't have expertise. Don't be overconfident. In fact, in order to act professionally, it is your duty in performing your work to be certain that you have the expertise required. Going back to the example of doctors: you would expect that if the doctor treating you is not knowledgeable in what might affect you that he or she would refer to an expert on that matter. Knowing your limitations is a key to being a proper professional; giving advice or opinions where you are not capable is unprofessional.

2.6.6 Ethics and professional behaviour

Everyone, not just members of a profession, should behave ethically. Does being professional mean being more ethical than other people who are not members of professions? Not exactly. We're not suggesting that professionals are somehow more ethical people, although it is possible that having to think about ethical considerations in relation to professional issues may make you more sensitive to the ethical issues that arise in all sorts of situations. What being professional means is that in situations where you are acting as a professional, you have to set higher standards for yourself, because that is what is being assumed by those who know that you are a professional. For example, if someone tells you something, you would keep it to yourself if it was clear that you were told in confidence, but otherwise you might reasonably use that information or pass it on. But if you are told in your capacity as a professional, then you should assume that you are being trusted to keep the information confidential.

In some situations it is easy to know what the ethical thing to do is, although it may be hard to actually do it. If you feel uncomfortable about some action you are contemplating, ask yourself: How would I feel if my family knew about this? How would I feel if my actions were reported in the newspaper headlines? Or, in the case of a complex issue which would be difficult to explain to non-experts, how would I feel justifying my actions to a fellow actuary whom I respect?

In other situations it may not be clear, and you may find yourself in a difficult position, choosing between least worst alternatives. This is when it can help to seek advice from other members of the profession, as discussed in 2.6.1 above.

Exercise 2.6

Consider the following scenario. An employer is negotiating with a union over a remuneration package which includes benefits from the employer-sponsored superannuation scheme. The present value of these benefits can only be determined by actuarial calculation involving assumptions about future rates of interest, inflation, mortality and staff turnover. The employer and the union have each hired an actuarial consultant. Discuss the professional issues which could arise.

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Chapter 3: The Context of Actuarial Work

by John Shepherd

3.1 Why consider the context?

3.1.1 Introduction

Rinnooy Khan (1992, p.87) highlighted the richness of the context of actuarial work by noting that '... the actuarial profession has interfaces everywhere and it is only proper to train actuaries in full awareness of the importance of these interfaces.'

Actuarial work never happens in a world as simple as that implied by the assumptions and methodologies that underpin most of the models used by actuaries. Actuarial work always occurs within a context, or environment, that is made up of a diverse and intricate array of elements. The context differs from country to country. Within a particular country, the context differs from practice area to practice area. For a given practice area in a particular country, the context differs from company to company, and from client to client.

For example, suppose you are a consultant who performs actuarial reviews for several defined benefit superannuation schemes[7]. You must know the environment or context within which all the schemes operate (eg relevant legislation and regulations including taxation, current economic conditions and trends, actuarial practice standards, etc). This environment or context is common to all the schemes you review. However, you must also know each scheme and its particular circumstances (eg its trust deed or other defining document, its benefit structure, its size, the demographic profile of its members, the attitudes of its trustees, the sponsoring employer's outlook and concerns, etc).

For this reason, there is no all-purpose, black-and-white, standardised recipe for actuarial work. If we are going to have a framework such as the Actuarial Control Cycle we have to keep it flexible. We have to use basic principles to define it. This is consistent with actuarial practice. Every problem or task is different. Textbook solutions and processes rarely match neatly a set of real-world circumstances. What we need is a thorough understanding of the basic principles, enhanced by the experience of applying those basic principles in a range of different situations.

Familiarity with the context is a professional responsibility for an actuary. For example, Guidance Note GN353 of the Institute of Actuaries of Australia deals with the valuation of general insurance[8] policy liabilities, and states (paragraph 5) that:

> The actuary should also be familiar with economic, technological, medical and social trends within the broader community that may affect the value of the insurance liabilities.

In this chapter we identify common elements of the context of actuarial work, and discuss how these elements may affect the work we do as actuaries.

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[7] *Superannuation fund* or *scheme*: an Australian expression for what other countries call a *pension fund, scheme,* or *plan*.

[8] *General insurance*: also called *non-life insurance* and, particularly in North America, *property and casualty insurance*.

3.1.2 Context is not static

The iterative nature of the Actuarial Control Cycle, our actuarial framework, reminds us that the context is never fixed. The context changes over time. Each time an actuary investigates a superannuation scheme's finances, or estimates the outstanding claims of a portfolio of home insurance policies, or reviews the premium rates for yearly renewable term insurance policies, the task becomes a new problem to be solved, because the context has changed. The degree of change can vary from slight and insignificant to considerable and material.

The feedback mechanism in the Actuarial Control Cycle framework is needed to deal with the impact on our work of the changing environment. Economic conditions change, new legislation is passed, social attitudes shift, technology evolves, consumers become more discerning, or a host of other factors vary. If we could predict such change, our Actuarial Control Cycle would not need a feedback mechanism. There would be no point in comparing emerging actual experience with what was assumed, because they would be identical. Change in the real world is unpredictable. This produces the future uncertainty that creates the need for actuarial expertise. The feedback mechanism represents a learning process for the actuary and for the company or scheme being advised.

The problems that actuaries tackle are rarely one-dimensional. Like most real-world problems, they can be viewed from a number of perspectives. The actuarial perspective has been primarily a financial and a mathematical one. Most problems also have social, cultural, psychological, historical, industrial, political, geographical and other dimensions. The actuary who is aware of these perspectives, and who allows for them in developing problem solutions and recommendations, will give better actuarial advice to employers and clients.

3.2 Components of the context

Table 3.2 below is a summary of components of the context of actuarial work. It is not exhaustive. Other items, not listed here, will sometimes be important. The listed items will not all be important all the time. The components are not separate and independent, but interconnected and interwoven. They do not form a static backdrop like the scenery on a stage. Instead they make up a dynamic, multi-dimensional environment which both affects and is affected by actuarial practice.

Some Australian consulting actuaries have advised clients in an environment that may seem unusual for actuaries – the electricity market. During the late 1990s, some previously government-operated electricity industry functions were privatised, leading to the development of a market in which the price of electricity is set in (almost) real time, according to supply and demand. Wholesale prices can be very volatile. Actuarial skills have proved to be valuable to electricity generators, distributors and regulatory bodies, in a number of different ways outlined in Hinton (1999). You should be able to recognise the elements of Table 3.2 in the electricity market just as readily as you can see them in more common actuarial environments like insurance and superannuation.

In the rest of this chapter we discuss some of the listed components, one by one. We must remember, however, that they are not separate and unrelated. They often interact, and they sometimes create conflicts or pressures for an actuary.

Table 3.2 Summary of components of the context of actuarial work

Broad category	Components
Professional context	• Code of conduct • Practice standards
Regulatory environment (Government, legislation, judiciary)	• Laws of the country and/or province • Supervisory authorities • Regulations • Government policy • Taxation • Political and judicial decisions • Social assistance and social insurance
Physical environment	• Climate • Natural perils (earthquakes, storms, etc)
Economic and social environment	• Economic structure, conditions and trends • Demographic structure and trends • Community values and attitudes • Cultural factors • Work and employment patterns • Industrial (labour union) issues • Accounting standards and practices • Technological developments
Industry environment	• Range of products and services offered • Convergence of financial institutions • Product distribution and intermediaries • Competition • Industry associations

3.3 Professional and regulatory contexts

These two parts of the context of actuarial work are so fundamentally important that we give them their own chapters in this book.

In most countries, an actuary is recognised as a professional, with special privileges and responsibilities. The implications of this for an actuary's approach to and conduct of his/her work are very important. We have discussed these implications in depth in Chapter 2, so they will not be specifically discussed here, except perhaps where professionalism interacts with other aspects of the actuary's environment.

Governments often regulate financial institutions and their activities. Regulation may be imposed through a combination of legislation (laws passed by parliament) and supervision by statutory bodies known as *supervisory authorities*, or *regulators*, that are given specific

responsibilities and powers. The regulatory environment has a major impact on actuarial work. It is also an area where many actuaries work. This is discussed at length in Chapter 4.

3.4 Government policy

Being aware of government policy as it evolves, and understanding the forces shaping it, can help an actuary to advise clients or employers on possible future legislative, regulatory and other changes and their likely impact. Similarly, it can be useful to be aware of the policy platform of political parties which are not in government but which may win government, or may attain a position of influence, in the future.

Actuarial professional associations monitor government policy development. They often participate in public debate on policy directions, and provide advice to politicians and public servants on issues related to actuarial work. Actuaries often serve on government advisory bodies, committees of inquiry, and boards of regulatory and supervisory authorities, where actuarial expertise is relevant.

3.5 Taxation

Taxation is nearly always part of the context of actuarial work. There are very few examples of financial products, schemes or arrangements where taxation is not an important consideration for all parties involved. Governments sometimes encourage certain financial behaviour by corporations or individuals (eg personal saving during working lifetime for retirement) by giving favourable taxation treatment to such behaviour. Such favourable treatment does not necessarily mean a complete absence of taxation, although superannuation in the UK and the USA accumulates on a basis that is almost tax-free.

Financial institutions, like other business enterprises, are subject to the taxation regimes of the countries or states in which they operate. Some measure of company earnings is usually the basis for taxation, but the measure can vary widely from country to country.

The nature, extent and operation of taxation are usually defined by legislation, supplemented by a set of regulations, and interpreted by a host of rulings from taxation tribunals and courts. Taxation is discussed further in 4.3.1.

As well as understanding, and allowing for, the implications of current taxation law and regulations, an actuary should aim to be aware of possible future changes to taxation regimes. Such changes are often flagged well in advance, when governments initiate reviews of taxation, across the board or as it affects particular parts of the community. Following and understanding the public debate associated with such reviews will help actuaries to bring to the attention of their clients and employers the likely effects of possible future changes on their forecasts and projections.

Taxation can affect product pricing, valuing policy or scheme liabilities, determining profit, analysing expenses, projecting likely future cash flows – in short, just about every job an actuary undertakes. Taxation considerations can be important for product design. The customer, or even the provider, may benefit from a tax break (eg by paying or incurring less tax) if a product is designed in a certain way.

3.6 Political and judicial decisions

Changes to a nation's laws can have an indirect impact on areas where actuaries are involved. For example, the introduction of compulsory wearing of seat belts in motor vehicles, or the random breath testing (for high levels of alcohol) of motor vehicle drivers, may have a dramatic effect on both the incidence and the severity of motor vehicle accidents. This in turn may impact the cost of motor vehicle insurance claims, as well as the cost of claims under other classes of insurance.

Judicial decisions are rulings made by judges in courts of law. They can be particularly important when new legislation is enacted, in determining just how the new legislation is going to work. The interpretation of an insurance policy's wording may become the subject of a judicial ruling. For example, suppose a life insurance company markets a critical illness insurance policy that has been priced on the assumption that it covers only a specified set of medical conditions and procedures. If that set of covered conditions is not precisely and carefully worded, a court may subsequently rule that the policy covers a condition that the company never intended to be included. The resulting unanticipated claims could damage the financial soundness of the life insurance company.

Judges' decisions on the amount of damages payable often have a large impact on insurers, affecting the amounts of claim payable. Levels of claim payments in the liability classes of general insurance are particularly impacted by judicial decisions.

3.7 Social assistance and social insurance

Governments often provide social security benefit programs such as age pensions, disability pensions, free or subsidised health care, unemployment benefits and work injury benefits. In some cases, workers are required to make some individual contribution towards the cost of the benefits provided. In other cases, benefits are financed from taxation revenue.

Social assistance benefits (see also 5.7.2) are designed to address needs, and eligibility is based on need. They usually do not depend on amounts or periods of contribution, but may be linked to length of residence in the country.

The availability, nature and extent of social security benefits can impact the demand for financial services. From time to time, governments come under pressure to decrease (or increase) the relative level of social security benefits. If benefits are reduced, individuals tend to turn to financial service providers to enhance their personal financial security programs. If benefits are raised, the opposite effect may result.

Different approaches to social security have been used in different countries. In China, until the movement towards free enterprise in recent years, many millions of people were protected by a so-called cradle-to-grave system of social security. Most economic enterprises were state-owned, and accounted for a very high proportion of the total population as employees. Each State-Owned Enterprise (SOE) was responsible for the welfare of its own employees for life. This included provision of old age pensions to retired workers on a pay-as-you-go basis.

3.8 Climate and natural perils

Natural perils have an obvious impact on general insurance, in particular, and on other insurance classes as well. Earthquakes, cyclones, bushfires, floods, droughts, hurricanes, typhoons and tornadoes often lead to catastrophic events that generate huge claim costs for insurers.

Providing insurance against the financial impact of some of these perils can be problematic. For example, earthquakes are known to be very likely to occur in certain identifiable locations, and extremely unlikely to happen elsewhere. People who live in high-risk locations may want insurance against earthquake: those who live in low-risk locations will not be interested. Such a risk cannot be spread across a sufficiently wide spectrum of the community through private insurance. Government must intervene and provide ad hoc payments after earthquakes occur, financed by the whole community through tax revenue.

3.9 Economic conditions and trends

Actuaries' employers or clients are often financial institutions or schemes whose future experience will be greatly affected by economic conditions and their changes over time. To forecast future cash flows arising from the business, assumptions are needed for a range of factors including economic variables like investment earning rates and inflation rates. Current economic conditions, and likely future trends, will influence the choice of assumptions.

Some areas where economic effects are of great importance are obvious: investment returns for investment and savings products, salary inflation for defined benefit superannuation schemes, and expense inflation for long-term fixed premium insurance policies.

Other influences can be less obvious. Insurance claims, for example, are significantly affected by economic factors. Changing demand and supply conditions affect the prices of goods and services, which influence the cost to the insurer of claims for the repair or replacement of damaged or stolen property. Economic boom and bust cycles are important. In times of recession, which tend to lead to increased unemployment, claim costs for personal injury under workers' compensation insurance may rise because injured employees cannot be brought back to work on alternative duties. Periods of recession may also lead to business failures and higher interest rates, which may encourage more theft, fraud and arson.

The economic structure of a country's population is an important aspect of the context. For example, countries with a high proportion of middle income families will support a diversity of financial service providers. Consumers likely to move into higher income bands will have different and increasing needs during their lifetime. Although India's population includes a relatively small proportion (about 25%) of economically active citizens, foreign insurers are interested in India's newly deregulated insurance markets because 25% of more than a billion people constitutes a very large market.

Exchange rate movements can affect the cost of claims on property insurance policies. For example, consider motor vehicle insurers in, say, New Zealand who insure cars imported from Germany, Sweden, France, Japan and Italy. The New Zealand insurers will be faced

with claims based on repair costs that depend on currency exchange rates, because replacement parts for the imported vehicles will also have to be imported from overseas.

Economic conditions are also related to demographic trends. For example, researchers have reported that mortality rates appear to increase when incomes fall following an economic crisis. Cutler et al. (2002) found that, during periods of economic crisis in Mexico during the 1980s and 1990s, mortality rates increased for the elderly and for the very young. They suggested that economic crisis leads to reduced incomes, which means less spending on food, medical services and medication, leading to poorer nutrition and health, and higher mortality.

3.10 Demographic structure and trends

Demographic structure and trends influence the types of product and service that financial institutions can market.

Demographic structure and trends affect the choice of assumptions for actuarial projections of future cash flows. Current levels of, and future changes in, fertility, migration, mortality, disability and unemployment are important factors when investigating the financial condition of a national superannuation scheme, for example.

A current demographic trend often mentioned is that of the ageing population, seen as an important issue in most developed countries. In such countries, fertility rates and mortality rates are falling. People are living longer, and in future there will be relatively fewer persons in the working age groups, and more in the retired age groups. Put simply, if current economic and social security structures continue unchanged, the costs of age pensions, health care and aged care (as a percentage of GDP) will grow, and tax revenue (as a percentage of GDP) will fall. The extra cost to governments of this fundamental demographic change is projected to be significant (though varying from country to country). There will be implications for all areas where actuaries work.

Partly in response to concerns about ageing populations and increasing costs of state-provided age pensions, many Organisation for Economic Cooperation and Development (OECD) governments have moved to equalise (at the older age) male and female eligibility ages for commencement of age pensions. For example, both Australia and the UK decided to change gradually the female eligibility age from 60 to 65. In both countries, the male eligibility age has been 65 for many years.

Brown et al. (2002) developed a model relating the expected age at retirement for workers in Canada to a Wealth Transfer Index (WTI). Retirement age is the age at which workers cease to be economically productive. The WTI, which is expressed as a ratio of consumption demand to labour productivity, represents the demand for wealth placed on the labour force from the aged, the young and the unemployed. The authors suggest that, from a macroeconomic viewpoint, normal retirement age varies in such a way as to allow an acceptable level of transferred wealth from workers to dependants. They argue that retirement age can be regarded as a balancing item in an economic system that continually seeks equilibrium. Where will the additional production of goods and services, to support the growing proportion of retirees, come from? It will be produced, suggest the authors, by workers who remain longer in the work force. They forecast, for Canada, a general

decrease in median retirement age until 2017, followed by an increase during the period 2017-2034.

3.11 Work and employment patterns

In the UK, the USA, Canada and Australia, it was not uncommon until relatively recently for employees to spend a full working lifetime with one employer. In recent decades, there has been a trend towards greater job mobility, at least for people with developed and valued skill sets or qualifications. It is now often regarded as desirable for employees to experience several jobs in different organisations, to maximise opportunities to develop their skills and gain wider experience. Also, as the incidence of corporate downsizing increases, the likelihood of forced job changes becomes greater.

Traditional defined benefit superannuation schemes, designed to fit a working lifetime with one employer, failed to meet the needs of more mobile workers. They also did not serve the needs of lower skilled and unskilled workers. Higher vesting, compulsory preservation and industry-based superannuation schemes have been introduced in response to these needs.

In some countries (eg Australia), legislation against age-discrimination has made it illegal to specify a maximum retirement age. This effectively means that mandatory retirement is out of the question (except in certain exempted professions and occupations). This has obvious implications for the design of superannuation schemes.

Employment patterns are closely linked with other components of the context, such as economic conditions and structure, cultural factors, social attitudes and conventions, demographic characteristics and technological change. As we noted in 3.10, encouraging workers to postpone retirement (ie increasing the average retirement age) is a tactic sometimes used by governments seeking ways to ameliorate the impact on public finances of an ageing population.

The concept of *retirement* as a distinct life event occurring upon attainment of some normal retirement age, marking the end of a full-time working for income phase and the beginning of a full-time retirement phase, is under challenge. The practice of gradual or phased retirement, where workers reduce their hours worked as they get older, is becoming more common, and is likely to continue to do so.

However, before gradual or phased retirement can become the norm solutions will have to be found to some of the existing legal, economic and cultural barriers to gradual retirement. For example, social security rules and superannuation scheme rules may need to be modified. Employers, and workers themselves, may have to change their attitudes to retirement.

3.12 Social factors and trends

Here are some examples of how social factors (eg community values and attitudes, cultural factors), and changes in them over time, can impact on actuarial work:

- the preference, noted over several generations in Australia but not necessarily prevalent in other countries, shown by retirees for a lump sum benefit rather than an income benefit (which affects the design of superannuation schemes);

- community disapproval of discrimination based on sex, marital status, religion, disability, race and other factors has led to anti-discrimination legislation in many countries, and ongoing public debate questions the right of life insurers and superannuation schemes to be exempted from such legislation (eg in order to use sex as a rating factor for life insurance pricing, and in order to provide different benefits for males and females making the same superannuation contributions);
- calls for de facto partners and same-sex partners to be recognised, along with married opposite-sex partners, for benefits payable to spouses from superannuation schemes;
- constraints on the types of question that insurers can ask applicants for insurance (eg sexual orientation or sexual preference);
- the shift in Western culture towards a greater focus on the rights and the welfare of individuals, and away from traditional systems of pooling and sharing, seen in the demise of mutual enterprises (mutual life and general insurance societies, friendly societies, building societies) and the rapid moves towards an individual account format for savings through life insurance and through superannuation schemes;
- the attitude of members of the community to insurance, and especially to claiming (for example, people who think of, say, their home insurance as an arrangement whereby 'their' premiums are being accumulated for 'them' by the insurer, so that they have a 'right' to some return of their outlay, in the form of an over-stated loss when they make a claim);
- the extent to which people believe that under-insuring (nominating a sum insured that is lower than the true value of the property being insured) is a prudent method of reducing their expenses;
- the level of criminal activity, such as burglary, other theft, and fraud, in a community has an obvious impact on the level of general insurance claims.

In countries with emerging or developing economies, there may be negative attitudes in the community towards insurance. For example, in some former Soviet republics, where in former times insurance was provided only by the state, the insurance industry has been privatised. Private insurers have found it difficult to overcome the negative attitudes of many people to insurance. Their past experience of state-owned insurance companies may have led these people to believe that insurance is a waste of money. They may have had legitimate claims that were only partially paid, or paid only after long delays, or not paid at all.

3.13 Industrial issues

Industrial issues are matters over which there is dispute between employers and representatives of employees (eg labour unions). Such disputes may be industry-wide, or restricted to a particular business enterprise. Employee benefits, such as superannuation, death or disability insurance, and medical or dental cover, may be the subject of negotiation from time to time. An actuary may be asked to advise one or other of the parties to the dispute, or to recommend a solution which is acceptable to both parties.

Industrial pressure from labour unions can lead to increased wage and salary levels, which in turn impacts on the cost of superannuation schemes.

The involvement of labour unions adds an extra stakeholder perspective to the financial management of superannuation schemes. For example, Ferris et al. (1995) pointed out that actuaries might find their work for superannuation schemes being subjected to close scrutiny by labour unions. The authors explained that the development of industry-based superannuation schemes, and the emergence of large surpluses in some occupational superannuation schemes, have helped to bring superannuation scheme finances to the attention of unions. Increased scrutiny of the work of actuaries is to be welcomed. Appreciating the perspective of the unions, and providing valuable advice to all parties, requires actuaries to have good listening, understanding and communication skills.

3.14 Accounting standards and practices

Company accounts have to be prepared in accordance with accounting standards. Accounting standards affect virtually all types of actuarial work. They may set out the general nature, to a greater or lesser degree, of the assumptions to be made when performing a valuation of almost anything whose value is included in financial statements. This includes, for example, the liabilities of a superannuation fund, and the outstanding claims of a general insurance company.

For example, in Australia the accounting standard AAS25 specifies the types of assumptions that must be used in liability and asset valuations shown in superannuation fund accounts. An actuary may choose to use different assumptions in performing an actuarial review for funding purposes. However, the actuary will need to explain to the trustees and sponsoring employer why the accounts show different values to those in the actuary's report.

Accounting standards may address the way in which general insurance companies report their activities. Aspects affected are likely to include the definition of premiums, accounting for deferred acquisition costs, accounting for reinsurance payments, apportioning management expenses and determining outstanding claim liabilities (Hart, Buchanan and Howe 1996, p.26). If prudential regulations for general insurers call for a different approach to estimating outstanding claim liabilities, then a different value will be determined from that appearing in the published accounts.

3.15 Technological developments

Technological development, especially in computing and communications, has had a major impact on actuarial work since the early 1970s. Until then, many developments in actuarial science were focused on finding better ways to calculate the present value of expected future cash flows. Improvements in the storage capacity, processing speed and cost of computers, and the development of easy-to-use software like spreadsheets, has meant that what was once the cornerstone of actuarial work (commutation functions, assurance and annuity functions and a complex system of symbolic notation) has been made almost redundant.

Technological change influences product design and product improvement. Take, for example, the development of unit-linked life insurance policies. Regular revision of unit prices, and their use in determining the number of units purchased by additional premiums, and in calculating policy cash values, was feasible only when computing technology became

fast and powerful enough. Also, as communications technology improved, unit prices were revised more frequently.

Marketing and sales techniques have also been greatly affected by technological developments. The direct marketing of financial products aims to reduce new business acquisition costs. It depends heavily on technological support no matter what distribution channel is used. Use of the internet for financial product promotion, marketing, quotations and sales, is now established and will no doubt grow.

Technological change can have a major effect on mortality and morbidity. The development of new drugs can significantly reduce risks of sickness, disability and death from particular causes. New machines for diagnosis, for surgical procedures and for treatment can have similar effects. New treatments become available for previously untreatable conditions. At the same time, such developments can lead to increases in aggregate claim costs for medical and hospital expenses insurance, because the newer technologies tend to be more expensive.

Technological development brings with it a wide range of new physical assets to be insured (eg space satellites and vehicles), and challenges for insurance pricing and underwriting. Such change also makes many items obsolete, and so creates difficulties in valuation and replacement for insurance claims management.

3.16 Range of products and services offered

Since much actuarial work is concerned with financial products and services, this is a key part of the actuarial environment. Chapter 5 describes the range of financial products and services, and discusses the needs of consumers that they are designed to meet.

3.17 Convergence of financial institutions

Convergence is the term used to describe the trend observed in many countries since the 1980s for previously distinct classes of financial institution to become similar. This trend has come about as each class has broadened the range of financial products and services it offers. The aim has been to provide one-stop shopping for customers, by attempting to meet all their financial needs. This full-service approach is sometimes known by the German word *allfinanz*. Banks have added life and general insurance, superannuation and funds management to their traditional product range. Life insurance companies have introduced general insurance and reinsurance, as well as banking products (deposits, loans, credit cards, etc) and funds management.

The trend has created financial service institutions that consist of units and subsidiaries in a variety of specific businesses. Recognising and analysing the risks faced by a full-service enterprise, as well as the interdependencies and correlations between them, is a challenge for managers, investors, ratings agencies, regulators and actuaries.

3.18 Product distribution and intermediaries

Financial products and services are made available to consumers through a range of distribution channels (see 5.9.4, for example). The mix of channels, and their relative importance, varies between countries.

3.18.1 Sole agents

Sole agents are sales intermediaries who represent, and sell the products of, just one product provider. They are also known as *tied agents*, or *captive agents*. Usually, they are extensively trained by the company they represent, and are paid largely on a commission basis, in proportion to the amount of new business they sell. Sole agents may have other jobs, or, at least, work only part-time (eg many life insurance agents in Japan are also housewives).

Sometimes, sole agents are authorised to sell the products of one or two other companies as well. This is likely when the company to which they are tied does not offer a full range of products (eg no annuities, or no income protection insurance).

3.18.2 Multi-agents

Multi-agents are individuals or firms who are authorised to sell the products of a number of product providers. Successful, well-established tied agents will often make the move to set up their own multi-agency practices. Their successful past performance enables them to obtain agency agreements with several companies. Multi-agents also usually receive commissions from the companies whose products they sell.

3.18.3 Brokers and financial planners

Brokers are intermediaries who provide advice to consumers of financial services or financial instruments. *Stockbrokers* provide advice to clients on investment in shares or other financial instruments. *Insurance brokers* provide advice on insurance, savings and investment products. Stockbrokers receive a fee or commission from their client, while insurance brokers receive commissions from the companies providing the products they sell.

Financial planners, or *financial advisers*, provide advice to their clients across the whole spectrum of financial planning needs. They focus on providing an individual, a family or even a small business, with a comprehensive financial plan. Such a plan may include recommendations on an insurance program, financial planning for retirement, a savings and investment program, tax minimisation, estate planning, and so on.

Financial planners are increasingly choosing to charge their clients on a fee-for-service basis. For example, planners may charge a fee of $500 to $1,000 for the first consultation and preparation of a financial plan. Additional advice will carry an additional fee. Suppose the client agrees to a plan that includes the purchase of products on which the product provider pays commission. The commission received from the provider may be offset against the adviser's fee (so the client pays less to the adviser), or the full commission may be passed on to the client (with the client paying the full fee to the adviser). Either way, all fees and commissions should be fully disclosed.

Agents, brokers and financial planners (all types of intermediary) usually have to be licensed or registered. They may also be subject to regulation and supervision on matters such as the adequacy of their knowledge and experience for acting in that capacity, the handling of client moneys and the nature and quality of the advice they give. They commonly are required to disclose fully to their client all fees, commissions and charges they will either receive or charge.

3.18.4 Direct distribution

Any distribution method that does not involve an intermediary is known as direct distribution. The obvious attraction for product providers is that there is no commission payment required rewarding an intermediary for time and effort. The costs of selling the product can be significantly reduced.

Direct distribution has three basic forms:

- personalised contact, targeted to an individual (eg direct mail, outbound telemarketing);
- advertising designed to elicit a response (eg a poster in a bank branch, a print media advertisement inviting customers to 'ring this number');
- customer-initiated contact, usually the result of general brand advertising, word-of-mouth recommendation, convenience of branch location, etc (eg customer phones a large, well-known company to buy life insurance, or accesses a website to arrange motor vehicle insurance through the motorists' association he belongs to, or walks into a bank branch to open an account).

It is sometimes claimed that the internet will be a very significant direct distribution channel for financial products. It is important to distinguish use of the internet as a distribution channel from its use to provide information, including premium quotations, to support a sale.

3.19 Competition

The clients and employers that actuaries advise often operate in a commercial environment where competition is strong. This may result in pressure on actuaries involved in product pricing to recommend premium rates that are competitive, perhaps at the expense of profitability or even adequacy. Ferris et al. (1995) identified other situations in which actuaries may feel such pressure. The existence of actuarial professional standards, however, does help to mitigate these pressures.

In some classes of general insurance, an absence of adequate, relevant and reliable data may mean that expected claim costs and even expected management expenses cannot be known with any reasonable degree of certainty. In these circumstances people in the company who want to argue for competition-based pricing may feel that they have a strong case. However, in these circumstances an actuary should be careful to suitably qualify a pricing report in the light of the uncertainty arising from the data.

Competition can be strong in some life insurance product markets. De Ravin (1996) surveyed actuaries with pricing responsibilities at twenty-four Australian life insurance companies, operating in very competitive markets. One of the survey questions was 'Would

you say that in the past year you have felt more pressure to achieve profits or sales?'. Eleven respondents (46%) said 'About equal', while seven (29%) said 'Profits', and six (25%) said 'Sales'.

3.20 Industry associations

In many countries industry-based associations of companies have been formed in the finance sector to promote the role and collective interests of their members to government, to the media and to the community. On behalf of their members, these not-for-profit organisations take part in debates on public policy, make submissions to government on matters like regulation and taxation, liaise with regulators, and publish research reports. Table 3.20 provides examples of industry bodies from a number of countries.

Table 3.20 Examples from several countries of financial sector industry bodies

Country	Industry	Industry bodies
Australia	• Banking	• Australian Bankers Association (ABA)
	• Life insurance, reinsurance and funds management	• Investment and Financial Services Association (IFSA)
	• General insurance	• Insurance Council of Australia (ICA)
	• Insurance education and training	• Australian and New Zealand Institute of Insurance and Finance
	• Superannuation	• Association of Superannuation Funds of Australia (ASFA)
Canada	• General insurance	• Insurance Bureau of Canada (IBC)
	• Life insurance and health insurance	• Canadian Life & Health Insurance Association (CLHIA)
	• Banking	• Canadian Bankers Association (CBA)
Hong Kong	• General insurance, life insurance and retirement provision	• Hong Kong Federation of Insurers (HKFI)
Singapore	• Life insurance based financial planners (agents)	• Life Underwriters Association of Singapore (LUA)
	• Life insurance	• Life Insurance Association of Singapore (LIA)
	• General insurance	• General Insurance Association of Singapore (GIA)
UK	• Banking	• British Bankers Association (BBA)
	• Wholesale general insurance and reinsurance	• International Underwriting Association of London (IUA)
	• Insurance and superannuation	• Association of British Insurers (ABI)

These associations may also be providers of education, training and accreditation for people working in the industry. The industry base may be life insurance, general insurance, banking, funds management, superannuation or any other financial sector.

The activities of industry associations may affect actuarial work in several ways:

- member companies may adhere to voluntary codes of conduct in areas such as customer service and sales;
- associations sometimes provide data collection and reporting services to members, and this aggregated data can be useful for pricing products and valuing policy liabilities;
- they may set up mutual emergency funds or levy agreements whereby all members make a commitment to help to support a fellow member that encounters financial difficulties.

The mission statement of the Insurance Council of Australia is fairly typical of industry bodies of this type:

> The mission of ICA is to influence ethically, and expertly, the political, social and economic environment, in order to promote the general insurance industry's role in providing protection and security to the community and to create an environment in which members can achieve an appropriate return on equity while doing so.

3.21 Globalisation of the environment

In terms of economic conditions and trends in particular, no country can regard itself as being immune to the effects of international events and changes.

Consider the year 2001, for example. Global economic growth was slow around the start of the year, following the collapse of the high-tech bubble, and it worsened as the year progressed. The realisation grew that Japan's economy, one of the world's largest, was in recession. Predictions for US and world economic growth were cut back. Then the terrorist attacks in the USA on September 11 disrupted the normal operation of financial markets everywhere, creating great uncertainty, heightening risk aversion and lowering consumer and business confidence. The attacks themselves led to the largest ever claims on the international insurance market, and probably produced solvency concerns for some insurers. Later in the same year, the major US energy company Enron filed for bankruptcy, and the government of Argentina defaulted on its debt (the largest ever sovereign debt default).

These events, and others, helped to focus attention in all countries on the importance of contingency planning, disaster recovery, sound corporate governance, effective auditing and improved regulatory supervision.

For actuaries, an important global dimension is the rapid development towards a global actuarial profession. There are agreements in place between several pairs of national actuarial bodies to recognise each other's full professional qualifications. In addition, the International Actuarial Association (IAA) has committed to a minimum common core educational syllabus, to be implemented by member bodies by 2005.

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