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Organisational Readiness for ERP Implementation

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Abstract

An ERP implementation is a significant intervention in organisational life. As such, it affects and is affected by many variables including the organisation's culture, decision-making strategies, risk taking orientation, leadership strategies and perceptions of the value of Information Technology. For organisations to achieve business benefit in their ERP implementation, the implementation must be short, raise appropriate issues for business to make decisions on, and effectively implement those decisions.. This paper describes the research program being undertaken to identify the variables that inhibit an ERP implementation.

Background

Enterprise Resource Planning Systems have been adopted by over 60% of Fortune 500 companies in the USA. This trend has affected the public sector as well. In Australia, state and federal government agencies have adopted ERPs, with SAP R/3, Peoplesoft and a local product Mincom's MIMs being most successful. Of these competitors, SAP R/3 has secured the majority of sites.

The ERP Selection processes are undertaken by the usual means of determining the mandatory and desirable features required in a system, and then evaluating the various products according to these requirements. The implementation processes, however, appear to be undertaken in a manner quite distinct from the accepted means of developing large systems in-house. In addition, the decision to adopt an ERP system often becomes mandated by some central authority, changing the involvement of the users, business units, and the executive managers and senior managers within the business units. Therefore, user commitment to the decision outcome to adopt an ERP may be reduced. These aspects can be addressed through change management programs. The success of such programs

requires effective leadership to achieve the end, gain commitment and achieve business benefit through process improvement.

ERP implementations are fundamentally agents for organisational change, and such change requires effective leadership practices, beyond the focus of personal qualities and technical skills. ERP benefit lies in achieving business performance improvement and this requires effort for process redesign. Any such process change involves risk and the organisation's orientation to risk in terms of adoption or failure avoidance may be a critical variable in an ERP implementation. In addition, the adoption of a large alien system replacing homegrown systems is a significant change to the enshrined organisational practices and sense of ownership.

In addition, the upgrade of a current ERP installation to a later installation is also a significant change event for the organisation. Often the benefits of the ERP have not been achieved in the first iteration, and the upgrade surfaces the same issues related to changing business processes, business process redesign and optimisation, and altering the structure of the organisation to a process orientation, or to improve workflow.

Thus, in both initial ERP implementations and ERP upgrades, we suggest that the issues of organisational culture relating to risk orientation and user involvement are key ERP implementation variables. Leadership practices within the change management programs are important in overcoming resistance, but leadership alone may not overcome other cultural aspects impeding the adoption and exploitation of and ERP. We propose a research program to identify organisational barriers to ERP implementation that commences with a review of organisational culture, leadership and risk orientation.

We commence understanding organisational readiness for ERP implementation, by examining the concept of implementation. From this, we identify several essential interacting concepts: organisational culture, leadership, change management, and risk orientation. From this review of the literature, we propose a research program that has, as its goal, the development of a benchmark of organisational readiness

for ERP implementation. We then discuss how this benchmark leads to the development of a change management program designed to improve organisational practice and thus position the firm to succeed in its intended implementation.

Prior Research into Implementation Issues

Within Information Systems Research, there has been a long tradition of implementation research. This has sought to conceptualize the implementation process, identify the factors, which lead to implementation success or failure and then provide normative, prescriptive or descriptive strategies which practitioners can use to solve implementation problems.

Lucas (1981) defined implementation as the whole process of introducing a system into an organization, from conception of an idea, to analysis, design, installation and operation. Olson and Davis (1984) defined implementation as preparing an organization to receive an information system for its effective use. Other conceptions of implementation have included implementation as a process of influence (Gibson, 1975), implementation as an interaction between designer and user (Ginsburg and Ramsey, 1975; Lucas, 1981), implementation as problem solving (Mitroff, 1975), and implementation as accommodating to the environment (Bean, 1977). Sauer (1993) sees implementation in terms of reducing the uncertainty around the problematic relationships amongst the Information System, the project organization responsible for delivering the system, and the system's supporters.

The nature of implementation research has shifted as successive generations of researchers and practitioners have observed and commented on the implementation process. Likert (1966) showed that interdependencies between structure, task, technology and people are involved in such major interventions into organisations. A change to any component necessarily implies a change to other components. The outcome of an implementation is not just the change of technology, but the change of tasks, structures and personnel. Indeed, it is the increased scope of an ERP and the related workflow changes that brings increased risks, as well as increased benefits to organisations.

We conjecture that the scope of an ERP implementation is fundamentally different to other large system development projects. We see significant change in technology through the move to client server and web-based browser systems. We see significant change in task through the change of business process by adopting new process models external to the organisation. There is also a significant change in structure through moving to a process view of the organisation that supervene the existing functional models used in most organisations.

Implementation may be seen as technology diffusion through a social system. In this model, effective implementation of information system has three phases: adoption, introduction and diffusion. The maximum feasible participation by stakeholders or clients is used to bring about an alignment of technological and organizational requirements. One inhibitor of this alignment is the relationship between business and IT (Luftmann, Papp and Brier 1999), the history of IT adoption within the organisation (Willcocks, Feeny and Islei 1997, Stewart 1999) and the leadership found expressed by the IT executive (Earl 1989, Hirschheim 1984). These variables become critical elements of the operant organisational culture.

McKersie and Walton (1991) see three broad subtasks to the implementation process and expand the role of the organization in "*designing the IT system and the organization that will operate it, developing enabling human resource policies and managing the implementation process.*" With this socio-technical approach, both the requirements of the technology and the requirements of the organisation are taken into account simultaneously. McKersie and Walton find that different types of IT result in a unique pattern of motivation, competence and coordination of groups and individuals involved in the process of implementation.

An ERP implementation impacts the motivation, training and competence of the existing staff. Coordination between business units becomes more important as the interfaces between functions are examined through the adoption of a process model of the organisation. User involvement in the implementation is qualitatively different to that found in large system builds as the degree of choice in process design and system design is reduced to that of selecting an option and accepting the computer-human interface of the package. Thus, a socio-technical analysis (which consists of an examination of structure, responsibilities, decision-making, skills, human support systems, symbols, and style) is, in fact, a review of the operant organisational culture. We next examine means of measuring such culture.

Organisational Culture Influence on Implementations

Organizational culture can take many forms. Hodges and Hernandez (1999), state that, "Culture in organizations can be thought of as the beliefs, values, and meanings shared by members of an organization." Bliss (1999) agrees with this view and goes on to state that the 'desired' organization culture and the 'actual' organization culture are often worlds apart. It is important to understand how these variations effect the ERP implementation process.

Hofstede et al (1990) indicated that the term "organizational culture" is believed to have entered the U.S. academic literature as late as 1979 and that notes that there is no consensus about its definition. Most authors agree on the following characteristics of the organizational/corporate culture construct: holistic, historically determined, related to anthropological concepts, socially constructed, soft, and difficult to change.

Thus, a multi-method approach to characterising operant culture is required, one that is situated within the historical evolution of the organisation and re-invented by the current members of that organisation. Though an ERP implementation is a new process for the organisation, its expectations for the system and for the process of adoption will be informed by the historical experiences associated with large system builds.

Organisational culture is known to be important in the success of projects involving significant organizational change. Ettlie (1998) simply believes that the key to success is organizational culture change. Kampmeier (1998) states that one reason for many ERP failures is that we pay insufficient attention to the culture of the organizations with which we work. Schneider (1999) reports that many companies have paid the price for ignoring corporate culture in the rush to implement an ERP system. Capron and Kuiper (1998), state that even though most companies are unwilling to admit it, there is often, much in the corporate ethos and culture that negatively impacts the likelihood of success.

The implementation of an ERP is likely to produce widespread organizational changes because of the scope of such solutions. An organization's existing culture is therefore likely to have profound effects on the planning process, the implementation process and in the operation of the completed project. The areas that commonly cause problems are related to user empowerment and user responsibility and are likely to have been initiated and entrenched by certain types of leadership styles.

Cooper (1994), states that many other factors can produce user resistance to IT implementation and details two different kinds of resistance when an IT conflicts with an organization's culture: 1). Implementation failure through an undermining of the analysis and design process, leading to an under-utilization of the system once implemented, or a sabotaging of the implemented system. 2). An adaptation of the IT during implementation or use so that any conflicts with the existing culture are diminished.

Gregory (1993) concludes that there may be four hypothesized categories of organisational obstacles: 1). Bureaucratic Complexity, 2).Personality Conflict, 3). Technical Complexity and 4).Acute Resource Scarcity. A research objective is to operationalise each of these

variables and to find behaviour modification programs for ameliorating their effects.

The FoxMeyer (Scott, 1999) and Dell disasters have been well documented and the causes of each failure analysed. A question that appears not to have been addressed when comparing these two implementation failures is what made one of them a disaster leading to bankruptcy and for the other merely a financial embarrassment. Did these companies both have the type of corporate cultures that allowed its executives to make mistakes and to survive, as described in Salpukas (1999)? Did both these companies have an empowered organization as described by Rittenhouse (1997)? Did both these companies have a competitive culture rather than a non-competitive or anti-competitive one as described by Campos and Cunha (1998)? Other scales for an ERP Readiness Test are suggested by these papers: risk orientation, user involvement and empowerment and expressed leadership.

Existing cultural measurement instruments do not consider these aspects. Thus, research is required to develop a set of scales that will benchmark performance in each of these dimensions.

Risk Orientation

In an environment where rewards are given for the absence of failure rather than for an acknowledgement of success, the concept of risk taking is both difficult to appreciate and difficult to explain to individuals who have developed in risk averse or risk neutral cultures. Fisher (1997) suggests that the working culture has programmed learned helplessness and non-responsibility into workers, where obedience takes precedence over initiative, discipline over risk taking and where showing up for work every day is considered fulfillment of the work contract. Reprogramming workers into a climate of risk taking and contribution remains the challenge that takes intelligence, creativity, patience, time and expert cultural engineering, rather than faddish practices and quick fixes.

Developing a risk culture is inevitably linked with user empowerment and can only be developed once the employee has been empowered. It would appear that risk is involved in EP implementations at two distinct stages of a project. The risk analysis and management prior to project implementation, for which there are many risk management models for enterprise-wide solutions to select from, is the stock in trade of consultancy companies.

A second distinct type of risk that appears not to be as well promoted is the internal risk to management careers in admitting to failure. The requirement for an ERP implementation in maintaining management sponsorship and support throughout the project, can lead to a situation where to admit failure can, in itself be interpreted as the cause of failure.

A culture that does not properly allow an executive to take responsibility for failure, without risk of any type of personal hardships may be the ultimate cultural barrier to the success of EP implementations. The possibility of consultants themselves admitting to a “state of failure” is possibly even more remote. It may therefore be prudent to attempt to understand the corporate culture of the consultants themselves, as well as that of the client when analyzing potential cultural barriers.

Existing organisational culture instruments do not address this issue of risk orientation, and the proposed project will address this aspect.

User Involvement and Empowerment

Large systems development require user involvement in order to be successful. This involvement occurs from the very beginning of the project feasibility study and continues through detailed design, testing and deployment. The role of user involvement in an ERP implementation is qualitatively different from that in a large system build, as there is limited scope in influencing the final products look and feel, and limited control over the range of process models to be considered for implementation. This change in decision input may lead to a sense of impotency in the user community, which is exacerbated by the number of interfaces between functional groups. A sense of satisficing may become pervasive and this may affect the perception of system success in meeting business unit requirements. This pessimism may also influence the organisational culture in that the users may feel less empowered to make effective decisions benefiting their group.

The literature appears to emphasize the importance of user empowerment in the structure and maintenance of corporate cultures, and this loss of power may have a negative impact on the operant culture, despite the desire to achieve a better corporate level integrated business system. Stated corporate objectives and policy and corporate reality can be quite different, so it is unlikely that accepting what management believes and states to be the culture is in fact the case. Thus, successful implementation must address the benefits and seek to move the organisational culture to a state in which business benefits are seen and are achieved.

A research objective is to measure the perceptions of user involvement, and practices of user empowerment within the organisation.

Hellinghausen and Myers (1998) believe that major corporation culture changes occur when senior management recognizes the team’s authority, and once goals have been defined, the team should not be micro-managed. To successfully manage complex projects, Breen (1995) suggests that an initiative must be taken in educating, encouraging and empowering project teams to cut across organizational barriers allowing organizations

to overcome natural barriers to successful project management.

Thus, senior management has to empower the implementation teams to cross functional barriers. This requires effective leadership expressed by senior management, and members of the implementation team. These practices of educating, encouraging and empowering are all strategies of effective transformational leaders (Bass and Avolio 1997). We turn next to the literature of leadership to identify its role in ERP Implementation.

The role of Leadership in an ERP Implementation

Morden (1997) describes leadership as competence in creating a vision, which brings together a number of differing viewpoints. His models detail the many variables that influence leadership and supports the concept that leadership could be different in every situation (Saal and Knight, 1988).

Tait (1996) in his report on in-depth interviews with major business leaders identifies what he considers a recipe for effective leadership: 1).Clarity of vision, 2). Credible communication and interpersonal skills, 3). Sincerity, generosity and self-mastery, and 4). High levels of motivation and physical energy. A similar study by Bennis of ninety business leaders resulted in a recipe of four competencies of leadership. They are: 1). Management of attention – ability to draw others to them, because they have a vision, a dream, a set of intentions, an agenda, a frame of reference, 2). Management of meaning – make dreams apparent to others, and to align people with them, leaders must communicate their visions, 3).Management of trust – Main determinant of trust is reliability. Must show constancy and focus, and 4). Management of self – Knowing one’s skills and deploying them effectively.

These studies on qualities of leaders and generic skills of leaders do not assist in developing effective leadership practices, nor are they necessarily useful in training users, senior managers and IT executives in becoming better leaders prepared to achieve the changes associated with an ERP. An ERP Implementation results in significant change for the organisation. Recent studies have identified the importance of successfully enacting change is a critical issue facing today’s organizational leaders (Eisenbach, Watson and Pillai 1999).

The theory of change oriented leadership is expressed in the leadership theory of transactional and transformational leadership. (Burns 1978). Transactional leadership rewards subordinates for appropriate performance. Transformational leadership motivate others to identify with the leaders vision and sacrifice their self-interest for the group (Bass, 1985). Transformational leaders need to inspire, facilitate

problem solving and give structure tasks within the individual's competencies and context. These elements are labeled inspirational motivation, intellectual stimulation and individualised consideration (Bass, 1985, Bass and Avolio 1997). Pawar and Easterman (1997) showed that transformational leadership is more appropriate when change or adaptation is the primary goal.

Visionary leadership is critical to an ERP implementation. Effective leaders within the implementation process must be able to blend strong visionary skills with effective management into one integrated whole (Morden 1997). Research also indicates that not only the leader must have a vision but that vision must also be shared by the led (Tichy and Sherman, 1994). In relation to an ERP implementation the 'led' must share the vision of the change and benefits that will result. As Tichy and Sherman (1994, p.248) state:

In the new culture, the role of a leader is to express a vision, get buy-in, and implement it. That calls for open, caring relations with employees, and face-to-face communication. People who cannot convincingly articulate a vision won't be successful

The work by Bass and Avolio (1985, 1994, 1997, 1999) has led to the development of a behavioural modification program called the Full Range Leadership Program. This program has shown to improve transformational practices and positively improve organisational performance, and achieve the desired changes. This proposed research program will use the Full Range Leadership Program and the Multi-factor Leadership Questionnaire (Bass and Avolio 1997) to identify existing leadership practices and suggest behavioural changes. Visionary leaders are high on the Inspirational Motivation Scale of the Multi-factor leadership questionnaire, and thus this instrument will aid in benchmarking existing practices within the organisation.

We have seen that ERP implementations are accompanied by significant change. Negotiating that change requires leadership, and the most effective form of change oriented leadership is through the practices associated with transformational leadership. Input to effective leadership requires information about culture and history in order to devise an effective change management program.

Current Research Project

We have seen that organisational culture, as defined by the practices of values and beliefs within an organisation, forms the context of an ERP implementation. We have seen that the standard measures of organisational culture may not take into account key variables associated with an ERP implementation are risk orientation, user involvement,

user empowerment, expressed leadership practices. This project seeks to define appropriate scales of an Organisational Readiness for ERP Implementation. We are currently developing such scales through a multi-method approach involving case study research and ethnographic research. From this work, we hope to identify a set of scales that will measure our dependant variable. We will be assessing the interactions between these independent variables using structured equation modeling. We have developed case study protocols for examining leadership issues, change management practices, user involvement, risk taking orientation and organisational culture impact on the ERP implementation. We will be implementing these protocols over the ensuing year.

Conclusion

An ERP Implementation is likely to have a profound effect on both the way that an organization functions and the manner in which it affects its employees. ERP implementation success is found in modifying the organisational culture. Achieving business benefit requires the organisation to experiment with new process models, and this requires an orientation towards risk taking, rather than risk avoidance. Each of these aspects requires effective leadership in the management structure, and appropriate involvement and empowerment of the system users.

The development of an Organisational Readiness Benchmark will assist in identifying potential blockages to effectiveness ERP implementation. Organisations now seeking to upgrade their ERPs or to extract further business benefit and this work is requiring further ERP implementations. Thus, improvements in the implementation process will reduce the costs, and increase business benefits.

We seek to develop a benchmarking approach to characterising organisational implementation practices and from that benchmark, recommend changes that must be effected before embarking on the actual implementation. We think these results will benefit: 1). Organisations seeking to achieve business benefit from ERP Implementations, 2). Consultants seeking to work on these projects, and 3). Researchers seeking to understand some of the barriers to successful ERP implementation, and subsequent exploitation of such systems.

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