Discussions on the formulation and implementation of strategic information systems and associated planning (SISP) has focused attention on the importance of the utilisation of ‘end-users’ of technology in organisations. This paper argues that the planning process itself tends to utilise approaches which support the envisionment of an organisation strategy but without encouraging the complimentary contribution of enabling key information and technology users to share the planned vision, or play a key part in its formulation. The focus of this paper is a study of those involved in ‘end-user computing’ (EUC), noted to be growing both in physical numbers and importance, who attempt to exploit technology for strategic purposes. Empirical evidence is presented which is related to concepts associated with the ‘stages of growth model’ to illustrate the opportunities and constraints of linking end-user activity to the strategic planning of information systems and technology (IS/IT).

A number of studies demonstrate that information systems and technology (IS/IT) applications within organisations have failed to deliver promised benefits (Hochstrasser, 1994; Willcocks, 1994; Murray & Dhillon, 1996). Indeed, there remains a relative mismatch between some of the theory and the sobriety of after-the-event analysis of practical benefits (Dhillon & Backhouse, 1996). It is also commonly argued that relative failures are due to the fact that technological application is not seen strategically enough by organisations (Ciborra, 1991; Galliers et al, 1995). In addition, users of IS/IT have for a number of years been increasingly less willing to be chauffeured by technically skilled support staff and have emerged as a key force (Culnan, 1983). It is also commonly suggested that it is the perceived dissatisfaction with delays and the inflexibility of the traditional IS department that has resulted in the emergence of end-user computing, a view confirmed by the empirical findings of this study. Chou (1996) notes that there is a clear and well identified movement from the former centralised systems prevalent in the 1980’s towards more individual and integrated management orientated systems. This will ultimately enable the exercise of greater control by users over technology based data and information resources. It is, therefore, important to consider the end-user influences and to make observations on their contribution to the strategic exploitation of IS/IT.
This paper seeks to interpret the importance attached to the role of end-users in strategic information systems planning (SISP). It argues that although organisations have begun to see the benefits of linking IS/IT planning to business strategy (Earl, 1989; Currie, 1995) they have fallen short of considering end-user perspectives in the IS/IT planning process. The research presented in this paper adopts aspects of Nolan’s stages of growth framework (Nolan, 1979). This is justified through the extensive adoption of Nolan’s concepts over recent years and most importantly its inclusion within the theoretical perspectives of the ‘critical success factors’ approach (Bullen & Rockart, 1981) and ‘strategic grid’ (McFarland & McKenny, 1983) which are widely applied as mechanisms for determining the extent of the development and exploitation of strategic organisational IS/IT applications. The stages of growth have also been used to collect empirical evidence and draw interpretations. The paper is organised into five sections. Following the introduction, various aspects of the stages of growth model for end-user computing are evaluated; the empirical evidence is presented in section three; this is followed by the analysis and discussion of the findings; finally conclusions and future research directions are presented.

Stages of Growth Theories

The term end-user has generated much debate in recent years and is commonly regarded as an over used, perhaps derogatory expression, for non-IS/IT specialists. It was originally coined to refer to people outside centralised IT departments who act on the information provided to them from corporate systems. An end-user is considered to be someone who is involved in the development and operation of any computing activities which would suggest that everyone is an end-user. Alavi (1985) gives a more specific definition of an end-user by suggesting that it is someone who creates the software specifications necessary to affect the computing itself. Typically an end-user is a middle manager who has little specialist training and is semi-skilled in the use of electronic information systems and technology. Significantly, end-users often have to adopt organisational planning techniques that would help them in meeting their perceived information needs. This has led to a number of ‘distinct methodologies’ where users are encouraged to intervene in the design of the systems for their benefit. Examples include, ETHICS (Mumford & Weir, 1979), Socio-Technical Systems (Pava, 1983) and more recently, the proliferation of Soft Systems Methodologies associated most closely with the profound and original work of Checkland (1981) and Checkland & Scholes, (1990).

Evidence suggests that increasingly users have been having a more direct involvement in the adoption, use and management of technologies. The direct involvement of users may be at three levels: simple command level manipulation of software, non-professionals becoming de facto experts in their own area and programming professionals writing software for others. Benjamin (1982) predicted that by 1990 end-user computing would consume 75% of the corporate computing resource. More recently Wastell and Sewards (1995) note that, at least in the manufacturing sector, by the year 2000, end-user computing is expected to increase to 40% of total IS/IT development. It appears that the end-user will continue to be a significant potential influence behind new IS/IT innovations in organisations.

To what extent, therefore, is the end-user of IS/IT an important influence for successful strategic IS developments and on-going enhancements? The proximity of an end-user and their intricate knowledge of information domains and associated work tasks, along with the increasing awareness of the potential (and limitations) of IS/IT, make them an important and powerful group for further study. As early as 1974, based on empirical observations from within large user organisations, Gibson & Nolan (1974) constructed a ‘maturity’ model. The original stages of growth model was later expanded from four to six stages by Nolan (1979) and included categories relating to, initiation, contagion, control, integration, data administration and maturity. While the model has by no means been accepted without question, despite its general appeal (Benbasat et al 1984), it is often seen as having some general analytical and heuristic value. Stages of growth theories continue, however, to evoke speculation and detailed academic analysis (Huff et al, 1988; Li & Rogers, 1991; Jayasuriya, 1993; Friedman, 1994; Wastell & Seward, 1995).

The stages of growth model did not predict the proliferation of IS/IT now increasingly available to middle managers. For instance, desktop client/server, which are often more powerful than central mainframes; e-mail and cooperative software which enable soft data handling internal and external to the organisation; internet and web services, which make vast and varied data sources available. More recent stages of growth models (Galliers 1991; Galliers & Sutherland, 1991) do reflect better the movement away from the conceptualisation of technology as broadly database technology. In these models, there is a key role for IS/IT users where the interaction between the increasingly business oriented IS function and skilled end-users becomes critical. In addition, other models such as the three era model (Ward & Griffiths, 1996; Somogyi & Galliers 1987; Wiseman, 1985) also have complimentary perspectives.

The stages of growth model helps to establish a link between the perspectives of the end-users and the IS/IT planning process. The inherent assumption is that the existing technology and the knowledge to apply it, at an individual and organisational level, determines the systematic position of the user in the IS/IT planning process itself. It is useful to consider the ‘eclectic’ nature of this situation where a combination of both a centralised system and a number of distributed smaller (end-user) systems are established within an organisation. Sullivan (1985) proposed such a model which included elements of Critical Success Factor (CSF) method-