Modelling for Change: An Information Systems Perspective on Change Management Models

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Abstract

This paper will focus on the topic of organisational change and its management from an information systems perspective. The paper will examine the issues raised during a review of the change management literature – looking at the major approaches to change management, namely, the planned, emergent and contingency approaches – as background to the issues raised in other papers in this theme of the book. As in the Management In The 90s (MIT90s) study, a very broad definition of the term IT is used to include: computers of all types, hardware, software, communications networks and the integration of computing and communications technologies. The paper will then examine change management within the context of Information Systems (IS) theory and practice. This will lead to a discussion of an emerging model by Orlikowski and Hofman which will be briefly reviewed to provide insight into the types of models which are likely to provide a focus for research in the area in the near future. The model also provides a strong and interesting framework against which to view some of the papers that follow in this theme of the book.

1. Introduction

As we approach the twenty first century there can be little doubt that successful organisations of the future must be prepared to embrace the concept of change management. Change management has been an integral part of organisational theory and practice for a long time, however, many theorists and practitioners now believe that the rate of change that organisations are subjected to is set to increase significantly in the future. Indeed, some even go so far as to suggest that the future survival of all organisations will depend on their ability to successfully manage change (Burnes 1996; Peters 1989; Toffler 1983).

It could be argued that the study of organisational change management should be the preserve of the social scientist or the business manager. After all, much of the theory has evolved from social and business studies and not from the field of computer science. However, information systems do not exist in a vacuum and It is widely accepted that technology, particularly Information Technology (IT), is one of the major enablers of organisational change (Markus and Benjamin 1997; Scott-Morton 1991). The successful development of any information system must address sociological issues including the effects of the system itself on the organisation into which it is introduced. Paul (1994) maintains that information systems must be developed specifically for change as they must constantly undergo change to meet changing requirements. Clearly, organisational change is an important issue

This paper will focus on the topic of organisational change management from an information systems perspective. The paper will examine the issues raised during a review of the change management literature as background to the issues raised in other papers in this theme of the book. As in the Management In The 90s (MIT90s) study (Scott-Morton 1991), a very broad definition of the term IT is

used to include: computers of all types, hardware, software, communications networks and the integration of computing and communications technologies.

2. Overview of the Field

Many of the theories and models relating to the management of organisational change have evolved from the social sciences (Burnes 1996; Bate 1994; Dawson 1994). Information Systems (IS) research is of course a much newer discipline. However, the socio-technical nature of information systems is now recognised and many of the IS theories and models have been adopted and adapted from the social sciences (Yetton *et al.* 1994; Benjamin and Levinson 1993).

This paper presents a discussion on the change management literature drawn from a social science perspective which is then related to an IS perspective of IT-enabled change. We will begin by giving a broad overview of change management and examining the nature of change and its applicability to the IS field. We will then briefly examine the foundations of change management theory. Specifically, the three main theories that underpin the different approaches to change management are examined which concentrate on individual, group and organisation-wide change respectively.

The paper will then examine the major approaches to change management, namely, the planned, emergent and contingency approaches. The planned approach to change, based on the work of Lewin (1958), has dominated change management theory and practice since the early 1950s. The planned approach views the change process as moving from one fixed state to another. In contrast, the emergent approach, which appeared in the 1980s (Burnes 1996), views change as a process of continually adapting an organisation to align with its environment. The contingency approach is a hybrid approach which advocates that there is not 'one best way' to manage change.

The paper will then examine change management within the context of Information Systems (IS) theory and practice. In particular, the paper will investigate the fundamental characteristics of IT-enabled change and will discuss how this is different to the management of change in pure social systems.

Finally, the Improvisational Change Model proposed by Orlikowski and Hofman (1997) will be examined in detail. This model is based on the same principles as the emergent approach to change management and, similarly, Orlikowski and Hofman (1997) maintain that their model is more suitable than the traditional Lewinian models for modern, networked organisations using adaptive technologies.

3 Change Management

Although it has become a cliché, it is nevertheless true to say that the volatile environment in which modern organisations find themselves today mean that the ability to manage change successfully has become a competitive necessity (Burnes 1996; Kanter 1989; Peters and Waterman 1982). The aim of this section is to provide a broad overview of the substance of change and of change management.

Organisational change is usually required when changes occur to the environment in which an organisation operates. There is no accepted definition of what constitutes this environment, however, a popular and practical working definition is that the environmental variables which influence organisations are political, economical, sociological and technological (Jury 1997).

Change has been classified in many different ways. Most theorists classify change according to the type or the rate of change required and this is often referred to as the substance of change (Dawson 1994). Bate (1994) proposes a broad definition for the amount of change which he argues may be either *incremental* or *transformational*. Bate maintains that incremental change occurs when an organisation makes a relatively minor change to its technology, processes or structure whereas transformational change occurs when radical changes programmes are implemented. Bate also argues that modern organisations are subject to continual environmental change and consequently they must constantly change to realign themselves.

Although there is a general recognition for the need to successfully manage change in modern organisations, questions regarding the substance of change and how the process can be managed in

today's context remain largely unanswered. There are numerous academic frameworks available in the management literature that seek to explain the issues related to organisational change and many of these frameworks remain firmly rooted in the work of Lewin (1958). Dawson (1994) points out that, almost without exception, contemporary management texts uncritically adopt Lewin's 3-stage model of planned change and that this approach is now taught on most modern management courses. This planned (Lewinian) approach to organisational change is examined in detail later in the paper.

Information systems are inherently socio-technical systems and, therefore, many of the theories and frameworks espoused by the social sciences for the management of change have been adopted by the IS community. Consequently, even the most modern models for managing IT-enabled change are also based on the Lewinian model (Benjamin and Levinson 1993). Figure 1 depicts the most popular and prominent models for understanding organisational change which are examined in detail in later sections of this paper. These models will be subsequently be compared with the main change management models adopted by the IS community.

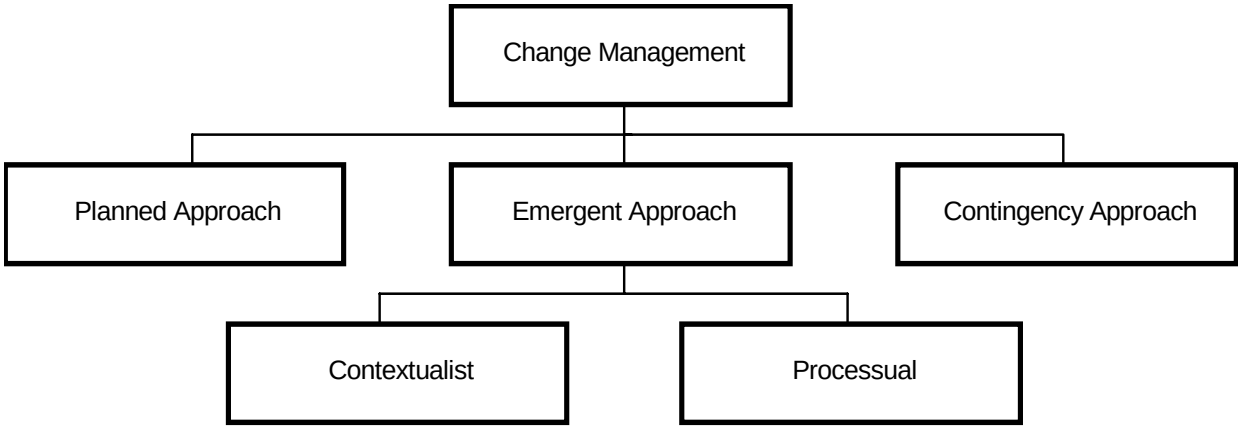

Figure 1. - Principal Change Management Models

4 Theoretical Foundations

Change management theories and practice originate from different, diverse, social science disciplines and traditions. Consequently, change management does not have clear and distinct boundaries and the task of tracing its origins and concepts is extremely difficult. This section will briefly examine the foundations of change management theory as these foundations underpin later discussions concerning the most prominent models for understanding organisational change.

Whatever form change takes and whatever the required outcomes of any change initiative, managers responsible for implementing change must address the management issues at either an individual, group or organisational level. It may also be argued that a successful change programme must address the management issues at all levels. Three of the main theories upon which change management theory stands are: the individual, group dynamics and the open systems perspectives which are summarised in the remainder of this section.

4.1 The Individual Perspective

The individual perspective school is divided into two factions know as the Behaviourists and the Gestalt-Field psychologists. Behaviourists believe that behaviour is caused by an individual's interaction with the environment. The basic principle of this approach, which originates from Pavlov's (1927) work, is that human actions are conditioned by their expected consequences. Put simply, this means that rewarded behaviour is repeated while ignored behaviour tends not to be repeated. Gestalt-Field protagonists, however, believe that behaviour is not just caused by external stimuli, but that it arises from how an individual uses reason to interpret these stimuli. Behaviourists attempt to effect organisational change by modifying the external stimuli acting upon the individual whereas Gestalt-

Field theorists seek to change individual self-awareness to promote behavioural and thus organisational change.

4.2 The Group Dynamics Perspective

Group dynamics theorists believe that the focus of change should be at the group or team level and that it is ineffectual to concentrate on individuals to bring about change as they will be pressured by the group to conform. The group dynamics school has been influential in developing the theory and practice of change management and of all the schools they have the longest history (Schein 1969). Lewin (1958) maintains that the emphasis on effecting organisational change should be through targeting group behaviour rather than individual behaviour since people in organisations work in groups and, therefore, individual behaviour must be seen, modified or changed to align with the prevailing values, attitudes and norms (culture) of the group. The group dynamics perspective manifests itself as the modern management trend for organisations to view themselves as teams rather than merely as a collection of individuals.

4.3 The Open Systems Perspective

Proponents of the open systems perspective believe that the focus of change should be neither on the individual nor on the group but that it should be on the entire organisation (Burnes 1996). Organisations are viewed as a collection of interconnected sub-systems and the open systems approach is based on analysing these sub-systems to determine how to improve the overall functioning of the organisation. The sub-systems are regarded as *open* because they interact not only internally with each other but also with the external environment. Therefore, internal changes to one sub-system affect other sub-systems which in turn impact on the external environment (Buckley 1968). The open systems perspective focuses on achieving overall synergy rather than on optimising any one individual sub-system (Mullins 1989).

Burke (1980) maintains that this holistic approach to understanding organisations is reflected in an different approach to change management which is driven by three major factors: interdependent sub-systems, training and management style. An organisation's sub-systems are regarded as interdependent and Burke argues that change cannot occur in one sub-system in isolation without considering the implications for the other sub-systems. He also argues that training cannot achieve organisational change alone as it concentrates on the individual and not the organisational level. Burke also maintains that modern organisations must adopt a consultative management approach rather than the more prevalent controlling style epitomised by Taylor’s (1911) famous work.

5 The Planned Approach

Much of the literature relating to the planned approach to organisational change is drawn from Organisational Development (OD) practice and numerous OD protagonists have developed models and techniques as an aid to understanding the process of change (Dawson 1994). The origins of most of the developments in this field can be traced to the work of Lewin (1958) who developed the highly influential Action Research and Three-Phase Models of planned change which are summarised in the remainder of this section.

5.1 The action research model

Lewin (1958) first developed the Action Research (AR) model as a planned and collective approach to solving social and organisational problems. The theoretical foundations of AR lie in Gestalt-Field and Group Dynamics theory. Burnes (1996) maintains that this model was based on the basic premise that an effective approach to solving organisational problems must involve rational, systematic analysis of the issues in question.

AR overcomes “paralysis through analysis” (Peters and Waterman 1982: 221) as it emphasises that successful action is based on identifying alternative solutions, evaluating the alternatives, choosing the optimum solution and, finally, that change is achieved by taking collective action and implementing

the solution. The AR approach advocates the use of a change agent and focuses on the organisation, often represented by senior management. The AR approach also focuses on the individuals affected by the proposed change. Data related to the proposed change is collected by all the groups involved and is iteratively analysed to solve any problems. Although the AR approach emphasises group collaboration, Burnes (1996) argues that cooperation alone is not always enough and that there must also be a 'felt-need' by all the participants.

5.2 The three-phase model

Lewin's ubiquitous Three-Phase model (1958) is a highly influential model that underpins many of the change management models and techniques today (Burnes 1996; Dawson 1994). The main thrust of this model is that an understanding of the critical steps in the change process will increase the probability of successfully managing change. Lewin (1958) also argues that any improvement in group or individual performance could be prone to regression unless active measures are take to institutionalise the improved performance level. Any subsequent behavioural or performance change must involve the three-phases of unfreezing the present level, moving to a new level and re-freezing at the new level. Lewin (1958) argues that there are two opposing sets of forces within any social system; these are the driving forces that promote change and the resisting forces that maintain the status quo. Therefore, to unfreeze the system the strength of these forces must be adjusted accordingly. In practice the emphasis of OD practitioners has been to provide data to unfreeze the system by reducing the resisting forces (Dawson 1994). Once these negative forces are reduced the organisation is moved towards the desired state through the implementation of the new system. Finally, re-freezing occurs through a program of positive reinforcement to internalise new attitudes and behaviour. Burnes (1996) argues that this model merely represents a logical extension to the AR model as unfreezing and moving respectively equate to the research and action phases of the AR model.

Lewin's Three-Phase model of planned change has since been extended by numerous theorists to enhance its practical application including the Lippitt et al.'s (1958) seven-phase model and the Cummings and Huse (1989) eight-phase model. All these models are based on the planned approach to change management and, according to Cummings and Huse (1989), they all share one fundamental concept: "the concept of planned change implies that an organisation exists in different states at different times and that planned movement can occur from one state to another".

The implications of this concept are that an understanding of planned organisational change cannot be gained by simply understanding the *processes* which bring about change, it is also necessary to understand the *states* that an organisation passes through before attaining the desired future state (Burnes 1996).

6. The Emergent Approach

Within the social sciences, an approach described by Burnes (1996) as the emergent approach is a popular contemporary alternative to the planned approach to the management of change. The emergent approach was popularised in the 1980s and includes what other theorists have described as processual or contextualist perspectives (Dawson 1994). However, these perspectives share the common rationale that change cannot and should not be 'frozen' nor should it be viewed as a linear sequence of events within a given time period as it is with a planned approach. In contrast, with an emergent approach, change is viewed as a continuous process.

The modern business environment is widely acknowledged to be dynamic and uncertain and consequently, theorists such as Wilson (1992) and Dawson (1994) have challenged the appropriateness of a planned approach to change management. They advocate that the unpredictable nature of change is best viewed as a process which is affected by the interaction of certain variables (depending on the particular theorist's perspective) and the organisation.

Dawson (1994) proposed an emergent approach based on a processual perspective which he argues is not prescriptive but is analytical and is thus better able to achieve a broad understanding of change management within a complex environment. Put simply, advocates of the processual perspective maintain that there cannot be a prescription for managing change due to the unique temporal and contextual factors affecting individual organisations. Dawson succinctly summarises this perspective,

saying that “change needs to be managed as an ongoing and dynamic process and not a single reaction to adverse contingent circumstance”.(Dawson 1994:182).

For advocates of the emergent approach it is the uncertainty of the external environment which makes the planned approach inappropriate. They argue that rapid and constant changes in the external environment require appropriate responses from organisations which in turn force them to develop an understanding of their strategy, structure, systems, people, style and culture and how these can affect the change process (Dawson 1994; Pettigrew and Whipp 1993; Wilson 1992). This has in turn led to a requirement for a ‘bottom-up’ approach to planning and implementing change within an organisation. The rapid rate and amount of environmental change has prevented senior managers from effectively monitoring the business environment to decide upon appropriate organisational responses. Pettigrew and Whipp (1993) maintain that emergent change involves linking action by people at all levels of a business. Therefore, with an emergent approach to change, the responsibility for organisational change is devolved and managers must take a more enabling rather than controlling approach to managing.

Although the proponents of emergent change may have different perspectives there are, nevertheless, some common themes that relate them all. Change is a continuous process aimed at aligning an organisation with its environment and it is best achieved through many small-scale incremental changes which, over time, can amount to a major organisational transformation. Furthermore, this approach requires the consent of those affected by change it is only through their behaviour that organisational structures, technologies and processes move from abstract concepts to concrete realities (Burnes 1996).

7. The Contingency Approach

Burns and Stalker (1961) established a contingent relationship between an organisation and its environment and the need to adapt to that environment. Perhaps more importantly, they also showed that there was more than ‘one best way’ to do this. In contrast to both the planned and the emergent approaches to change management, the basic tenet of the contingency approach to change management is that there is no ‘one best way’ to change.

Although British theorists acknowledge that contingency theory has contributed significantly to organisational design theory, they do not acknowledge that it has had the same impact on change management theory (Burnes 1996; Bate 1994). However, within North America and Australia a rational model of change based on a contingency perspective has prevailed therefore this section will briefly discuss this approach (Dawson 1994).

A contingency approach has been taken by Dunphy and Stace (1993) who proposed a model of organisational change strategies and developed methods to place an organisation within that model. Dunphy and Stace (1993) maintain that their model reconciles the opposing views of the planned and emergent theoretical protagonists.

It can be argued that the planned and emergent approaches to change management are equally valid but that they apply to different organisational circumstances. For example an organisation facing constant and significant environmental changes may find an emergent approach to change management more appropriate than a planned approach. In short, a model of change could embrace a number of approaches with the most suitable approach being determined by the organisation's individual environment. The resultant continuum can be seen in Figure 2:

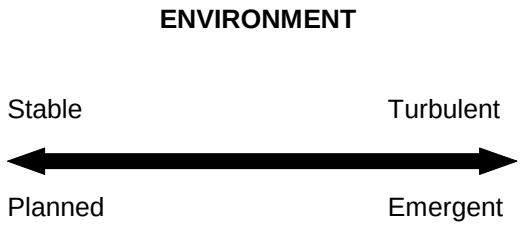

Figure 2 - The Change Management Continuum (from Burnes 1996: 197)

Contingency theory is a rejection of the 'one best way' approach taken by the majority of change management protagonists. This approach adopts the perspective that an organisation is 'contingent' on the situational variables it faces and therefore, organisations must adopt the most appropriate change management approach.

8. IT-Enabled Organisational Change

Previous sections of this paper have dealt with the different approaches to managing organisational change taken from a social science perspective. Regardless of which model is adopted, the requirement for an organisation to change is generally caused by changes in its environmental variables which many academics and practitioners agree are political, economic, sociological and technological (Jury 1997; Scott-Morton 1991). This section will focus on one of these environmental variables, namely technology, in the specific form of IT, and will examine the major issues that are particular to IT-enabled change.

Woodward's (1965) study demonstrated the need to take into account technological variables when designing organisations and this gave credibility to the argument for technological determinism which implies that organisational structure is 'determined' by the form of the technology. However, despite the general acceptance that the application of change management techniques can considerably increase the probability of a project's success, many IT-enabled change projects have failed for non-technical reasons. Some projects, such as the London Ambulance Service Computer Aided Dispatch System have failed with fatal consequences (Benyon-Davies 1995). Markus and Benjamin (1997) attribute this to what they describe as the magic bullet theory of IT whereby IT specialists erroneously believe in the magic power of IT to create organisational transformation. Some academics argue that although IT is an *enabling* technology it cannot by itself *create* organisational change (Markus and Benjamin 1997; McKersie and Walton 1991).

McKersie and Walton (1991) maintain that to create IT-enabled organisational change it is necessary to actively manage the changes. They also argue that the effective implementation of IT is, at its core, a task of managing change. The Management In The 1990s (MIT90) program (Scott-Morton 1991) proposed a framework for understanding the interactions between the forces involved in IT-enabled organisational change. A simplified adaptation of this framework is shown in Figure 3.

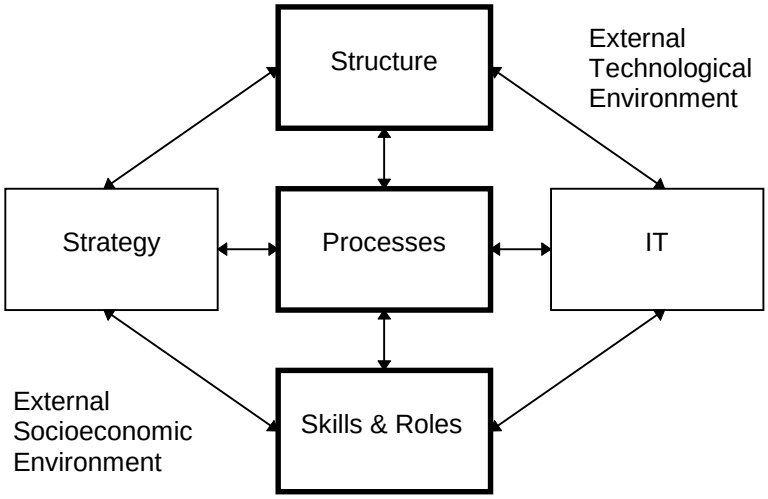

Figure 3. - Adapted From The MIT90s Framework (Scott-Morton 1991)

Proponents of the MIT90s model maintain that to successfully manage IT-enabled change it is necessary to ensure that the organisational choices, the technology and the strategic choices depicted in Figure 2.3 are properly aligned (Scott-Morton 1991). In contrast however, Yetton *et al.* (1994) challenge the view that the critical issue in managing IT successfully is alignment. They argue that IT can be used deliberately to modify an organisation's strategy and also that the MIT90s framework is a static model that does not address the dynamic nature of change. Nonetheless, despite this criticism, the MIT90s study has been highly influential to IS academics and practitioners (Yetton *et al.* 1994; Benjamin and Levinson 1993). The MIT90s study concluded that the benefits of IT are not generally being realised by organisations because investment is biased towards technology and not towards managing changes in organisational processes, structure and culture.

Benjamin and Levinson (1993) maintain that IT-enabled change is different from change which is driven by other environmental concerns. They argue that skills, jobs and organisational control processes change radically. Zuboff (1988) also described the revolutionary changes in jobs and control processes within organisations that take full advantage of IT as workers become 'informated' and thus empowered. Ives and Jarvenpaa (1994) provide a vision of the affect of IT-enabled changes on basic work methods as organisations become global networked organisations to take advantage of collaborative work methods. IT-enabled changes also span across functions and organisations as technology enables increased inter and intra-organisational coordination with decreased transaction costs (Kalakota and Whinston 1996).

Many academics and practitioners would agree that IT-enabled change is different from more general change processes and that change must be managed to be successful (Yetton *et al.* 1994; Benjamin and Levinson 1993). Clearly, the change process must be understood to be managed and a number of models have been proposed for this. One such model is Benjamin and Levinson's (1993) which draws on the general change management literature to develop a framework for managing IT-enabled change. This framework is typical of many IS change models (Orlikowski and Hofman 1997) which have been adopted and adapted from the social sciences and are based on the Lewinian unfreeze, change and re-freeze approach to change management discussed previously. However, in a situation reminiscent of the developments within the social sciences, a number of new IT-enabled change management models are now emerging which are based on the emergent or contingent approaches to change management.

9. Orlikowski and Hofman's Improvisational Change Model

A key example of this type of model is presented by Orlikowski and Hofman (1997). We will review this model here to provide insight into the types of models which are likely to provide a focus for research in the area in the near future. The model also provides a strong and interesting framework against which to view some of the papers that follow in this theme of the book. Theirs is an improvisational model for managing technological change which is an alternative to the predominant Lewinian models. They maintain that IT-enabled change managers should take as a model the Trukese

navigator who begins with an objective rather than a plan and responds to conditions as they arise in an ad-hoc fashion. They also argue that traditional Lewinian change models are based on the fallacious assumption that change occurs only during a specified period whereas they maintain that change is now a constant. This is similar to the arguments of the proponents of the emergent change management approach which were examined earlier in this paper.

The origins of Orlikowski and Hofman's (1997) Improvisational Change Model can be found in a study by Orlikowski (1996) which examined the use of new IT within one organisation over a two year period. The study concluded by demonstrating the critical role of situated change enacted by organisational members using groupware technology over time. Mintzberg (1987) first made the distinction between deliberate and emergent strategies and Orlikowski (1996) argues that the perspectives which have influenced studies of IT-enabled organisational change have similarly neglected *emergent* change. Orlikowski challenges the arguments that organisational change must be planned, that technology is the primary cause of technology-based organisational transformation and that radical changes always occur rapidly and discontinuously. In contrast, she maintains that organisational transformation is an ongoing improvisation enacted by organisational actors trying to make sense of and act coherently in the world.

9.1 Model assumptions and types of change

Orlikowski and Hofman's (1997) Improvisational Change Model is based on two major assumptions. First, that changes associated with technology implementations constitute an ongoing process rather than an event with an end point after which an organisation can return to a state of equilibrium. Second, that every technological and organisational change associated with the ongoing process cannot be anticipated in advance. Based on these assumptions, Orlikowski and Hofman (1997) have identified three different types of change:

- Anticipated Change. Anticipated changes are planned ahead of time and occur as intended. For example the implementation of e-mail that accomplishes its intended aim of facilitating improved communications.

- Opportunity-Based Change. Opportunity-Based changes are not originally anticipated but are intentionally introduced during the ongoing change process in response to an unexpected opportunity. For example, as companies gain experience with the World Wide Web they may deliberately respond to unexpected opportunities to leverage its capabilities.

- Emergent Change. Emergent changes arise spontaneously from local innovation and that are not originally anticipated or intended. For example the use of e-mail as an informal grapevine for disseminating rumours throughout an organisation.

Orlikowski and Hofman (1997) maintain that both anticipated and opportunity-based changes involve deliberate action in contrast to emergent changes which arise spontaneously and usually tacitly from organisational members' actions over time. Furthermore, they contend that the three types of change usually build iteratively on each other in an undefined order over time. They also argue that practical change management using the Improvisational Change Model requires a set of processes and mechanisms to recognise the different types of change as they occur and to respond effectively to them.

9.2 Critical enabling conditions

Orlikowski and Hofman (1997) suggest that there are certain enabling conditions which must be fulfilled to allow their Improvisational Change Model to be successfully adopted for implementing technology within an organisation. The first of these enabling conditions is that dedicated resources must be allocated to provide ongoing support for the change process which Orlikowski and Hofman (1997) maintain is inherently continuous. They also suggest that another enabling condition is the interdependent relationship between the organisation, the technology and the change model as depicted in Figure 4.

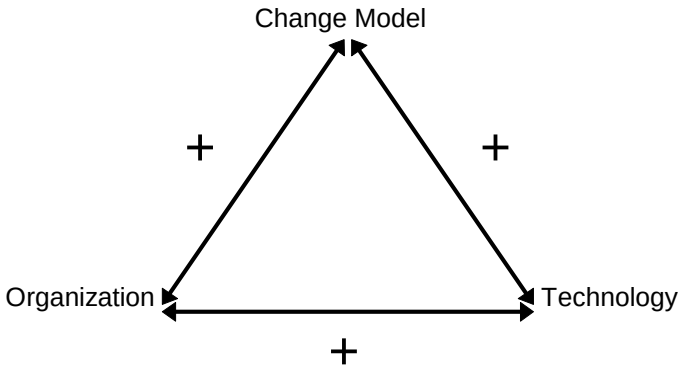

Figure 4. - Aligning the Key Change Dimensions (from Orlikowski and Hofman 1997: 18)

Orlikowski and Hofman's (1997) research suggested that the interaction between these key change dimensions must ideally be aligned or at least not in opposition. Their research also suggested that an Improvisation Change Model may only be appropriate for introducing open-ended technology into organisations with adaptive cultures. Open-ended technology is defined by them as technology which is locally adaptable by end users with customisable features and the ability to create new applications. They maintain that open-ended technology is typically used in different ways across an organisation. Orlikowski and Hofman appear to share similar views to the contingency theorists discussed earlier as they do not subscribe to the view that there is 'one best way' for managing IT-enabled change.

Orlikowski's (1996) research, upon which Orlikowski and Hofman's (1997) Improvisational Change Model is based, concluded that further empirical research was needed to determine the extent to which an improvisational perspective of organisational change is useful in other contexts and how different organisational and technological conditions influence the improvisations attempted and implemented. Orlikowski and Hofman's (1997) Improvisational Change Model is a first attempt at moving this research theme forward and it is an area which is likely to grow in importance over the next few years.

10. Summary

The dominant theories and models relating to the management of change have evolved from the social sciences. IS research is relatively much newer and the socio-technical nature of information systems has caused most IS theories and models to be adapted from the social sciences. The main theories that provide the foundation for general change management approaches are the individual, group dynamics and the open systems perspectives. The planned approach to change management tends to concentrate on changing the behaviour of individuals and groups through participation. In contrast, the newer emergent approach to change management focuses on the organisation as an open system with its objective being to continually realign the organisation with its changing external environment.

Lewin's (1958) model is a highly influential planned approach model that underpins many of the change management models and techniques today and most contemporary management texts adopt this 3-phase unfreeze, change and re-freeze model. The rationale of the newer emergent approach is that change should not be 'frozen' or viewed as a linear sequence of events but that it should be viewed as an ongoing process. Contingency theory is a rejection of the 'one best way' approach taken by planned and emergent protagonists. The contingency approach adopts the perspective that an organisation is 'contingent' on the situational variables it faces and, therefore, it must adopt the most appropriate change management approach.

Many IT-enabled change projects fail despite the general acceptance that change management can considerably increase the probability of a project's success. This is often attributable to the misconception that IT is not only an *enabling* technology but that it can also *create* organisational change. The highly influential MIT90s framework is useful for understanding the interactions between the forces involved in IT-enabled organisational change which must be aligned to create successful organisations.

IT-enabled change is different from changes driven by other environmental concerns and the process must be understood to be managed. Consequently, many IS change models have adopted and adapted the Lewinian unfreeze, change and re-freeze approach to change management. However, in a situation reminiscent of the developments within the social sciences, a number of new IT-enabled change management models are now emerging which are based on the emergent or contingent approaches to change management.

Orlikowski and Hofman (1997) have proposed an improvisational model for managing technological change as one alternative to the predominant Lewinian models. This improvisational model is based on the assumptions that technological changes constitute an ongoing process and that every change associated with the ongoing process cannot be anticipated beforehand. Based on these assumptions Orlikowski and Hofman (1997) have identified three different types of change, namely, anticipated, opportunity-based and emergent changes. Both anticipated and opportunity-based changes involve deliberate action in contrast to emergent changes which arise spontaneously and usually tacitly from organisational actors' actions over time. These three types of change build iteratively on each other in an undefined order over time. Orlikowski and Hofman (1997) suggest that the critical enabling conditions which must be fulfilled to allow their Improvisational Change Model to be successfully adopted for implementing technology are aligning the key dimensions of change and allocating dedicated resources to provide ongoing support for the change process.

The review of models of change presented in this paper provides background for the following papers in this theme, and provides a developing research perspective against which to view the issues discussed by the other authors.

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