ABSTRACT. Small and medium-size enterprises (SMEs) are a major component of all economies and are generally considered to be flexible, adaptive organisations. Although lagging behind their larger counterparts, SMEs are beginning to invest in information systems. Using data derived from a set of manufacturing SMEs located in the U.K., this paper investigates whether SMEs really do exhibit flexibility and if their use of information technology enhances or inhibits such flexibility.

1. Introduction

Small and medium-size enterprises (SMEs) are a volatile, yet vibrant part of the business environment throughout Europe. Indeed, in the U.K., after a number of years of relative decline in the 1960s and 1970s, the importance of manufacturing SMEs is increasing (Storey, 1994). Storey shows that firms with fewer than 200 employees constitute 31.8% of the manufacturing sector. Further, it is contended that the SME sector will increase in importance due to a shift in the strategic policy of many major organisations – the movement towards the ‘hollow’ factory where most assembly work is sub-contracted rather than done in-house. SMEs are the major beneficiaries of this policy.

However, most SMEs tend to produce one or two standard products for a narrow range of customers. They are critically dependent upon these customers for their existence and have relatively little power to raise prices. Storey and Cressy (1995) characterise small businesses as exhibiting many of the attributes of firms in perfect competition. They have little power to influence market price by altering output quantities, small shares of the market and are unable to erect barriers to entry to the industry to other firms.

SMEs are often depicted as flexible enterprises, while information systems (IS) and information technology (IT) are held to be keys to the future flexible organisation. Ives and Mason (1990) argue that ‘information technology offers exciting opportunities to revitalise customer service by moving a company and its product offerings closer to the customer, thereby recapturing the conditions of intimacy and flexibility that characterised earlier eras’ (p. 67). Thus, on the face of it, since both SMEs and information systems are providers of flexibility, and as computing costs decline so SMEs invest more in technology, the expectation might be that IS would enhance the flexibility of SMEs. Indeed, Storey and Cressy, suggest that SMEs’ ‘speed of adoption of new technology (e.g. new software system) is often greater . . . [than that] . . . required in large firms’.

This paper investigates whether SMEs are, in fact, the flexible beasts as portrayed, whether information systems are universal providers of flexibility and if the development of IS capabilities in SMEs inhibits or enhances flexibility. This discussion is illustrated by the experiences of a number of firms from the manufacturing sector in the West Midlands of the U.K.

2. Issues of flexibility

Flexibility is a much-discussed issue (Genus and Dickson, 1995). Eardley et al. (1997) suggest that flexibility is the ability to change direction rapidly or deviate from a predetermined course of action.
– or as Evans (1991) puts it, the ‘ability to do something other than that which was originally intended’. Indeed, as he states, strategic flexibility is a critical success factor when most elements of an organisation’s environment and systems are in a state of continuous flux. Eppink (1978) characterises flexibility as a strategic response to the unseen. Volberda (1996) points out the inherent paradox in the concept of flexibility – that it must be combined with stability. On the one hand, organisations need to be able to adapt quickly, while on the other, they can only obtain efficiency from stable processes.

Volberda maintains that under the ‘hypercompetition’ which characterises the present environment, firms will thrive only if they have adaptive capabilities. More specifically, according to Eardley et al., organisations desire flexibility since it offers three major advantages (Avison et al., 1995). First, if the environment is turbulent, the ability to respond flexibly to forced change may be necessary for basic survival. Second, flexibility may allow the organisation to achieve superior levels of internal efficiency through such activities as business process re-engineering (Hammer, 1990), though the truly flexible organisation would not seem to require process re-engineering. Third, flexibility of response may give competitive advantage through its ability to develop new performance-enhancing features and to exploit first-mover advantages (Porter and Millar, 1985; Van de Ven, 1986). To these can be added the issue of slack resources which are a key issue in promoting innovation. In small firms with little slack innovation may be stifled. Genus (1995) points to the lack of clarity as to the meaning of flexibility, though its essence can be derived from synonyms such as robustness, which refers to a system’s ability to absorb or withstand the impacts of unpredicted events (Rosenhead et al., 1986) and versatility, the capability to respond to a range of future events or to modify behaviour quickly (Bonder, 1976).

There are two frameworks which might be used to demonstrate the actual or potential flexibility in SMEs. The more recent (Volberda, 1996), identifies four types of flexibility – steady-state, operational, structural and strategic and then maps these onto three organisational forms, rigid, planned and flexible. However, here, the concern is more with the process of flexibility attainment, especially via IS, and thus the framework devised by Evans (1991) and discussed in an information systems context by Eardley et al. (1997) is used. This identifies two aspects of strategic flexibility; temporal and intentional. The temporal aspect may be ex ante – preparing in advance for an unpredictable future change – or ex post – making adjustments after an event has occurred. Likewise, the intentional aspect may be offensive or defensive. Evans uses these to develop a framework of four manoeuvres, termed as pre-emptive, protective, corrective and exploitive.

As Eardley et al. (1997) identify, a pre-emptive manoeuvre allows a firm to take advantage of possible future events and is most useful where the future is unpredictable and where the exploitation of innovation is a tool of competition. Heidegger (1977) describes the actions of firms which create a domain into which new products, distribution channels or business methods can be introduced as ‘enframing’, implying that an options framework is set up, from which a future choice can be made. A robust strategy is one which creates and leaves open options, that is, it has the maximum number of reachable outcomes and will absorb changing circumstances and cater for objectives not being fully formulated. According to Eardley et al., pre-emptive manoeuvres imply some future tactical actions. Conversely, whereas pre-emptive tactics are put into effect before an unforeseen trigger, exploitive tactics are deployed after the event. Exploitive manoeuvres capitalise on the opportunities created by chance or pre-emptive tactics. A firm’s ability to use IS or IT to exploit these depends on its ability to identify situations appropriate to its IT skills and to develop the right IS quickly.

Protective manoeuvres applied before unpredictable events are contingencies which attempt to limit the damage caused by an unknown future. Insurance against an unsuccessful strategy is obtained by having a choice of options available. Evans includes the installation of buffers, such as large inventories, in this category. It is significant that applications of IT, such as just-in-time (JIT) systems aim to supplant these by improved use of information. A further protection is barriers to entry. There are numerous, mostly unsuccessful, examples of the use of IT and IS as a barrier to