BUSINESS INFORMATION SYSTEMS FOR ACCOUNTING STUDENTS

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If a business is to survive in its environment, it needs to be able to collect a lot of information on such drivers of change as we have just noted. With this information it can forecast how it needs to react, or better still plan ahead. In your broader studies, you may have encountered techniques such as PESTEL or SWOT, which are used to analyse the business environment when formulating strategy. PESTEL, which stands for Political, Economic, Social, Technological, Environment and Legal factors, can be used by organisations to analyse the external business environment in particular for factors which may cause organisation to change. SWOT – which stands for Strengths, Weaknesses, Opportunities and Threats – is a similar tool which can be used to analyse the business environment. Using PESTEL as an example, Table 4.1 gives some detail of what might appear in a PESTEL analysis.

Table 4.1 PESTEL analysis

Change factor	*Description*	*Example*
Political	Government policy which interferes with economic or business environment	Provision of services by state companies, education, infrastructure projects
Economic	Factors such as interest rates, exchange rates, taxation and economic growth	Higher interest rates may affect investment, inflation may boost demands for higher wages
Social	Changes in society in general	Attitudes to work in general; age of population may affect pension costs or childcare costs, which effect take home pay
Technological	New products, services and processes brought about by technological advances	Online markets for products and services requires less investment in physical business presence
Environmental	The physical natural environment such as climate and weather	Temperature increases can affect crops; wetter periods can cause more flooding and affect insurance costs
Legal	The legal and regulatory environment in which an organisation operates	Consumer law, competition law, employment law and health and safety laws can all affect how a business operates

How each of the PESTEL factors affects the operations of an organisation depends to an extent on the industry sector. For example, technological change is likely to be a more prevalent change driver for online businesses and legal factors may be more prevalent to the pharmaceutical sector.

You may have noticed that technology features as both an internal and external driver of change. And, any of the other factors driving change may in turn change how an organisation uses its technological resources – such as accounting information systems. Thus, having an appreciation of how to understand and interpret organisational change is a useful skill for accountants – and other organisational members such as managers and information systems specialists. To this end, the next section introduces some theoretical perspectives on organisational change.

Some theoretical insights

In the management and organisational literature, there are several theoretical approaches to studying and interpreting organisational change. A brief overview of some insights is given here, which helps set the scene for understanding information systems change.

Change as a static phenomenon

Classical perspectives of organisational change, originating in organisational theory, focus on change as static phenomena. There is normally a focus on change outcomes, whereby any 'processes' of change are deemed as stages prior to any new static state. Lewin (1951) presented a framework of planned social change. He described the existence of 'driving' or 'restraining' forces against a 'background of potential change' (Lewin, 1951, p. 199), and he proposed change as a three-stage sequential process. First, argued Lewin, one should identify the forces which drive and restrain change. Second, 'unfreeze' the status quo so that change can be effected; and third, 'refreeze' to the desired state. Lewin (1951) argued that the removal of the forces restraining change can create an imbalance in an organisation's status quo, thus making way for 'unfreezing' and for change.

Organisational development (OD) theory embodies much of Lewin's ideas, but also applies behavioural science in an effort to manage and plan organisational change. OD theory originates from a human relations theoretical perspective that emphasises the importance of collaborative management. Dawson (1994) argues that there are six major steps in an organisational development programme, namely:

1 identify a need for change;
2 select a technique for intervention;
3 gain top management support;
4 plan the change process;
5 overcome resistance to change; and
6 evaluate the change process.

There is an implicit focus on outcomes here, whereby processes of change are viewed as being separate stages prior to the achievement of some static state. Such an outlook on change has the potential to provide instructions for individual managers who are involved in change programmes.

Contingency theory argues that the best way to structure and manage organisational change depends on, or is contingent upon, the circumstances of a particular organisation. Furthermore, as the contingent factors vary across organisations, so also it is held that the methods used to manage change should also vary. Burns and Stalker (1961) and Donaldson (1987) argued that structural change in organisations is contingency-driven. Contingency theorists advocate a 'choice' of several strategies or 'fit' for coping with change. This is a major strength of the perspective as it goes further than the universal nature of classical approaches towards change. In other words, contingency theory goes beyond the approach of traditional (planned) change models, by exploring how change may become contingent upon the interactions between an organisation and its business environment.

'Consulting' approaches to change are largely informed by a consultative rather than an academic perspective. The approach is often associated with scholars at Harvard Business School, who are also established management consultants, for example, Kanter and Kotter.[1] Such perspectives are often connected to a particular philosophy underpinning management theory, for example, so-called 'best practice', 'team-based culture', 'decentralised structures' and 'leadership strategies which foster innovation'. Kanter (1983) is a typical example of the consultative perspective on change. She attempts to define how organisations can be successful, and argues that a key aspect to corporate change lies *within*, and that individuals have the power 'to develop creative responses and push for changes' (1983, p. 2). With such

[1] See, for example, Kanter (1992, 1983) and Kotter (1996).

an individualistic approach being advocated, leadership skills are regarded as being particularly important. Kanter (1983) uses her knowledge of several leading innovative American firms at the time of her contribution (e.g. Hewlett-Packard, Polaroid and General Electric) to add weight to her views on the importance of corporate entrepreneurship. Kanter (1983) also distinguishes between 'segmentalist' (i.e. where there is an environment of 'anti-change' and a narrow perspective on potential problems) and 'integrative' (i.e. where there is a wide-open, team-oriented environment) organisations. She further suggests that 'integrative' companies provide a better environment for nurturing corporate entrepreneurs, whilst the 'segmentalist' companies will usually stifle innovation. In development of her earlier work, Kanter *et al.* (1992, p. 383) propose the 'Ten Commandments for Executing Change'. These include: creating a sense of urgency; developing enabling structures; creating a shared vision direction; involving people, and being honest. Compared to classical and contingency approaches, it could be argued that a consultative perspective on change is superior in that it takes into account internal organisational experiences and thus incorporates contextual and historical dimensions.

Change as an on-going process

Andrew Pettigrew (1985, p. 15) suggested that research on organisation change which is 'acontextual, ahistorical and aprocessual' will yield inadequate explanations of change According to Pettigrew (1985, p. 15) what is needed is to 'go beyond the analysis of *change* and begin to theorise about *changing*'. He adds that the classical literature has a tendency to regard change projects as 'a single unit of analysis', and change itself as 'either a single event or a set of discrete episodes' Pettigrew (1985, p. 23). In contrast, Pettigrew insists change should be viewed as a process rather than a static event.

According to Pettigrew, an understanding of organisational context and power is essential to have any understanding of organisational change. Pettigrew (1987) later developed his ideas into a framework that has been used to guide research on organisational change. He suggested that 'content', 'process' and 'context' are all essential dimensions to be explicitly considered. Content refers to the portion of an organisation experiencing change. Process refers to the 'actions, reactions and interactions of the various interested parties, as they seek to move the firm from its present to future state' (Pettigrew, 1987, p. 658). He later clarified his meaning of process as 'a sequence of individual and collective events, actions and activities unfolding over time and in context' (1997, p. 338). This would seem to suggest time and history are central to any processual analysis.

Dawson (2003) also presents a processual framework of organisational change similar to that put forward by Pettigrew. His contribution comprises three main components, namely: (1) context; (2) substance; and (3) politics. The substance of change consists of four sub-dimensions, namely: scale, characteristics, timeframe and centrality of change. These sub-dimensions are not static and overlap with contextual and political dimensions of change (Dawson, 2003, pp. 9–10). Context refers to internal and external context (similar to Pettigrew's views), which Dawson (2003, p. 8) views as 'central to understand [. . .] the route to change'. Politics refers to internal and external political activity such as 'power relations and political processes' that can influence decision-making and agenda-setting in processes of change (Dawson, 2003, p. 9).

In summary, theoretical perspectives on change view it as both a static phenomenon – with a start and stop point – as well as an on-going process. It may be easy to think of information systems change – which is discussed in more detail in the next section – as a more static phenomenon. Typically, we may perceive an information system as something which is simply installed and configured and that is it until the next version of the system comes along. While this may be so in the shorter term, no information system remains static

in the longer term. For example, larger enterprise systems may take several years to come to fruition in organisations (see, for example, Markus *et al.*, 2000) as the organisation learns the system and adapts work practices to it. In turn, the general business environment (which includes technology innovations) will drive change to all elements of the organisation. Thus, describing organisational change as an on-going process may be more realistic in the context of accounting and other information systems.

Managing organisational change

The management of change in an organisation can be a complex and extensive task. A full examination of issues in change management is beyond the scope of this text. A brief overview of some of the main issues encountered is now given.

One of the key issues in driving successful organisational change – be it information systems change or another form of change – is top management support. Without the backing of key and powerful organisational leaders, any change project has less chance of success. In addition to top management support, the best people in the organisation need to be dedicated to, and part of, the change project. These 'change champions' as they are often termed, are likely to be people with a vast wealth of knowledge about how the organisation works. These change champions need top management support as well as authority to make the desired organisational changes.

Any change project also needs to be in line with the overall organisational strategy. Developing strategy is the job of more senior managers, who in turn may initiate and support the necessary changes to bring the organisation towards the changes envisaged by the strategy. Communication is a key issue here. If staff can understand the need for change, the scope of change and the effect of change on their work, their resistance to change may be less.

Planning organisational change is also quite important – as we will see in the next section, for information systems change specifically. Although change can be an on-going process, there will be points in time by which certain events should happen. Any plans should be monitored and deviations from plans noted and acted upon if necessary. Project management tools and techniques are often quite useful in information systems change projects – more detail is provided later in this chapter. Planning should also include contingency arrangements in the event of delays, plans for any training of education requirements, financial resources and human resource requirements. Finally, as organisational change will undoubtedly imply change to how some people work in organisations, encouraging and motivating staff to take ownership of their new tasks or organisational roles may be useful. This may mean rewarding staff, both in a monetary sense and in a social sense within the organisation e.g. promotion.

Regardless of the level of planning for change, some resistance is likely. Resistance can take several forms from hostile aggression through to some subtle negative attitudes. Hostile aggression means deliberate action to damage or inflict injury. Although rare in accounting information systems implementations, it can include things like destruction of hardware, theft of data or removal of systems controls. Another form of resistance is defiant opposition, which in essence means not following the rules. Examples would include not following control procedures within new systems. The most subtle form of resistance is negative projection, which in plain language means blaming the new system for errors and problems. As already noted, clear communication, good planning and top management support will help see change through and thus keep resistance to a minimum.

Thus far in this chapter, you have an understanding of organisational change in general. With this to hand, we will now explore some issues more specific to information systems change.

Information systems change

A need for change?

As noted by Boczko (2012), there is little doubt that the last two decades or so have witnessed two key developments in a business context:

- more integrated social, political, and economic systems – i.e. a single society or single global marketplace; and
- increased use of and dependency on information technologies – or a more technology-based information society.

As noted in Chapter 1, in a business environment which is becoming increasingly more global and more information driven, change is likely to be more frequent than in the business environment of previous decades. Organisations need to not only respond to changes in their local business environment, but also in a global context. This means decisions are taken by organisations in shorter time frames, using more data and information that ever before. Arguably, business is less predictable nowadays as technologies such as the internet and social networking provide so much information to potential consumers, that they can chop and change their product or service preferences in an instant. This is not to say that the business environment is unpredictable, but the modern organisation needs to be adaptable in every sense of the word to survive.

You may be thinking accounting is quite a stable world, and thus accounting information systems, and the accounting practices they reflect, may be quite stable over time. This may be so if we define accounting in a narrow way, by focusing on the information needs of external stakeholders – such as investors, financial institutions and regulatory authorities. However, this branch of accounting does not reflect internally focused decision-making information provision. Without the correct information, managers cannot make sound business decisions. Given the rapidly changing business environment, the information needs of managers will change too. Thus, it is this internal focused accounting information (i.e. management accounting) where we will likely see more frequent changes to information provision and, in turn, to accounting information systems change. Let us now explore the types of change which may be encountered or necessary to accounting information systems.

Types of change in accounting information systems

Boczko (2012) defines change in an accounting information system context as –

> any amendment, alteration, and/or modification to the structure and/or operation of a system or a component sub system and, includes amendments, alternations, and/or modifications to:
>
> - data input procedures
> - data capture and filtering processes
> - data management protocols
> - internal documentation and control procedures
> - data processing procedures
> - information output procedures
> - feedback/feed-forward control procedures.

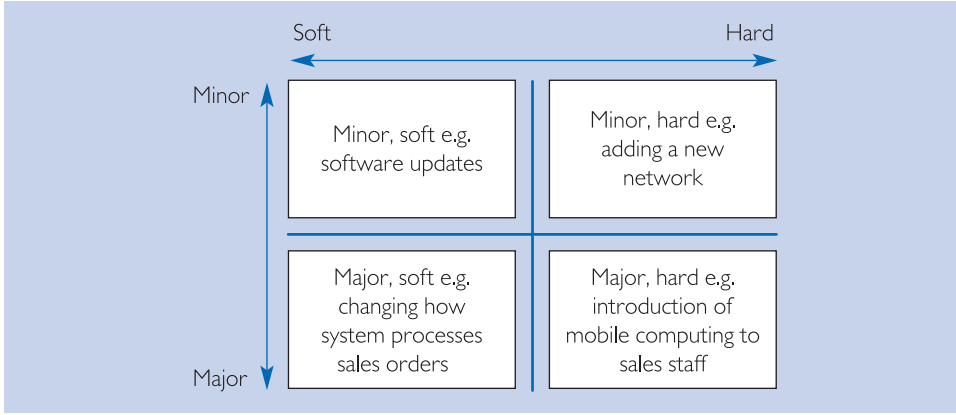

Figure 4.2 Types of information systems change

Source: Adapted from *Introduction to Accounting Information Systems*, London: Financial Times Press (Boczko, T. 2012), © Pearson Education Limited 2012.

This is quite an extensive definition and conveys a sense of regular and on-going change to information. If we reflect on this definition, it is likely that we might not classify some changes as change at all. For example, if the format of a regular management report is changed from a hard print copy to an email soft copy, is this change if the content remains the same? Strictly, yes, it is an information systems change as underlying software code would have been changed or added to make this happen. However, the manager may not view is as change at all. This example shows the difficulty in discussing what change is or is not, and as noted by Dawson (2003) (see earlier), change is context dependent.

As noted earlier, many authors classify organisational change to allow us to more easily appreciate and interpret it. Boczko (2012) provides a very useful classification of accounting information systems changes. **Hard change** refers to change which is driven by new technologies e.g. new hardware, whereas **soft change** refers to change which arises from how an organisation is structured or how it does things, e.g. a merger may require information systems of both organisations to be integrated. Boczko (2012) also refers to the scale of information systems change as either minor or major. A minor change is one which is more a fine-tuning adjustment to the system and no changes are made to how the system fundamentally operates. A major change is one where the impact on the system is more substantial and may affect many system components. Combining both the type and scale of systems change, Boczko (2012) suggests a two-by-two matrix to classify change as shown in Figure 4.2.

This matrix is a very useful guide for accountants and managers when trying to understand necessary changes to accounting and other information systems, and is also very useful at the planning stages for new information systems which we explore later. For example, a minor soft change is likely to require less change effort than a major soft change. Similarly, a major hard change may more successful if the organisation recognises it as such and engages in communication and training about the change.

To help you understand each type of change, consider the following examples. A minor soft change could be something such as a modified procedure for checking supplier invoices before payment, paying suppliers electronically or a minor software amendment/update. A minor hard change could be something such as a new or extended wireless network. Real-life example 4.1 provides some examples of both major type changes.