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A Conceptual Framework of eFraud From a Supply Chain Management Perspective

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ABSTRACT

Supply chains can significantly improve organizations' competitiveness and value; however, there are inherent associated risks, eFraud being foremost among the criminal risks. In this paper, we elaborate an understanding of supply chains as global supply networks. Further, we outline factors that can be considered to have increased the level of supply chain eFraud risk and list examples of potential fraudulent activities associated with the supply chains.

We believe that the conceptual framework we have devised extends the existing eFraud knowledge and can assist those charged with combating eFraud to better understand its nature and to design means of addressing its actual and potential impact.

Keywords: Supply chain management, eFraud.

INTRODUCTION

Management of supply chains has traditionally been accomplished through non-electronic communication paths. Today, companies are adopting eBusiness initiatives to create value and exploit new opportunities. Globalisation, focus on efficiency, shorter product life cycle, rapidly changing technology and increasing customer expectations have pushed for much closer relationships between suppliers and customers. Production in isolation is giving way to synchronized sourcing, production and delivery to gain competitive advantage (Holt and Root 2002). A truly integrated supply chain reduces costs, creates profits, increases market share, strengthens competitive position and enhances the value of the company (Lee 2000).

However, with opportunities come risks. This paper looks into the eFraud risk associated with supply chains and is organized as follows: in the next section we elaborate an understanding of supply chains as global supply networks, and then outline one implication of such an understanding—the risk of eFraud. Further, we outline the factors that can be considered to have increased the level of supply chain eFraud risk, and list examples of potential fraudulent activities associated with supply chains.
Several definitions of fraud and eFraud are presented, together with our preferred definition. Next, an outline of the profile of fraudsters is discussed together with eFraud methods and the urge behind eFraud, leading to our conceptual framework of eFraud. Finally, we present our conclusions and future research directions.

The main contributions of this paper are:

- discussing eFraud from a supply chain perspective;
- outlining factors that can be considered to have increased the level of risk of supply chain eFraud, both inside and outside an organization; and
- a conceptual framework of eFraud that we believe extends the existing eFraud knowledge and can assist those fighting eFraud to better understand it and to design means of combating it.

GLOBAL SUPPLY NETWORKS

Supply chains involve the flows of material, information and finance in a network consisting of suppliers, manufacturers, distributors and customers (Lee 2000) and is one area that can be effectively adapted to eBusiness, especially if the Internet is used for the exchange of business information (Kaarma et al. 1999).

Supply chain management is defined by the Global Supply Chain Forum (Lambert and Cooper 2000) as the integration of key business processes from end user through original suppliers that provides products, services and information that add value for stakeholders. Cooper et al. (1997) argues that the supply chain management evolves through several stages of increasing intra- and inter-organizational integration and coordination. In a very broad sense and implementation, it spans the entire chain from initial source (supplier's supplier, etc.) to ultimate consumer (customer's customer, etc.).

![Supply Chain Diagram]

Figure 1: Conceptual supply chain

Supply chain configurations evolving today reshape the traditional supply chains into networks or business-webs (Tapscott 2000). Supply chains can comprise hundreds or possibly thousands of companies, extending over several tiers (Cranfield 2002). The supply chain can be considered as a network of organizations, a network organization (Chadwick and Rajagopal 1995) or as a supply network (Cranfield 2002) expanded globally.

Metcalfes Law (Nugent and Raisinghani 2002; Anderson 2001) postulates that the value of a network is proportional to the square of the number of nodes on the network. However, the corollary is that the potential for security breaches is also proportional to the number of nodes on the network.
The new business models and processes require tremendous connectivity between business partners: Internet access, intranets, extranets and eBusiness activities. The density of information, the automation of processes, the immediacy of transactions, and the heavy reliance on technology and interconnectivity among organizations can create numerous risks.

Some of these risks are of criminal nature: "While the Internet and other information technologies are bringing enormous benefits to society, they also provide new opportunities for criminal behavior" (Reno in President's Working Group 2000:6). The foremost criminal risk is the eFraud risk.

**SUPPLY CHAIN MANAGEMENT AND THE eFRAUD RISK**

Fraud has been attempted against all commerce systems: weighted scales, shaved coinage, counterfeited currency and checks, credit card and ATM fraud, etc. Today's technology, however, has lowered the level of expertise required to commit fraud and made it a "borderless" phenomenon. The ability to edit, alter or otherwise manipulate digital content to derive benefit from its misrepresentation in a way that is often undetectable increases significantly the fraud opportunities (Smedinghoff 1996).

While no genuinely new frauds are expected, "electronic variations of traditional frauds will be carried out with greater efficiency and effectiveness, will have potentially greater impact and will be more difficult to investigate" (Wardlaw 1999:8) because a sophisticated fraud might leave no evidence of how and when it occurred and/or because the offender and victim may be located thousands of miles apart.

Advances in technology have always given criminals new means for engaging in unlawful conduct. Neumann and Parker (1989) convincingly explains why the information systems menace is permanent and cannot descend under a certain threshold. Today, many factors can be considered to have increased the level of risk of supply chain eFraud, both inside and outside an organization:

- difficulties involved in computer security (Losocco et al. 1998; Baskerville 1992; Landwehr 2001);
- the ability to operate remotely (President's Working Group 2000);
- increased globalisation (Commonwealth of Australia 2000; Wardlaw 1999);
- insufficient information security awareness and education (Siponen 2000) and/or users' attitudes and behavior with regard to information security policies/practices (UN 1994; Schneier 2000; Parker 1999; AusCERT et al. 2002);
- availability of hacker information (Stagg and Warren 2000); and
- unclear regulatory and law enforcement jurisdiction (Wardlaw 1999).

The very nature of supply chains, which requires the automation of various types of procedures, makes them vulnerable as never before. Software used to help in managing the entire supply chain or in sharing information across complex business networks also provides niches for criminals to defraud organizations. Furthermore, the crime can be automated (Parker 1999). Repeated testing under various circumstances can make it become the perfect crime, one with no evidence and no basis for the victim and criminal to identify or confront each other.

Examples of fraudulent activities (Martin 2000) include:

- unauthorized movement of money such as payment to fictitious suppliers (often located in jurisdictions where recovery of money will be difficult);
- misrepresentation of company tenderers;
- corruption of the electronic ordering or invoicing;
- duplication of payment or falsely declaring that a payment was made;
- creation of fictitious suppliers ("masquerade": for example, an organization believes it is dealing with its supplier when in fact it's dealing with a cracker in a foreign jurisdiction);
- unauthorized ordering or approving of a transaction; and
- corruption of catalogues/list of agreed suppliers/list of signatories.
eFraud can have a major adverse impact on organizations and can spread throughout the supply chain; therefore it should be an important management issue. To assist those fighting eFraud to design means of combating it, we devised a framework. The first step in the development of a comprehensive framework for eFraud is to look at the ways it is defined.

DEFINITIONS OF FRAUD

In order to better understand eFraud, we must first define the act of fraud in general. According to Brenner (2001), someone commits fraud if the following four elements are proved beyond a reasonable doubt:

- **actus reus**: The perpetrator communicates false statements to the victim;
- **mens rea**: The perpetrator communicates what she knows are false statements with the purpose of defrauding the victim;
- **attendant circumstances**: The perpetrator's statements are false; and
- **harm**: The victim is defrauded out of property or something of value.

Fraud differs from theft in that the fraud’s victim voluntarily parts with his or her property, but does so because she has been deceived by material false representations made by the fraudster (Brenner 2001). In theft offenses, the perpetrator takes someone's property without the victim's permission (or even knowledge).

The term “fraud” is defined in Gilbert (1997:124) as “an act using deceit such as intentional distortion of the truth of misrepresentation or concealment of a material fact to gain an unfair advantage over another in order to secure something of value or deprive another of a right. Fraud is grounds for setting aside a transaction at the option of the party prejudiced by it or for recovery of damages”. Fraud is always intentional (fraudulent intent), intentional by appearance (constructive intent), or intentional by inference from the act (general intent).

Definitions of fraud vary between organizations and countries. In the Australian Government's Fraud Control Policy, “fraud” is described as “inducing a course of action by deceit or other dishonest conduct, involving acts or omissions or the making of false statements, orally or in writing, with the object of obtaining money or other benefit from, or of evading a liability to, the Commonwealth” (Commonwealth of Australia 2000).

The Council of Europe (2001) defines “Computer-related fraud” as “the causing of a loss of property to another by:
- any input, alteration, deletion or suppression of computer data,
- any interference with the functioning of a computer system, with fraudulent or dishonest intent of procuring, without right, an economic benefit for oneself or for another”.

Our preferred definition of eFraud is: *deceit through electronic means with the intent to secure, without right, something of value or cause a loss of property to another.*

CONCEPTUAL FRAMEWORK OF eFRAUD

After some preliminary considerations, this section outlines the types of fraudsters, discusses the eFraud methods and the urge behind eFraud and, finally, presents our conceptual framework of eFraud.
Preliminary considerations

It is extremely difficult to put hard figures on the incidence of supply chain eFraud. The explanations are lack of awareness that fraud has occurred and under-reporting. The last one is due to fear of loss of goodwill (UN 1994), pessimism regarding the apprehension of attackers (AusCERT et al. 2002), dissatisfaction with the outcomes of previous criminal proceedings and a common preference to take administrative action and attempt to recover losses without criminal charges (Commonwealth of Australia 2000). However, based on the existing eFraud surveys, we believe that supply chain eFraud is a significant and growing problem that must be addressed as a matter of urgency by all organizations (especially businesses), governments and individuals.

Types of fraudsters

Benbow (1992) identifies five types of fraudsters:

- the opportunist: having the ability and knowledge to manipulate accounts;
- the habitual claimant: using many different names to commit fraud time and time again;
- the patient claimant: perpetrating the same fraud time and time again;
- the providers: volumes of fraudulent transactions by providers can easily be committed; and
- the organized gang: large organized gangs running complex frauds.

According to Di Nicola and Scartezzini (2000), the more complex the context in which fraudsters operate, the more professional experience they require and the broader organizational structures they need in order to commit their crimes. Large-scale crimes need organization to better achieve results and to reduce risks. Criminals need detailed information on techniques and practices in order to assess opportunities and risk.

eFraud is an equal opportunity employer; among fraudster’s characteristics are a wide mixture of age, gender, education, marriage, location, length of employment, etc. Most of eFraud perpetrators are employees - they are much more likely to evade detection when they commit crimes because they understand the company’s system, its weaknesses and can cover their tracks.

eFraud methods

The three eFraud methods are:

- Input (“data diddling” or “number fudging”): the fraudster dishonestly enters false data, suppresses, or amends data as entered (a variant on common false accounting). It is the most common computer crime (UN 1994) and can be committed by anyone having access to normal data-processing functions at the input stage.

- Program: this involves either the creation of a program with a view to fraud or the alteration or amendment of a program to such ends. It is very difficult to discover and is frequently not recognized (UN 1994). It requires computer-specific knowledge and high level access to computer databases and/or software (Savona 1998), and for this reason, it is usually associated with insiders.

Examples include (Basel Committee 1989):

- unauthorized transactions can be entered into the system;
- unauthorized changes to programs can be made during routine development or maintenance which may cause the program to generate fraudulent transactions automatically, to ignore control checks on selected accounts or to remove records of specified transactions;
special programs can be used to make unauthorized changes to computer records in a way that bypasses the normal control and audit trail facilities built into the systems;

- computer files can be removed physically from a computer installation, amended elsewhere by the insertion of fraudulent transactions or balances and returned for processing;

- transactions can be introduced or intercepted and amended fraudulently whilst being transmitted through telecommunication networks.

One of the most notorious species of program fraud is the so called "salami fraud": a program is altered to collect the decimal fractions of financial transactions, which are placed into an account of the perpetrator.

- Output: the fraudster dishonestly suppresses or amends data being output—very often linked with input fraud (e.g. suppressing or changing balance reports to hide misappropriated funds). The goal with this type of scheme is to conceal bogus inputs and also to prevent or postpone detection of such input fraud (Savona 1998). This type of fraud is relatively unsophisticated and is concerned with the end product; because computer output is normally accepted as being accurate and genuine, its authenticity is taken for granted.

The greatest concern present the frauds that involve manipulation of data records or computer programs to disguise the true nature of transactions, cracking into an organization’s computer system to manipulate business information and unauthorized transfers of funds electronically (AusCERT et al. 2000).

eFraud urge

Urge represents the reason fraud takes place (Hutt et al. 1988). Regarding what turns a person to fraud, Duffield and Grabosky (2001:2) argues that "sexual relationships, substance abuse and risk-taking or gambling. This is also known as "the hypothesis of the three Bs-babes, booze and bets" (Nettler, 1982, p. 74) [...] Another aspect of motivation that may apply to some or all types of fraud is ego/power".

Criminological research has identified a variation of the “Robin Hood syndrome” (UN 1994:13): "criminals tend to differentiate between doing harm to individual people, which they regard as highly immoral, and doing harm to a corporation, which they can more easily rationalize”. Conn (2000) argues that new technology crime motives are usually revenge, boredom, challenge, or opportunity, rather than direct financial gain.

Conceptual framework

Based on a critical literature review and extrapolation, we devised a conceptual framework with five categories: Fraudster, Result, Actus reus, Urge and Domain, detailed below.
CONCLUSIONS AND FUTURE RESEARCH

Leveraging existing infrastructures allows organizations to significantly improve their competitiveness. However, organizations have to accept up front that there are inherent risks, eFraud being the foremost criminal risk.

The fraudster has the initiative, time and the interest to pay attention to detail, and strikes only if the risk/reward ratio is overwhelmingly in his favor (Comer 1998). Understanding who perpetrates eFraud, the criminal act, fraudster’s urge and the potential results is essential to fighting eFraud. We believe that the conceptual framework we devised could help those fighting eFraud by helping better understand eFraud, prioritize the concerns and identify specific solutions to mitigate the risk.

Traditionally, eFraud prevention has been reactive; instead, a proactive approach is needed, one that acknowledges the factors influencing eFraud, and the evolving sophistication of eFraud and of the economic and cultural reasons behind fraud. In the proactive strategy, prevention is paramount.

Our paper provides the framework for future research opportunities that will include:
- an analysis of eFraud techniques and tools;
- techniques organizations can do to prevent eFraud;
- categorization and ownership of supply chain eFraud risk; and
- containment and eradication of eFraud’s effects.

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BPR versus Outsourcing – Critical Perspectives

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ABSTRACT

This article presents a case example involving the renaming of an organizational change process from “BPR” to “outsourcing”. The paper discusses the important ramifications of such a name change in that the recognition of outsourcing allowed an organizational commitment to counseling and termination advice. The paper discusses two different ways of looking at the name change, one from a critical theory perspective and one from a realist perspective. It demonstrates how theory can provide useful yet markedly different interpretations of such organizational events. Critical theory operates from within what can be termed the transitive epistemological dimension whereas critical realism tends to emphasize the importance of ontological issues. Each has important things to say about the situation and improves our understanding overall.

Keywords: Emancipation, Business Process Reengineering, Critical theory, Critical Realism

INTRODUCTION

This article presents a short vignette describing the significance of changing the name for an organizational change process from BPR to Outsourcing. It presents the short vignette and then discusses two different ways that theory can be used to represent the name change as being emancipatory for the individuals affected by the outsourcing. Critical theory and critical realism are chosen as useful theories to address the situation because of their well recognized commitment to emancipation. As Craib (1992, p.656) suggests “our methods of understanding the world and the forms of the theory we use are based on the nature of the realities we are trying to understand”.

Both critical realism and critical theory have different ways of representing social reality and consequently they both highlight different aspects of that reality. This article highlights some of the differences, in particular the stronger ontological focus of critical realism. As Archer (1995) suggests “the nature of what exists cannot be unrelated to how it is studied...the social ontology endorsed does play a powerful regulatory role vis-à-vis the explanatory methodology for the basic reason that it conceptualizes social reality in certain terms, thus identifying what there is to be explained and also ruling out explanations in terms of entities or properties which are deemed non-existent” (p. 16-17). The article highlights the different social emphasis for each theory and discusses how the theories can give markedly different interpretations of the name change.

'BPR' VERSUS 'OUTSOURCING' - WHAT'S IN A NAME?

The case study involved a longitudinal study of a public organization over a period of five years and coincided with the outsourcing of the IS division. The ethnographic involvement in the initial pre-
outsourcing stage allowed a good appreciation of the organization and provided a basis for continuing contact over the difficult period of outsourcing. Subsequent to the outsourcing having been completed a number of senior IT staff (including the outgoing Managing Director and the new post-outsourcing IS Planning Manager) were interviewed individually on several occasions. The interviews with senior staff were semi-structured interviews based around pre-set questions whilst the interviews with junior staff were less formal. Claims made by internal staff were corroborated in subsequent interviews with consultants who played a large part in the outsourcing process.

The case study draws upon organizational reports and documents in addition to the interview transcripts. The organization made a number of internal reports and staff newsletters available to me. These have been used to corroborate the comments made in interviews. The interview transcripts were analyzed using the qualitative tool Atlas for key themes and the quotes given in this article are representative of these.

The initial purpose of the study was to follow through the development and implementation of the organization's first Information Business plan. When I joined the planning group they had recently completed the first draft of the new Information Business Plan. The plan was largely formulated along the same lines as the other internal business plans (respectively covering money, assets and people) and formed a part of a detailed planning process that involved planning across corporate, business and branch level.

The organization was traditionally an engineering focused organization that had little time for the information systems department, IT was seen as a cost centre with a primarily non-core role. The development of the first Information Business Plan was a major coup for the IT Department in that it placed their importance at the same level as the other organizational sections. Yet the enthusiasm was short-lived as soon after the completion of the Information Business Plan the organization began to move towards the outsourcing of non-core operations. IT came to be considered as non-core and was one of the first areas to be targeted for outsourcing. The move towards the outsourcing of non-core operations was a result of wider governmental policies that encouraged smaller government and followed a similar trend in the UK. In the mid-1990s the investigation into this operation was termed initially as a business process re-engineering (BPR) project.

Staff initially accepted this BPR tag but over time they came to reject the term as they felt that it did not reflect what was actually happening - they felt that the study was basically an investigation into the feasibility of outsourcing, not BPR. This action by the planning manager and other staff prompted a change in the title of the project to corporate re-positioning and then again at a later date to outsourcing. According to the IS Manager at the time the term BPR annoyed staff:

Well the staff simply refused to call it that, lets call a spade a spade - 'bugger this we won't call it BPR any more', they said - it's a false term. Let's not pretend. After a while it became obvious what the agenda was and some of the directors who pushed BPR objected themselves to hiding outsourcing under the term BPR.

The naming issue seems to the outsider to be unimportant, however it was critical to those involved. By calling the process outsourcing rather than corporate re-positioning or process re-design this recognized that people were going to be seriously affected. As the IS Manager suggested the recognition lead to the establishment of career counseling and advice being given to those likely to be outsourced:

I'd go to meetings and I'd have to try and push the party line and I did for a while, but after a while I said O.K. let's be honest because my staff had been saying 'This is dishonest, we know what's going to happen, let's be honest about it.' IT were probably some of the first to be very honest with the staff to tell them exactly what's going to happen. They started providing career counselling, we had [consultants] come in.... to talk about the transition and a lot of people
decided they wanted to go and we helped them in making sure they could tick all the boxes for gaining their severance pay and that sort of thing

It is interesting to look at how critical theory and critical realism provide different understandings of this short vignette.

A CRITICAL REALIST PERSPECTIVE ON THE CHANGE IN NAME

The forcing of management to refer to the process as outsourcing initiated a process that ultimately lead to career counseling and a better severance process. Can this be seen to be emancipatory for the staff concerned? Bhaskar (1986, p. 211) argues that emancipatory action requires the following be met:

- The results of the emancipatory action must be achievable, realistic and popular.
- The new transformed structure itself must have 'knowable emergent laws'.

The emancipatory action itself must also meet the following requirements:

- The emancipatory action needs to be a direct result of agency intervention (ie critique) - that is, the emancipatory reasons for the action must actually cause the action (otherwise it may be just co-incidence rather than emancipative practice).
- The explanatory critique must originate from within that part of society of which it is a critique.

Looking at each requirement in turn:

- The results of the emancipatory action (ie a change in name) were achievable, realistic and popular. Staff action could not have changed the movement to outsourcing but at least the recognition that it was an outsourcing project allowed a more equitable position for concerned staff.
- The new transformed structure that was put in place after the name change did have knowable emergent laws in that the new policies and procedures were achievable within existing remuneration structures and did not require unrealistic concessions on the part of management.
- The emancipatory action of changing the name to outsourcing was a direct result of agency intervention (it was clearly not co-incidental) - management recognized that staff were not getting a fair deal and instituted new policies to assist staff over the difficult period.
- The explanatory critique originated from within a group who would ultimately be affected by the outsourcing. It would not have been emancipatory if an outside party originated the suggestion, as the most important issue was that it came from within the organization and reflected their heart-felt concerns.

Such a perspective encourages a positive view on the situation in that it seems clear that there was little chance to reverse the outsourcing process and thus the personnel involved did the best that they could do given the reality of the situation. The theory of critical realism suggests that the change in name had important consequences that can be seen to be emancipatory.

A CRITICAL THEORY PERSPECTIVE ON THE CHANGE IN NAME

Critical theory has lofty aims in that the purpose of critical theory is seen as enabling members of a society to alter their lives for the better by fostering in them important self-knowledge and understanding of the social conditions under which they operate, such knowledge then providing a basis for emancipatory change. Alvesson and Willmott (1992) argue that "central to critical theory is the emancipatory potential of reason [...] to reflect critically on how the reality of the social world,
including the construction of the self, is socially produced and, therefore, is open to transformation. The task of critical theory is to combine philosophy with social science to facilitate the development of change in an emancipatory direction”. The individual’s power to reason and consequent self-emancipation plays a major role in critical theory.

Habermas (1984) highlights the important role that language and communication play within critical theory when he suggests that people can follow two fundamental postures in a social situation – achieving success or communication. Actions directed towards achieving success (purposive rational) can be either instrumental or strategic. Instrumental action treats participants as inanimate constraints who can be manipulated to serve the self-interests of the main actor. In contrast strategic action would treat participants as intelligent involved players with their own self-interests and aims - thus requiring a strategic approach to properly achieve the main actors self-interest.

The second fundamental posture that actors may represent is that of communication - the primary desire is to achieve a consensus and understanding. Hirschheim and Klein (1994) argues that a communicative orientation is directed towards sense making - an emergent process that involves mutual understanding and shared appreciation of situations based on common shared background assumptions and beliefs. Where such a common base does not exist, discursive action may ensue. Discursive action may result when participants have some doubts as to the clarity, truthfulness, correctness or appropriateness of any communicated message. Instrumental and strategic action fundamentally emphasizes control, whereas communicative and discursive action emphasizes sense making and argumentation.

The original naming of the process as BPR can be seen from a critical theorist perspective to reflect instrumental action on the part of management to force the change process through. BPR at the time was very faddish and the tag would have been useful as a means to internally and externally justify and support the severe change that would necessarily follow. The change in name to outsourcing represented a mellowing of this approach and can be seen to reflect the important acceptance by management that personnel concerned were intelligent involved players with their own self-interests and aims that needed to be recognized. Yet the important shared understandings that form the basis for open communicative action cannot be seen to operate as the primary desire was not to achieve consensus and understanding, but to achieve the strategic action required, the outsourcing of the department. Given this strategic purpose there could be no basis for complete open communicative action. Thus would critical theory see the name change as emancipatory? In my view the answer is no since for Habermas communicative action is a necessary pre-condition for emancipatory practice.

For Habermas the name change can be seen as an example of the important role that language plays in social situations. It highlights how the way something is called implicitly constructs a certain reality. The intention in naming the project “BPR” was to force a concentration on core business processes, but for the people impacted they wanted a greater emphasis on themselves rather than the work that they do. Severance terms and conditions needed to be defmed and the change in name to “outsourcing” allowed for this concentration.

COMPARING CRITICAL THEORIST UNDERSTANDINGS AND CRITICAL REALIST UNDERSTANDINGS

The critical realist has major issues with the critical theorist emphasis solely on language and description. As Bhaskar (1991, p. 73) suggests "there is more to nature than mere recognition". The identification and description of inequitable structures is simply not enough, something practical needs to be done as well. Bhaskar (1991, p. 72) highlights this issue in discussing the importance of an ontological commitment in examining freedom and emancipatory action:

..the identification of the source of an experienced injustice in social reality, necessary for changing or remedying it, involves much more than re-description, even if it depends on that too
centrally. It is a matter of finding and disentangling webs of relations in social life, and engaging explanatory critiques of the practices that sustain them.

He sees emancipation as involving the removal or change of real knowable specific constraints, rather than "merely" re-description.

Bhaskar presents the hermeneutic perspective, in contrast, as presenting freedom as being heavily dependent on the ability to discourse. This freedom to redescribe oneself in new and ultimately acceptable ways that "overcome themselves, their past and their fellow human beings" (Bhaskar, 1991, p.62) is an important part of the hermeneutic argument. This new abnormal discourse is seen to ultimately free oneself from the shackles of past perceptions (or normal discourse). Bhaskar (1991) sees such argument as an example of what he terms the linguistic fallacy in that it conflates the transitive knowledge focussed dimension, where discourse happens, with the intransitive dimension where particular actions consequent on new description may or may not ensue. Habermas' critical theory with its heavy emphasis on language suffers a similar presumption.

For the critical realist emancipation involves the transformation of pre-existing social structures by self-determining agents. For the critical realist it is not enough simply to identify the inequitable structures (although this is a vital component of emancipatory practice), there also needs to be a practical commitment as well:

"..enlightening people (or facilitating their own self-enlightenment) as to the source of the illusions and other unwanted determinations responsible for their plight is not a sufficient condition for their emancipation from them, and may indeed increase dissonance and despair: for emancipation the mechanisms actually generating the problems must be removed or blocked (Sayer 1997, p. 475).

For the particular case under study, critical realism would suggest that there is a need to define the mechanism by which government imposed its outsourcing requirement. Once this mechanism has been identified significant long-term emancipatory practice may involve action to block such a mechanism. For the case under review the mechanism by which this outsourcing requirement was imposed was via the government ability to hire and fire the Managing Director. This proposal was confirmed in later discussion with organizational members and the Managing Director at the time. As the IS Manager commented:

He [the old MD] had a very good understanding of business process reengineering and championed it - he had a good understanding of the concepts we were putting together, of managing by information, he created the term 'management through information' within the organisation. He actually championed it, which was fantastic for me. He was not overtly an IT supporter, though he knew where I was coming from and he could see where we were going...

(IS Manager).

Unfortunately for the IT Department the MD was replaced - the general consensus for the change being that the pace of privatization reforms were not moving fast enough. The old MD had a different focus:

That was the difference between the old MD and the new one. The old MD aimed to keep the public service at bay by proving efficiency. This argument didn't in fact work - efficiency didn't provide the sole argument, proving efficiency did not prevent the outsourcing (IS Manager).

Prior to the new outsourcing policy the organization had already outsourced a number of non-competitive sectors and had reduced the headcount by around 1,000 personnel, yet the perception from the government side seemed to be that the pace of reforms was not fast enough. The Managing Director was replaced with a new director having a particular background in downsizing.
In the view of the pre-outsourcing IS Manager much of the outsourcing was not based on economic rationale:

'[the old MD] would've fought tooth and nail to continue the business process reengineering to improve the organisation not just for the sake of outsourcing. It cost [him] his job, he didn’t move fast enough ...the agenda was 'to outsource, period' - not to outsource only if it made sense. There were many areas and IT was one of them, where [the MD] said this doesn't make sense, it's not a logical decision and a board of a private company would not do this. This support virtually cost him his position (IS Manager).

The ontological focus and contextualized examination required of critical realism provides a clearer picture of the reasons behind the outsourcing and a better definition of the means by which such imposition might be blocked in future (if deemed feasible). Real long-term emancipatory action is made possible if the underlying enduring structures and mechanisms are identified.

CONCLUSION

Both critical realism and critical theory emphasize the importance of critical reflection in the understanding social situations. They both see that the historical analysis and examination of organizational and social situations are essential in encouraging future transformation. Emancipatory transformation is a necessary target in both theories yet they do have a different emphasis. Critical theory represents emancipatory action as largely involving the identification of impediments to communicative action. These impediments are not presented as real enduring social structures but as language structures or perceptions. Critical realism sees social situations as involving a network of real social structures and mechanisms that are relatively enduring, the reality of such structures and mechanisms allowing a more practical focus on how to change them. For the case under review the critical realist would be interested in how the government enforced its outsourcing requirements. How does such a social structure impose its will on the organization? Can this mechanism or structure be changed to avoid such imposition and provide real long-term emancipation? The causal emphasis within realist enquiry and its focus on structures as being relatively enduring also encourages a more contextualized and less general examination.

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Awareness of Business Continuity Planning in Australian Businesses: 1996 and 2001

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ABSTRACT

This paper introduces the notion of business continuity planning (BCP) as a means to assist businesses to recover from a disaster. Twin studies in 1996 and 2001 of the implementation of BCP in nine financial and non-financial institutions in Melbourne, Australia are discussed. The studies focus on awareness of BCP amongst employees and senior management, the extent that this awareness has been affected by the Year 2000 problem and the events of September 11, 2001 and the effects that e-commerce has had on the need to introduce a business continuity plan that involves suppliers, customers and the business concerned.

The studies revealed that the majority of financial institutions had implemented a full business continuity plan by 2001, whereas the non-financial institutions had primarily remained with a partial BCP. Awareness of BCP was enhanced within financial institutions by the events of Y2K and September 11, whereas the non-financial institutions were primarily influenced by Y2K. The increased awareness of supply chain management is especially important when the business is dealing, via e-commerce, with external customers and suppliers. Responses from three of the businesses in this study that had initiated full BCP indicated that although the process of BCP remained similar, the critical business processes of many organisations now incorporate supply chain partners and these are a vital component of business continuity planning.

INTRODUCTION

This paper introduces the notion of business continuity planning (BCP) as a means to assist businesses to recover from a disaster. The increased emphasis in organisations on e-commerce has meant that disasters can now quickly affect not only a business, but also its suppliers and customers. Twin studies in 1996 and 2001 of the implementation of BCP in nine financial and non-financial institutions in Melbourne, Australia are discussed. The studies focus on awareness of BCP amongst employees and senior management, the extent that this awareness has been affected by the Year 2000 problem and the events of September 11, 2001 and the effects that e-commerce has had on the need to introduce a business continuity plan that involves suppliers, customers and the business concerned.


**BACKGROUND**

**What is a Business Continuity Plan?**

A business continuity plan is a plan to get a company “up and running” as soon as possible after any sort of disaster. This means that the company must identify the processes that are critical to the maintenance of its business and put plans in place to ensure that these processes can be resumed as quickly as possible. It includes all aspects of a company’s business, not just the information technology (IT) department (Fennel and Associates, 2001).

**Business Continuity Planning**

The first step in the plan is to define the critical processes and the strategies necessary to deal with interruptions. In doing so, a holistic approach should ideally be adopted. For example, a cross-functional team comprising internal audit, occupational health and safety, information security and risk management staff can provide expertise from each of these areas and provide a variety of perspectives on potential risks and solutions (Fennell & Associates, 2001). This means also that all sections of an organisation ‘own’ the business continuity plan and business continuity becomes everyone’s responsibility.

Although organisations may have insurance that covers business interruptions, this does not ensure that they will be viable immediately after a disaster. Insurance is designed to cover specific consequential losses, such as new equipment and recovery of lost revenue. The claims may take time to process and it may not be possible to replace specialised equipment straightaway. Traditional insurance policies also do not necessarily safeguard networks, customer data and domain names against denial-of-service attacks or information theft (Ross, 2001). They are also not global in nature and will not protect against offences that occur via the Internet.

**What is a Disaster?**

A disaster is any event that interrupts the normal business of an organisation and prevents it from delivering products and services to its customers for an unacceptable period of time. They can broadly be categorised as natural disasters (such as floods and lightning strikes), deliberate acts (such as terrorist activity) and accidents (for instance, accidental cutting of electrical cables). Particular local geographic and environmental conditions such as proximity to a geological fault line or frequency of extreme weather conditions should obviously be considered when assessing potential disasters for an organisation. It is important, too, to take a very broad view of what might constitute a disaster. (Honour, 2002) In October 2001, a hacker discovered a large security gap in Microsoft’s customer service Internet site that gave anyone with a browser access to all information about its customers. The problem was fixed within an hour, but the company still had to go public to reassure customers and shareholders that they would be more vigilant in protecting their data (Ross, 2001). A disaster, however, need not affect the organisation directly. A bomb threat in a building may mean that all buildings in the immediate area have to be evacuated as happened with the attack on the World Trade Center in New York (Ballman, 2001)

The long-term effects of a disaster may not be immediately evident or quantifiable, but may nevertheless have severe human and economic consequences. The World Trade Center had its steel framework ‘fire protected’ by asbestos lagging up to the 40th floor. The collapse of the two towers in September 2001 resulted in dust clouds being blown up to five miles away, as well as thick dust settling in the immediate area. It is not certain how many people will therefore have been exposed to non-destructible asbestos fibre, the effects of which may not be apparent for several years (Charlton, 2001).
BCP and E-Commerce

In the last five years, many organisations have made changes to the way that they conduct their business and the scope of disasters has widened with the greater use of technology. The increasing use of the Internet for business has brought new problems for business continuity. Any interruption in service is immediately obvious to customers and competitors have an immediate opportunity to fill the gap. However, e-commerce businesses are not only at risk from technological failure, but also from people, within and external to the organisation. The 'human' risk comes from the theft or corruption of data, commercial espionage and deliberate infiltration of Internet sites. For instance, Chadwick (2001) notes:

- There are in excess of 50,000 viruses currently infecting computer systems with around 500 new viruses being developed every month
- Nine out of 10 organisations have had at least one significant security breach in the past two years
- The average cost per security breach increased sixfold between 1996 and 2001
- The Internet and intranets are now the primary vehicle for virus transmission and distribution.

The trend with e-commerce businesses is also to outsource products and operations in order to match competitors in the market in the shortest amount of time and to be able to be able to provide a wide product selection for its customers. This makes it particularly vulnerable to risks across the whole supply chain (Penn, 2002). BCP is becoming a matter for businesses to consider in a holistic manner with their customers and other trading partners in mind.

Spending on BCP

There is evidence that spending on business continuity has increased in recent years. Global Continuity (2001) surveyed its members to find out how their current business continuity budgets in their main country of operations compared with the budget for the previous year. The majority of responses (63.5%) came from the United States. Over half of the US companies reported budget increases, one quarter retained the same budget and the remainder decreased their budget.

It is clear, however, that in many organisations it is difficult to obtain funds for business continuity planning.

"When the economic climate is favorable, contingency planning is last on the list of things to do; when profits are down, contingency planning is the first item to be cut from the budget. Like elective surgery, contingency planning is a discretionary expense. This means that the more costly a contingency planning project is, the more likely it is that it will be repeatedly deferred". Myers (1993).

Significant Dates in BCP: Y2K and September 11, 2001

The potential problems associated with the year 2000 (Y2K) problem provided many organisations with an impetus to look at the risks they faced and how they could deal with them. It was seen to raise the visibility of disaster recovery to the highest level and not just as a matter of recovering from a computer failure, but as a need for contingencies for how all of work is carried out (Smalley, 1999). However, when January 1st, 2001 passed without any major disasters, many organisations put their contingency plans aside. Others, however, used them as a springboard to develop more detailed and comprehensive business continuity plans (Scalet, 2000).

In the September 2001 terrorist attacks on the Pentagon and the two towers of the World Trade Centre not only the twin towers of the World Trade Centre collapsed, but also many of the adjacent buildings
were severely damaged (Global Continuity, 2001). These attacks were so swift and devastating that some businesses located in the World Trade Centre had no chance of carrying out a business continuity plan, however well it had been drafted and tested. A report by the McKinsey consultancy group estimated that the business interruption costs totalled $1.8billion and that building damage costs reached $30billion. Insurance covers tangible costs over a set period of time, but insurance payouts cannot get the business up and running again and cannot prevent customers going elsewhere (Honour, 2001).

Following this disaster, Global Continuity (2001) conducted a survey to find out which companies had invoked business continuity plans. Globally, it was determined that 49% of respondents activated crisis communications plans and in the US it was 60%. A number of issues relating to BCP were highlighted as a result of this disaster. It was found that:

- Some plans failed because they were written on the assumption that any incident would only affect an individual building.
- Plans that were too detailed were often less effective.
- Many organisations need to be more realistic about what is actually possible in the aftermath of a disaster.
- Key employees may be unable to cope with the emotional trauma of the disaster and may not be able to carry out their assigned duties.

One of the main themes to come out of the many articles and on-line discussions after September 11 was the fact that many organisations had under-estimated the total business effect of a disaster (Scannell, 2001; Berlind, 2001).

As mentioned earlier, consideration of customers and trading partners in BCP is important. Less than 24 hours after the first attack on the World Trade Centre, Morgan Stanley issued a statement demonstrating immediate concern for the welfare of its staff and also to reassure clients. Other companies, such as Lehman Brothers and the Bank of America also released statements indicating corporate concern (Global Continuity, 2001).

**The Human Side of BCP**

An aspect of business continuity planning that has come to the forefront in the last few years is the human side. In the early 1990s business continuity was focussed mainly on disaster recovery, that is the assets of an organisation such as its networks and applications had to be "recovered" (Wheatman et al, 2001). Now it is generally accepted that business continuity covers all aspects of an organisation’s business, and as such, the organisation’s personnel are a vital part of the business continuity plan. "Business continuity is only as successful in the end as the people who make and operate the plans" (Capewell, 2001). After the September 11 attack one company discovered that its key employees were unable to cope with emotional toll and were ineffective leaders during the crisis (Honour, 2001). In fact, stress and trauma for employees had not been considered in most plans (Sharp, 2001). As businesses are more closely linked with their partners through the internet and increasingly keep in touch with their employees through intranets, the effect of Internet technologies on business continuity planning is evident.

**BCP IN AUSTRALIA**

A survey conducted by Macquarie University determined that “the majority of Australian organisations were unprepared for dealing with emergencies of any kind”. The Macquarie study was repeated in 1999 using a total of 94 organisations, 28 councils and 66 business organisations, and the results were no more encouraging. In this second survey they found that only 13.6% of businesses had
documented and agreed contingency plans, and of these plans, 36% had not been tested at all (Musson and Jordan, 2000).

It may appear that Australia is less likely to experience disasters because of its relative geographic and political stability. However, events have proved that it can happen. For instance, a 1998 explosion at the Esso Longford gas plant killed two maintenance workers and the State of Victoria lost its entire supply of gas for several weeks. It is estimated that four to five million people were affected (Siutryk, 2000).

A Study of BCP in Australian Businesses: 1996 and 2001

To investigate a number of issues relating to BCP in the Melbourne metropolitan area in 1996, interviews were conducted with ten organisations (Hill, 1996). The aim of these case studies was to look at the experiences of two types of organisation, financial and non-financial, to see whether they had developed business continuity plans, to investigate any problems they may have had in developing these plans and to see if they had any problems in common. 'Financial' organisations in this study were designated as organisations whose main business could be defined as processing financial transactions for their customers, for example, banks, insurance companies and gaming organisations. 'Non-financial' organisations were organisations providing educational or health care services. Whilst the importance of information technology to BCP is recognised, the questions were framed in the overall context of BCP (the technology, the people and the business practices, rather than just recovery of IT services).

It was found that financial institutions were more likely to have business continuity plans in place, or to be well advanced in developing a plan, than non-financial organisations. However, both financial and non-financial organisations encountered the same major problems in setting up and/or maintaining a business continuity plan. The most significant problem for both was creating corporate awareness and management commitment for BCP, which was a factor frequently cited in the literature. Organisational structure was also a major problem, particularly for non-financial organisations, as were difficulties in complying with regulations and conflicting priorities were also major problems. Budgetary issues were more difficult to assess because of the difficulty in determining the overall cost of a full business continuity plan.

There have been many changes in relation to BCP since 1996, including the increased importance of the Internet to many businesses. In 2001, these interviews were repeated to find out if the situation had changed in the intervening five years, and, if so, what had caused the changes. The original ten organisations were contacted to ascertain the name of the most appropriate person to approach for an interview. This person was then asked if they would be willing to be interviewed for the project. The nature of the project was explained to them and they were guaranteed that any information that they gave would be confidential and the name of their organisation would not be revealed in any written reports. One of the original five non-financial institutions declined to take part because it was about to launch a major project, but interviews were conducted with the remaining nine organisations.

An interview guide, based on the guide used in the 1996 study, was designed by the researcher to ensure that the same topic areas were covered in each interview. This was important as the respondents were encouraged to talk freely about their experiences of business continuity planning by use of non-directive questions and their comments did not always follow any particular order (Brenner, 1985). Two additional questions were added to the question guide because of their topical nature and relevance to the development of business continuity plans:

1. How did the potential problems associated with Y2K affect business continuity plans in your organisation?
2. Have the events of September 11 in New York influenced the way in which you regard business continuity issues?
RESULTS

Table 1 summarises the results of the 1996 and 2001 studies. The results have been coded as follows:

- The five financial organisations are coded as F1, F2, F3, F4, F5.
- The two hospitals are coded as NH1 and NH2.
- The three universities are coded as NU1, NU2 and NU3 [NU2 did not participate in the 2001 component of the study].

In the ‘BCP Status’ column of the table, a “Partial BCP” means that the organisation’s business continuity plan has only some of these components. A “Minimal BCP” means that the organisation only has the capacity to back up some of its IT services.

Organisations and BCP

Four of the five financial institutions had a significant organisational change over the period 1996-2001. During the same time period, one of the universities and one of the hospitals had also been restructured.

Perhaps as would be expected, four of the five financial businesses were operating on a Full BCP by 2001. For two businesses this meant an increased level of emphasis on BCP since the 1996 study. External pressures (legal and regulatory) were cited as a reason for this.

Interestingly, the financial business associated with entertainment, gaming and wagering activities has actually operated with a reduced business continuity plan since 1996. The business had experienced only one disaster in the previous 12 years and the board of directors felt that there was little point in spending money on something that may not happen. The 2001 interviewee also indicated that the 1996 interviewee may have slightly exaggerated the level of BCP that the business actually had at the time.

The non-financial institutions had virtually remained at the same BCP levels as back in 1996. One university had upgraded its business continuity plan from none at all to minimal, mainly because of the increased size of the organisation. A comment by one of the hospital interviewees was that senior management felt that the money was better spent on other things, such as improved patient care.
Table 1: Summary of BCP Plans in Relation to Organisational Changes and External Influences on Organisations’ Business Continuity Awareness

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<tr>
<td>F1</td>
<td>Provides insurance services; has a number of associated companies</td>
<td>Full BCP</td>
<td>Taken over by one of the major banks. All operations now organised in New South Wales.</td>
<td>Full BCP</td>
<td>Yes</td>
<td>Yes</td>
<td>4</td>
</tr>
<tr>
<td>F2</td>
<td>One of major banks in Australia with branches overseas</td>
<td>Partial BCP</td>
<td>None</td>
<td>Full BCP</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
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<tr>
<td>F3</td>
<td>Australian based international financial services organisation with overseas branches</td>
<td>Full BCP</td>
<td>Taken over by a global financial company; BCP operations now based overseas</td>
<td>Full BCP</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
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<tr>
<td>F4</td>
<td>Provides superannuation services to public sector employees mainly</td>
<td>Partial BCP</td>
<td>Organisation has split – now smaller</td>
<td>Full BCP</td>
<td>Yes</td>
<td>Yes</td>
<td>4</td>
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<tr>
<td>F5</td>
<td>Concerned with entertainment, gaming and wagering</td>
<td>Full BCP</td>
<td>Organisation slightly larger but same structure</td>
<td>Minimal BCP</td>
<td>No</td>
<td>No</td>
<td>1</td>
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<tr>
<td>NH1</td>
<td>Provides health care services to several suburban areas</td>
<td>Partial BCP</td>
<td>Major restructure of health care network</td>
<td>Partial BCP</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
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<tr>
<td>NH2</td>
<td>Provides private health care services to several suburban areas</td>
<td>Partial BCP</td>
<td>No changes</td>
<td>Partial BCP</td>
<td>Yes</td>
<td>No</td>
<td>2</td>
</tr>
<tr>
<td>NU1</td>
<td>University</td>
<td>No BCP</td>
<td>Organisation larger</td>
<td>Minimal BCP</td>
<td>No</td>
<td>No</td>
<td>4</td>
</tr>
<tr>
<td>NU3</td>
<td>University</td>
<td>Partial BCP</td>
<td>Minimal changes</td>
<td>Partial BCP</td>
<td>Yes</td>
<td>No</td>
<td>7</td>
</tr>
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</table>
Awareness of BCP

The final column of Table 1 is an attempt to show the difficulty in tracking down who is actually in charge of BCP within any organisation. Three of the interviews (NH2, NU1 and NU) were set up using personal contacts. These required two, four and seven contacts respectively before the relevant person was identified. None of these three organisations was subsequently found to have a full business continuity plan, and it is therefore unlikely that a quicker identification method could have been used. The remaining seven organisations were contacted initially through the main switchboard number as listed in the White Pages. After identifying themselves, the researcher asked to be put through to the person in charge of business continuity in the organisation. If the person on the switchboard did not understand the term ‘business continuity’, they were asked for the person in charge of ‘disaster recovery’. If this enquiry still did not yield a response, the researcher asked to be put through to the person they could contact in the event of their building suffering a similar attack to the one on the World Trade Center in New York. In only one case was it possible to get directly to the person in charge of BCP within the organisation. In about half of the cases, the switchboard operator put the researcher through to an employee that managed to set up the correct contact at the next attempt! In four of the cases, the researcher had to go through at least four contacts before the required person was found! There seemed to be no specific bias between financial and non-financial organisations in this matter.

One financial business did, however, indicate that it had commenced running training programs to lift the awareness of BCP in the organisation.

In relation to being affected by certain events, ALL of the financial businesses that had full BCP in 2001 indicated that they were influenced by Y2K and September 11. The only financial institution that claimed not to be affected was the one with a minimal business continuity plan. The attitudes of the non-financial institutions were more affected by Y2K (75%) than the events of September 11 (25%). Only one non-financial institution claimed to have been affected by both events.

One interviewee indicated that another catalyst for increased awareness of BCP was the 2000 Sydney Olympics.

BCP and E-Commerce

In relation to e-commerce, the risks start to increase as systems begin to directly affect the activities of external parties, such as customers and suppliers. One interviewee at a financial institution noted that there are new legal requirements affecting the privacy of customer data, and services to customers can be severely disrupted by a system breakdown.

In order to further understand the effect of e-commerce on BCP, the four financial organisations with full business continuity plans were approached again by email (in May, 2002) with a series of questions related to the effect that e-commerce has had on their BCP. Three of the organisations (F1, F2 and F3) responded to this request.

The businesses were first asked if their approach to BCP had changed with the increasing emphasis in business on Internet technologies (Internet, intranet and extranet)? One response indicated that there had been no change, and that the e-commerce section of the business was represented as much as any other section of the business. The other two responses indicated little change in relation to the process of planning, and that there is still a need to concentrate upon critical business processes, wherever they may occur. The importance of risk analysis and assessing vulnerabilities in the new environment was also mentioned.

Secondly, the businesses were asked if their business continuity plan contained a component that involved dealing or communicating with external parties, such as suppliers and customers, in the event

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Exploring Consumer Loyalty to Web Sites: Why Older Australians Return to the GreyPath Portal

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ABSTRACT

Older people form a large, and growing, proportion of Australian society and many of them now use the Internet. The purpose of this paper is to understand why older people wish to return to certain Web sites, and we explore use of the GreyPath portal as a vehicle for our discussions. As a research framework we use concepts of customer loyalty originating in literature from the marketing discipline to investigate issues of Web use by on-line communities of older people. In our analysis we establish, using this framework, the particular features of GreyPath that encourage loyalty.

Keywords: Older people, Web portals, on-line communities, consumer loyalty.

OLDER PEOPLE AND THEIR NEEDS

Australia’s population is ageing and the proportion of older people (55 and over) will increase dramatically over the next 25 years. The Internet, a communication and information access technology, has the potential to improve an older person’s lifestyle (Fozard, Rietsma, Bouma and Graafmans 2000, Lepa 2001).

In the USA the needs of older people are seen to be revolving around four interrelated themes: financial security, physical health and wellbeing, mental health and social environment, and engaging in intellectual endeavours (Spry Foundation 2000). One of the key concerns for older people is their health both physical and mental, with communication skills tending to deteriorate with age (Worrall 1998). This situation of progressive reduction in communication skills is exacerbated when older people live in social isolation (Worrall 1998). Older people, through their use of the Internet, may enjoy positive health benefits simply because they can use its e-mail and chat facilities (Noer 1995, Philbeck 1998, Wright 1999). Health concerns such as arthritis, osteoporosis, diabetes, cancer and mental illness along with falls, inappropriate medication use, incontinence, and nutritional deficiencies may be alleviated due to information sourced from the Internet (McNamee 1998, Cooke 1999). However not all Internet health information may be appropriate for older people. Problems may occur if paper-based health information materials, which require very high levels of reading ability (Tooth, McKenna, Steinberg, Clark, King and DeLooze 2000), are replicated on the Internet.
The financial security of older people may be improved due to Internet information (Campbell 1998, Cutler 1997, Manchester 1997, Sherman 1997). The Internet can also be a source of intellectual stimulation due to lifelong learning opportunities such as studying for degrees and pursuing hobbies like genealogy and gardening (Bishop 2000).

The authors of this paper believe that there is a growing need to understand the impact of the Internet on older people and have already explored some areas of older person Internet usage in previous papers (Tatnall and Lepa 2001; Lepa and Tatnall 2002). We continue our research in this paper by exploring the concept of Web site loyalty using a customer loyalty framework originating in the marketing discipline. However, as much marketing theory is based on physical, tangible products we have endeavoured to select only those aspects that are relevant to our discussions.

THE GREYPATH PORTAL

GreyPath can be described as: "a uniquely styled, 'demographically inclusive', user friendly, seniors Web portal and virtual community, that has been designed first and foremost to empower seniors and enrich the quality of their lives" (Lewis 2002). In concept, GreyPath was created by Ray Lewis, a 66 year older senior who has held executive positions in various Australian companies. Lewis felt that he could make a contribution to society by looking after the community of older people and, as a consequence, has developed and manages the GreyPath portal (Lewis 2001).

GreyPath aims to encourage site loyalty, identification with, and participation from its constituency, and currently the portal receives some 400,000 hits per month which constitute about 5000 to 6000 different visitors (Lewis 2002). This represents a significant increase from the 1200 – 2000 visitors per month achieved by the site twelve months ago.

GreyPath has three major components:

1. Firstly, there are links which are informational, or categories that pertain to the ‘mind’ (Lewis 2001) in nature. These include finance, legal, health, education, services, travel, art and culture, and entertainment.
2. The second group are more in the everyday needs categories, which Ray Lewis describes as pertaining to the ‘heart’.
3. The third major component of the portal is the Village, an innovative virtual community where older people can chat and communicate with each other anonymously about their common interests.

Lewis (2002) indicates general benchmark figures for people consistently returning to Web sites are around 20-25 %, but that GreyPath is getting about 37% return rate which suggests a very high loyalty factor. He points out that it is crucial to have people coming back as this means that with the new people you also attract you are ever increasing your numbers. This raises the question of how marketing theories of customer loyalty relate to a consideration of customers returning to Web sites. In the next section we will briefly discuss some of this theory.
Welcome to Greypath, the Internet Gateway and 3D Village Community for Retirees and Seniors.

Editorial
By Ray Lewis

Greypath had visitors from 23 countries last week. Mostly from the USA, Japan and Germany. We would really like to hear from them and to find out why they visit us and how we might make more friendly contact. Perhaps you would like to hear about what you are doing.

You will find much of what you are looking for, by 'clicking' one of the categories on the left hand of this page. You can also search the web, through the Google search engine input panel below. Just type in what you are looking for, click the arrow.

Figure 1: The GreyPath portal – main page

Figure 2: GreyPath portal – advisors and entertainment
A CUSTOMER LOYALTY FRAMEWORK FROM THE MARKETING DISCIPLINE

During the 1920s the radio industry changed from being a novel, niche business to a significant worldwide phenomenon. Speaking before a US Federal Communications Commission hearing in 1934, William Paley pointed out that: “The first problem of our business is to win an audience, hold an audience, interest an audience.” (Paley 1934). Although he was speaking of radio, his sentiments are equally true of any market, including use of the World Wide Web, where winning, holding, and interesting an audience are crucial to success.

As Hofacker (2001) points out, when designing and implementing Web sites, before you can win, hold and interest your audience: “…the nature of the audience and their likes and dislikes must be thoroughly studied”. Zikmund and d’Amico (2001) point out that some companies identify these ‘likes and dislikes’ by tracking the pages of a Web-site that are most frequently visited, and by noting which areas are avoided altogether. Dholakia and Rego (1998) suggest that marketing research should question the attributes of a Web page that lead to its popularity. They argue that people visit commercial Web pages for several reasons, including:

- searching for specific information,
- random Web-surfing,
- participation in contests and raffles, and
- word-of-mouth from other Web-enthusiasts.

In general terms, the marketing discipline singles out ‘lifetime value of a customer’ as the most important variable affecting customer acquisition, retention, and development efforts (Hanson 2000). By this they mean the sum of the expected lifetime earnings from a customer, less the associated costs.
of acquisition, operations and service (Kleindl 2001). Hanson (2000) notes that customer loyalty is one of the dominant variables shaping lifetime value, and points out that any increase in customer loyalty can be a good measure of Web marketing success.

Ganesh et al. (2000) note that the literature on service satisfaction and switching behaviour in customers suggests that three constructs need to be examined: customer loyalty, customer satisfaction, and customer involvement. Hanson (2000) points out that satisfaction results when customers see value, and have their expectations met. Speaking about marketing in general, Lele (1987) outlines four things to consider in creating customer satisfaction:

- product,
- sales activity,
- after sales service, and
- company culture.

In relation to commerce on the Internet, while the design of the Web-site 'product' is important, so are the messages sent by sales activity to customers, and the attitudes represented by the site. These may be overt statements of purpose or commitment, evident in the resources devoted to a customer, or they may appear in a more subtle form as the quality and commitment reflected by the interaction (Hanson 2000). Company culture is reflected in such messages and interactions.

Bischoff (2002) notes that while ‘brand awareness’ was a 1950s model through which the advertiser tried to create a lot of noise, “Customer Loyalty measures the impact of the noise”. Oliver (1999) points out that customer satisfaction is a necessary step in loyalty formation, and that frequent satisfaction is required to achieve loyalty. Oliver (1997; 1999) defines loyalty as “a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior”. For a customer to remain loyal they must believe that the organisation’s services continue to offer the best choice alternative (Newman and Werbel 1973; Schneider and Perry 2001).

In discussing issues of loyalty, Oliver (1999) questions whether the customer can be socially integrated into a 'village' that directs their choices in a satisfying way? He describes a village as “a social alliance in which the primary motivation to become loyal on the part of each consumer is to be one with the group, and the primary motivation of the group overseers is to please their constituency". In the case where the product or service is not consumable then the camaraderie provided by the social organisation becomes particularly important. Oliver (1999) cites examples of this in senior citizen organisations, Web chat rooms, lodges, travel clubs, and card club. When using the Internet these groups can be consider as on-line communities, which Hanson (2000) suggests are defined by four features:

- Internet communication tools,
- rules that define community membership,
- collaborative production of material by members, and
- repeat use by members.

Hanson shows that on-line communities are focused around social gatherings in which communication is multi-directional and where members are responsible for providing some of the material as well as for consuming information. Repeated interactions by members are seen to reinforce the social features of the community by building loyalty (Hanson 2000) and are thus essential to success.
FEATURES OF THE GREYPATH PORTAL THAT FOSTER CUSTOMER LOYALTY

Following Hanson, we argue that the older people who user the GreyPath portal can be considered to form a virtual on-line community of users. The question we want to address in this paper is why these older people return to the GreyPath portal, and whether the marketing concept of ‘customer loyalty’ has anything to offer in discussing this issue.

In our view, the definition of customer loyalty needs to be reconsidered in the GreyPath context. Oliver’s idea of considering loyalty in relation to integration into a community that directs choices in a satisfying way as “a social alliance in which the primary motivation to become loyal on the part of each consumer is to be one with the group …” (Oliver 1999), has value in this context. Whether users of the GreyPath portal see themselves strongly enough as a community to want to become ‘one with the group’ however, is not clear at this stage.

In another definition, Oliver (1999) suggests that loyalty involves “a deeply held commitment to re-buy or repatronize …”, but we do not see words like these as useful or relevant in the GreyPath context. It is most unlikely that an older person would use only the GreyPath portal, as the use of words like this might suggest. At this point there is a need to redefine what is meant by customer loyalty in the context of using a Web portal, and we suggest that this should relate to the site they first visit when they get onto the Internet. We will thus consider a user to be loyal to the GreyPath portal if they consistently go to this portal first when making use of the Internet. It follows that if they are satisfied with the portal as a means of finding information and other relevant Web pages, they will return to it each time and so become loyal. On the other hand, if they are not successful at finding what they want through GreyPath, and happen to have more success using another portal, or a search engine like Google, then they will not remain loyal.

We will now consider some of the features of the GreyPath portal that might act to enhance loyalty in its users. We will consider the following features:

- the GreyPath screen / interface design,
- personalised treatment that they receive when interacting with the site, and
- features and content available through the portal, including:
  - advice for this demographic,
  - links to other sites of interest,
- the GreyPath Village chat rooms.

Design of the GreyPath Screen

Lewis, the designer of the GreyPath site, is very conscious of the need for users to be able to find what they want quickly and easily (Lewis 2002). He describes sites where you have to keep clicking on different categories further and further down until you get to what you want to find, and likens these to the type of telephone digital help systems that many companies employ, but that many customers hate to use. He notes that: “if they, a senior, have to cascade down too far before they get to something they can chew on, they are not going to keep on going” (Lewis 2002). Lewis speaks of laterality on the site, meaning that you will see all the information categories straight away without having to dig deep to find them. For instance, if you wanted to find information about health you can go right into it directly from the main page. Lewis says: “I want to let the dog see the rabbit really early” (Lewis 2002).

Hanson (2000) argues that while the overall design of the site is important, the attitudes it represents and the messages it sends to users are even more so. The colours of the GreyPath site are predominantly red, white and blue and the type is mostly Arial 12 point. The choice of these colours was made carefully, and Lewis points out that not only did these bold colours make the site clear and easy to read, but that they also appealed to his audience’s cultural heritage and patriotism. “My lot (seniors group) are more Empire loyalists due to their cultural heritage than the current lot who are more worldly” (Lewis 2002).
Following Hofacker (2001) who stresses the importance of ensuring that the site equates with the likes and dislikes of the target audience, Lewis has a notice on the site saying that if you don’t like something, then e-mail him about it. He notes that no one has ever come back and complained about the site. Lewis believes that a key feature of the design of the site is that it was done in conjunction with someone who was himself a senior. “I think you need the age to be part of that demographic (seniors) to respond in a way so that the demographic recognizes it” (Lewis 2002).

**Personalised Treatment Available to Users Interacting with Aspects of the Portal**

One of the main aims of the portal design is to make its users identify with, and feel part of a community of older people (Lewis 2002). “I believe GreyPath is developing an indefinable feel that makes many seniors feel wanted there and at a home away from home” (Lewis 2002). Part of this is the use of ‘a human identity’ to ‘personalise’ the site. Lewis suggests that the Internet is quite impersonal, and that many people would like to identify with him, or some other person, than with a ‘no person’ site. He sees the use of an identity like this as an integral part of the site design, and encourages users to get to know him and to write to him. He states that an impersonal site is not very welcoming if, when you click on something, a happy answer comes back but nothing else. His observation is that on the GreyPath site when they see his picture with his mouth moving, they are a lot happier. “If it wasn’t identified with me, the site would not grow anywhere near as fast” (Lewis 2002).

Amongst the factors shown by marketing research to contribute to people visiting commercial Web sites, Dholakia and Rego (1998) list participation in the activities of the site and word of mouth recommendation by other users. Lewis (2002) describes how he takes this recommendation to heart by having the site offer haiku and Limerick competitions, a seniors e-zine (magazine) that carries just about every contribution, and video competitions. Lele (1987) notes that ‘after sales service’ and company culture are also important, and an important aspect of the way the site operates is the attention given to providing an immediate response to the actions of its users. Lewis makes a point of responding as quickly as possible to all e-mail messages, and says that the site is designed to provide an immediate response to all contacts via message boards, direct e-mail, and use of the guest book. For instance, a message sent to the message board appears immediately (Lewis 2001) so that the sender knows it is there, and entries in the guest book result in an immediate (automatic) e-mail which says ‘thanks very much, we value your contribution’. Lewis (2002) says: “I think that it is really important to increase the empathy of the site. You show that you do care enough.”

Another feature of the site is its use of opinion polls. These allow users to express their views on various matters of interest to them, and when a user makes an entry in an opinion poll they are able to see their vote reflected immediately in the overall results.

**Features and Content of the Portal**

Hanson (2000) points out that for customers to be satisfied they must see value and have their expectations met. No matter how well the interface of the site is designed or how much it is personalised, the prime reason people go to a Web site is to view its content (Hofacker 2001). The content of the GreyPath portal has been carefully researched (Lewis 2002) to reflect the needs and interests of its demographic: older people. Content includes various types of advice on topics like finance, education, health and legal matters (see Figure 2) as well as news, weather and services. It also includes fun and entertainment. Being a portal, the site has links to other related sites and so attempts to become a first port of call for its users who may then move on to these other sites.
The Village Chat Rooms

An important feature of the GreyPath site is its Village chat rooms (see Figure 3). There are several different rooms: a church, café, pub, library, town hall, health centre and art gallery to allow people to speak easily about different topics with others who have similar interests. A major value of the Village is to strengthen the virtual community by encouraging frequent interactions by its members which, as Hanson (2000) notes should act to increase customer loyalty. Hofacker (2001) suggests that keeping content fresh and updating the appearance of the site is a good way to give people a reason for returning and the Village chat rooms offer one means of achieving this aim.

CONCLUSION

This paper has examined features of the GreyPath portal that attempt to instil a sense of loyalty in visitors, who are assumed to be mainly older people. Much of the design of the GreyPath site can be attributed to Lewis who has a good understanding of the demographic he belongs to, and many observations regarding GreyPath site loyalty have originated from Lewis.

The 37% return rate to the GreyPath portal, quoted by Lewis, suggests a very high loyalty factor in older people accessing this site. Using a customer loyalty framework, the authors have analysed the GreyPath portal and consider that it has four main features that lead visitors to exhibit Web site loyalty behaviour: the GreyPath interface design, personalised treatment they receive when interacting with the site, content suiting the needs of older people, and the GreyPath Village chat rooms. Statistics suggest that more and more people are visiting the GreyPath portal, but these do not confirm that it is in fact older people who are visiting this site. The next stage of the research, an on-line survey, will attempt to test this, and to find out if users of the GreyPath portal see themselves strongly enough as a community to want to become 'one with the group'. Further research will also attempt to ascertain if older people are inherently more loyal customers, or if it is something particular about the design of the GreyPath portal that engenders this loyalty. The research will attempt to test whether some of GreyPath's features, and the way they satisfy customer loyalty criteria described in the marketing literature, lead to the high return rate experienced by this portal.

We think that more Web portals will be developed with specific groups of people as the target demographic. The Web site loyalty features discovered in this paper through an analytical framework from marketing theory may also be applicable to investigation of other such sites.

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The Cybercentrism Continuum and Virtually-Extended Enterprises in Local Government

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ABSTRACT

Local government worldwide is attempting to embrace private sector management practices in an environment of economic constraint and growing accountability. In the process it is transforming itself - into local e-government - with pressure from other levels of government and customer expectation to deliver more and better services online with more transparency and accountability. However, to facilitate this a new mechanism of service delivery is required. This paper explores the importance of a cybercentristic management model in the context of six neighbouring local government authorities in Western Australia for the development of this new mechanism. The author argues that the virtually-extended enterprise is the service delivery mechanism for local government to effect this e-transformation and also that cybercentrism is a necessary condition for this to be successful.

Keywords: virtual organisations; cybercentrism; local government; e-government

INTRODUCTION

Local government worldwide is grappling with determining the most effective means of interaction with its citizens. The use of the internet to facilitate this interaction has become the subject of much debate, with questions arising of funding and political commitment as well as the potentially socially divisive effects for those without internet access (Jellinek, 2000). How will local governments prepare for interaction with their e-citizens of the future?

Recent estimates for 2000-01 indicate an e-government budget of 13.4 billion euros for fifteen European nations. US e-government expenditure is set to rise from $1.5 billion in 2000 to $6.2 billion in 2005, while the Canadian federal government earmarked $280 million for the implementation of e-government in 2001 (Langford and Harrison, 2002).

In 1999, eight global corporations and twenty governments in the US joined in the Governance in the Digital Economy Project, designed to enable governments to investigate the impact of the Internet and new technologies on the transformation of government to perform effectively in a networked global economy (Von Hoffman, 1999).

The Australian Commonwealth GovernmentOnline project was initiated in 2000 with an objective of providing access to virtually all government services at any time. Cross-government portals are being developed, but there is concern about the ability to synchronise all levels of government to this extent.
Western Australia covers a third of the Australian continent, has 23 per cent of Australia’s councils and 9.8 per cent of Australia’s population. There are 142 councils in Western Australia (1999-2000 Report on the Operation of the Local Government (Financial Assistance) Act 1995). On average, each council employee serves 137 people.

Western Australia is the only State in Australia that has not undertaken significant local government structural reform in recent years. However, as in other countries, policies and practices are being radically changed to cope with reduced resources (Bovaird and Davis, 1999).

There have been six inquiries into local government in Western Australia, each urging fewer councils and local government structural reform and including initiatives such as cooperative service provision, resource sharing, joint service delivery enterprises, boundary change and amalgamations. Such reform may help to build local government’s capacity to serve its community, deliver better value in service provision through economies of scale and a wider expertise base and avoid becoming irrelevant as services are contracted out more efficiently to the private and voluntary sectors.

The Structural Reform Advisory Committee Report (Western Australian Government, 1996) noted that, while there was ‘scope for some rationalisation of boundaries, there is no justification for a wholesale government-driven agenda of local government amalgamations’. The Report benchmarked savings from mergers for metropolitan councils, identifying notional annual savings of $15.8 million to $53 million in urban areas. It identified three criteria for viability, i.e. governance costs less than 10% of expenditure, debt service less than 33% of rate income and less than 50% of income derived from Federal Government Financial Assistance Grants.

In 2000, the Federal Government set aside funds for the Western Australian Government to help councils examine structural reform options. One project was directed at examining ‘… the benefits, efficiencies and impact on services of structural reform, including amalgamation in the Western Suburbs Regional Organisation of Councils [WESROC], Perth’ (Western Australian Government, 1996).

At the time this project was undertaken, total governance costs for the WESROC councils amounted to around 14 per cent of total rates, 4 per cent higher than the 10 per cent benchmark set by the Structural Reform Advisory Committee Report. Duplication of service delivery and infrastructure was also evident. The potential savings through merger were identified as approximately $41.325 million. The WESROC Structural Reform Study was completed in 2000, but the councils involved decided to pursue enhanced resource sharing to achieve efficiencies, rather than undertake a merger.

WESROC already acts to some extent as a virtual organisation. WESROC is a voluntary organisation comprised of an Executive of the six Chief Executive Officers, and a Board, which includes the six Mayors or Shire Presidents. While each local government authority is independent, WESROC provides a mechanism to work cooperatively in order to optimise resources and increase customer value to the residents living within the region.

A partnering agreement providing the framework for resource sharing across boundary areas has been signed by the Chief Executive Officer of each council, although there is no contractual or legal obligation entailed in this agreement. However, there is no physical entity per se for WESROC as there is for each of its member councils, and projects are implemented on a cooperative basis between councils through the formation of project teams. These teams communicate to a large degree using Information and Communication Technology (ICT) coupled with occasional face-to-face meetings. Each of the individual councils has a website and intranet.

Within this political and economic context, councils in the Western Suburbs of Western Australia are experiencing a period of change. This has been driven by the push towards e-government and the adoption of the principles of New Public Management (NPM), which imports private sector practices such as innovation, efficiency and quality into public sector management (Van Gramberg & Teicher,
NPM focuses on what Hansen (2001, p.108) describes as a ‘... new orientation of the public sector towards the output and outcome dimensions of political and administrative decision making at the expense of input and process dimensions of public decision and policy making’.

The results focus of NPM means councils are becoming more accountable to their citizens and to the higher tiers of government, evidenced through a rise in the development of quality control and reporting measures, but in the process losing managerial control to these higher tiers of government. Foster and Scott (1998, p.150) described NPM as ‘ ... the intraorganizational separation both of policy and administration and of those purchasing and providing services; a commercial ‘customer’ orientation externally to the public and internally within the organization; use of tangible performance measures to track attainment of service outputs and quality targets; and the importation of human resource management practices into the public sphere”.

Local government accountability, coupled with the introduction of business practices and performance measures developed in the private sector, is effecting a fundamental change in the way services are delivered to customers. Hansen (2001) characterises this change along market and management-oriented dimensions. The market dimension is exemplified through increasing privatisation and contracting out. The management-oriented dimensions are exemplified by moves toward decentralisation of decision-making competence and responsibility, efficiency monitoring, the introduction of service and quality management systems such as Quality Assurance and benchmarking and joint forums of strategic leadership. Employee empowerment is a feature of this dimension.

New roles for councillors and administrative executives are emerging, with appointed executives acting as directors while councillors act as goal-steering decision-makers. Local government under NPM concentrates on the customer and the quality and targeting of services and customer relationships offered. The focus in local government has now become the development of mechanisms to facilitate this in an increasingly digital environment.

Increasingly, government services are being offered online. Government is being transformed at all levels into e-government, meeting the priorities of its customer base regardless of where that customer is. Technology is being used to improve the availability of public services through integration of services around customer needs; providing ‘ ... cost effective, easy to use and value-added services for citizens, business and the governments themselves.’ (Accenture, 2001, p.2).

The focus now is on providing e-government through the virtually-extended enterprise (VEE). VEEs have a space as well as place orientation, using the internet and other communication technologies to provide increased access and better response times for their customers and extending the reach of the physical entity into cyberspace. Through the use of the VEE as a transformation mechanism local government can move to becoming local e-government, providing choice for the customer through the maintenance of both a physical and a virtual presence for service delivery. The VEE mechanism enables realisation of the e-government vision ‘ ... at the local level, at the point where the vast majority of services are delivered’. (DTLR, 2002, p.5).

Gordon (2000, 2001) proposes cybercentric management as a new cyber-management model for the virtually-extended enterprise. This management model seeks to enable competitive advantage and quality customer-focused service delivery using technology and connectivity to increase knowledge and skill levels in a virtual environment.

Pearlmutter (1969) identified four generations of management models developed as organisations expand their area of influence from the local to the global:

- Ethnocentrism - overseas operations are secondary
- Polycentrism - independent subsidiaries established in overseas markets
- Regiocentrism - integrated regional management, regionally interdependent
- Geocentrism - integrated world structure of continued physical growth, worldwide interdependent
Gordon (2000, 2001) suggests a fifth model of cybercentrism is evolving to manage the digital economic universe.

The elements of distinction between this evolving model of cybercentrism and its geocentrism predecessor, adapted for local government are shown below in Table I.

**Table I: Comparison of Geocentrism and Cybercentrism Dimensions (Adapted from Gordon, 2001, DTLR, 2002)**

<table>
<thead>
<tr>
<th>Cybercentrism dimension</th>
<th>Geocentrism</th>
<th>Cybercentrism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>Segregated IT and MIS</td>
<td>IT brought into key decision making</td>
</tr>
<tr>
<td>Corporate Structure</td>
<td>Broad, hierarchical structure with vertical command</td>
<td>Flattening of the organisation with horizontal authority. Devolution of responsibility and accountability and delegation to the frontline.</td>
</tr>
<tr>
<td>Company Goals</td>
<td>Goals/objectives are known and not questioned by management</td>
<td>Goals/objectives are elastic and reinvented as community needs evolve and change. Flexibility in developing improved services.</td>
</tr>
<tr>
<td>Market Position</td>
<td>Defined by view of market structure as a physical presence</td>
<td>Virtually-extended organisation presenting both a physical and virtual face to the customer and optimising services through use of information and communication technology (ICT).</td>
</tr>
<tr>
<td>Competitiveness</td>
<td>The organisation bitterly defends its knowledge</td>
<td>The organisation looks for opportunities to join with other organisations in mutually beneficial R&amp;D ventures.</td>
</tr>
<tr>
<td>Employment</td>
<td>Lifetime employment</td>
<td>Supplementary use of contract workers and consultancy</td>
</tr>
<tr>
<td>Strategic Vision</td>
<td>Vision defines strategies according to a limited choice of options</td>
<td>Cyber vision offers a wide range of strategic options limited only by the ability to alter perceptions, intervene, or destabilise existing realities</td>
</tr>
</tbody>
</table>

The cybercentric model is the next step from the global village geocentric model with its traditional, hierarchical management and a view of market structure defined by physical presence. This move towards cybercentrism is based in part on the changing product-value proposition '... from mass marketing to mass customization; from reactive marketing communication to user-interface; from the goals of opening a new corporate site, to, instead, establishing and managing a virtual community as a commercial knowledge enterprise.' (Gordon, 2001, p.678).

Delivering local e-government in the context of NPM will require a strategic vision where public services are delivered both virtually and physically to maximise customer benefit. It also requires flexibility and a willingness to collaborate to produce cost-effective outcomes with a flatter hierarchy. These requirements for managing the delivery of better customer service at all levels from the global to the local are encapsulated in Gordon’s cybercentric management model.

The author suggests that undertaking the transformation to e-government will involve a change in the management perspectives of local government executives. This change can be presented on a continuum between the physically oriented geocentrism perspective and the digitally oriented cybercentrism perspective (Figure 1).
A pilot survey was undertaken to investigate the proposition that different local government authorities within the WESROC group of councils will be represented at different positions on this continuum. As can be seen in Figure 1, there are four quadrants within which the continuum can be defined. Thus, for example, the appointed executive of an authority may have a cybercentric perspective but the elected executive may have a geocentric perspective. The authority would therefore be positioned in the upper left quadrant. Similarly, the elected executive may have a cybercentric perspective while the appointed executive is geocentric. In this case the authority will be positioned in the lower right quadrant. Those authorities positioned in the upper right quadrant, towards the cybercentric end of the continuum, will be more ready to respond to the e-government challenge.

Local government is seeking to facilitate the acquisition of virtual skills to enable them to be transformed '... from a structure built of jobs into a field of work that needs to be done.' (Stough, Eom, and Buckenmyer, 2000). Development of such flexibility and agility in the WESROC member councils will maximise cost-effective service delivery to their communities and to the region as a whole. The cybercentric management model may provide the key to this transformation, as local governments deal with new technical and organisational infrastructures and the demands to create value for their technologically adept citizens.

**METHODOLOGY**

To test the author's anecdotal observation that the WESROC councils are moving towards a cybercentric management model and a VEE operating mode, a pilot survey was developed using the seven dimensions of geocentrism and cybercentrism (Table 1).

A survey was chosen for this pilot study to eliminate possible bias, as the author works in the local government area being studied. Using a survey as the initial inquiry instrument establishes a baseline for future research, without the bias which may be introduced in an interview.

Establishment of this baseline is also important to test the perception that the management styles of WESROC Executives are not fixed, but rather are moving on a continuum from geocentrism to cybercentrism over time as they respond to the demands of a digitally demanding, customer focused environment.
The survey questions were derived from the comparative elements listed in Table 1. Other questions linked to these dimensions were also included to assist in identifying the WESROC Executives' management perceptions. These questions investigated current and future strategies for the use of e-commerce in local government and perceptions of the need to develop customer focused relationships and the need to ensure their employees are equipped to deal adequately with a technologically changing environment.

The six elected and appointed executives of the councils making up WESROC were surveyed by mail. A five point Likert scale (where 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree) was used by those surveyed to rate their responses to statements.

Responses were received from all six Chief Executive Officers (CEOs) and four Mayors/Shire Presidents. Individual councils were randomly assigned identifying letters from A to F, and are not identified in this paper. An average response for each dimension was derived from each respondent's responses to the questions related to that dimension.

The full range of statistical analysis was not undertaken as this is a pilot study and the sample size was small. The survey responses were analysed in terms of their level of geocentricity or cybercentricity in order to place the respondent on the cybercentrism continuum. These responses were compared for each council's executive group and between the executive groups from each council. Finally, an average response was generated to place the executive group on a management continuum from geocentric to cybercentric.

RESULTS

Each cybercentrism dimension was represented by more than one statement in the survey. Average responses therefore were derived for each dimension. Figures 2 and 3 show the responses of the Mayor/Shire Presidents and CEOs of each of the individual authorities for each dimension.

![Figure 2: Comparison Of Mayor/Shire President Responses for the Cybercentrism Dimensions](image-url)
Differences in response between the elected and appointed executives of each council, are apparent. Council C executives, for example, differ markedly in their perception of their market position. This will impact on their view of their target market segments and on the development of appropriate customer relationship management strategies.

Similarly, Council A executives differ in their perception of the function of company goals and the most appropriate structure for their organisation to achieve effective outcomes for their clients. This geocentric bias has implications for the progression to use of a VEE with its decentralised decision-making and empowered employees.

Council E exhibits a consistently cybercentric approach in most dimensions. However, there is a significant difference in this Council between appointed and elected executive perceptions in the employment dimension, indicating tension between the expected level of expertise to be held in-house and the level of use of contractors.

The overall level of cybercentrism in the company goals dimension is low. Responses for the four authorities where both the CEO and Mayor responded were mapped on the continuum shown in Figure 4. Council E is the most progressive in this dimension, with both the Mayor and CEO responses in their respective cybercentric quadrants. While progress toward a cybercentric attitude
towards goal setting is evident, it can be seen that the WESROC authorities have not yet fully embraced the principles of flexible goal setting.

![Figure 5: Continuum Map – Corporate Structure Dimension](image)

Figure 5 shows that the NPM principle of employee empowerment is being embraced more gradually by some of the WESROC Councils than others. Council A, particularly, exhibits a strongly geocentric response encompassed in a hierarchical structure with vertical command. By contrast, Council E exhibits strong cybercentricity for both CEO and Mayor. Councils with strongly geocentric responses in this dimension are still in the early stages of moving away from the bureaucratic model towards the more flexible model required for implementation of the local e-government vision.

The overall average responses of the Mayor/Shire Presidents as a group and the CEOs as a group for each dimension are shown in Table II.

**Table II: Comparative Average Responses – Cybercentrism Dimensions - Mayors / Shire Presidents and CEOs**

<table>
<thead>
<tr>
<th>Cybercentrism dimension</th>
<th>Overall average</th>
<th>Mayor/Shire President average response (n=4)</th>
<th>CEO average response (n=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>4.4</td>
<td>4.5</td>
<td>4.3</td>
</tr>
<tr>
<td>Corporate Structure</td>
<td>2.7</td>
<td>3.3</td>
<td>2.3</td>
</tr>
<tr>
<td>Company Goals</td>
<td>2.9</td>
<td>2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>Market Position</td>
<td>3.8</td>
<td>4.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Competitiveness</td>
<td>3.8</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Employment</td>
<td>3.9</td>
<td>3.3</td>
<td>4.3</td>
</tr>
<tr>
<td>Strategic Vision</td>
<td>3.9</td>
<td>4.1</td>
<td>3.7</td>
</tr>
</tbody>
</table>

The combined responses for the four councils where both the Mayor and CEO responded are shown in Figure 6.
Although some councils are more advanced than others in certain dimensions of cybercentricity, overall, in the four WESROC authorities where both the Mayor and CEO responded, the organisations can be seen to be operating on the cybercentric side of the continuum, i.e. in a more cybercentric than geocentric mode.

**DISCUSSION**

This paper examines the concept of cybercentrism and the potential for WESROC local government authorities to provide local e-government services in a virtually-extended mode. The results highlight three areas for discussion, i.e.:

- The development of WESROC as a VEE
- The appropriate management style to facilitate local e-government in the WESROC region.
- Laying the foundations for local e-government in the WESROC region.

Enterprises are moving from the workplace towards the workspace orientation and local government is no exception. With this shift comes a change in business models towards collaborative agreements and alliances and the development of virtual knowledge relationships (Gordon, 2000).

These changes are driving the formation of VEEs, which act as the virtual face of the physical entity, allowing improved delivery of public services through local e-government. However, a different management model is required for the public sector to achieve these improvements. The bureaucratic model is no longer appropriate to facilitate the achievement of the NPM outcomes required in local government today. Rather, a cybercentristic model enabling flexibility and the development of capacity to take advantage of the virtual environment to work collaboratively and produce significant cost-effective customer focused benefits is required.

Each of the WESROC member councils maintains a physical entity, but also maintains a virtual presence through a website. These websites are maintained at different levels from a Publish level through to a modest Transaction level. The councils of WESROC operate on a project-based quasi joint-venture co-alliance business model, collaborating virtually to produce mutually beneficial outcomes for their communities (Figure 7). This forms a basis for the development of WESROC as a VEE.
Not every member council holds all the required expertise and competence, and acting virtually to achieve a mutually beneficial outcome is a real alternative.

E-government is designed to interact with the citizen as a customer. According to McCartney (2000), an e-government approach is centred around the principles of providing choice, accessibility, social inclusion and better information use. Robins and Burn (2001) suggest the use of the virtual organisation as a value-alliance model to improve customer service at the State government level.

The benefits to be gained for local government from operation as a VEE to provide local e-government (DTLR, 2002; Mower, 2001; Stough, Eom and Buckenmyer, 2000; Burn, Marshall and Wild, 1999) include:

- maximised resource sharing
- economies of scale
- enhanced outcomes with no additional bureaucracy
- the development of fields of work rather than organisations of jobs
- flexibility
- accountability and transparency
- better customer focus, with services more convenient, accessible and responsive.

Virtual structures exist outside physical boundaries, primarily as ‘... a network of independent, geographically dispersed organisations with a partial mission overlap.’ (Bultje and van Wijk, 1998). This characterisation can be expanded to include the concepts of ‘... electronically networked organisations that transcend conventional organisational boundaries’, and use communication and information technology to minimise the necessity for physical structures to produce effective outcomes (Burn, Marshall and Wild, 1999, p. 22) and make the system practical (Cooper and Muench, 2000).

Other writers (McKay and Marshall, 2000; Newell, Pan, Galliers and Huang, 2001; Qureshi and Zigurs, 2001; Symonds, 2000) caution that while technology is important and necessary in a virtual organisation, it is not the sole defining characteristic delivering business value. Culture, the degree of linkage within the networks and the nature of the market are also important, particularly in the age of über-commerce (Watson, 2000). Connectivity is the driver to ‘seamlessly communicate, collaborate and evolve company systems, and innovate product development ...’ (Gordon, 2001, p.681).

In this respect, an important difference exists in Council E between appointed and elected executive perceptions in the employment dimension. This may indicate a continuance of the old bureaucratic view of the tenured public servant position and reflect the stage the council has reached in the
adoption of NPM. However, the lack of commonality in this dimension may affect the development of an agile and flexible organisation, a hallmark of the VEE.

Local government acting as a VEE is an important extension of choice for the citizen. Personal contact can still be maintained for those customers who choose this, but equally, services are accessible to those who prefer to interact virtually.

The necessity to reorganise local government towards an output orientation and customer focus brings with it the need to address opportunities to provide improved services in an innovative way. Local government is seeking to transform itself, with an increasing focus on ‘... entrepreneurship, efficiency and quality’ (Van Gramberg and Teicher, 2000, p.1). Cybercentric organisations show an ability to juggle a wide range of strategic options in a flexible way.

E-government has emerged in the era of e-commerce as one such strategic option for governments to establish customer relationships and open communication channels with customers and suppliers (Hazell and Doig, 2001). E-government ‘... integrates the interactions and the interrelations between government and citizens, companies, customers, and public institutions through the application of modern information and communication technologies’ (Schedel and Scharf, 2001, p.776) The results in the cybercentrism market dimension presented in this paper indicate the level of preparedness among WESROC councils to embrace such mechanisms as e-commerce to enhance services to stakeholders, including citizens and suppliers. Important divergences are obvious between the elected and appointed executives of one council, reflecting a lack of understanding of the benefits accruing from the use of e-commerce and the opportunities for better customer relationships this can provide.

Information and communication technology (ICT) is being utilised to reform business processes in local e-government to achieve this focus in delivering better public services (Mower, 2001), laying the foundations of a new form of communication with their customers and the development of frameworks for this service delivery.

As has been shown in recent financial collapses, information flows stored in ICT systems are powerful records of process and ethics. The VEE is based around ICT and thus has a high level of accountability and transparency. This is particularly relevant in the context of the baby boomers and generation Y where technology is expected to form a part of their interaction with government.

FURTHER RESEARCH

Two further research areas arise from this paper. Based on the pilot study results reported in this paper, it is proposed that cybercentric management is a necessary condition for local governments to effect transformation to and function in a virtual environment. Further research is needed to test the general application of this hypothesis and to confirm whether cybercentric management is also a sufficient condition for local government to operate successfully as a virtually-extended enterprise.

Research into the individual responses of elected and appointed executives with respect to the cybercentrism dimensions presented in this paper will provide a basis for addressing the changes local governments will be required to make to effectively utilise VEEs to provide better services to their community. This research will provide a basis for the production of a change management framework to facilitate the transformation to local e-government and the development of a local e-government virtual enterprise model.
CONCLUSION

This paper proposes that cybercentristic management, with its focus on the creation of a knowledge-based environment utilising the tools of ICT, is a necessary condition for the successful operation of local government as a virtually-extended enterprise. The results presented in this paper show that the WESROC councils are moving away from a geocentric management model towards a cybercentric management model and are, overall, located on the cybercentric side of the continuum. These councils are thus well placed to initiate the development of customer-focused local e-government through the provision of improved services online, acting as virtually-extended enterprises to provide virtual as well as physical choice for their customers.

Using Gordon's cybercentrism management model as a basis, appointed and elected executives of six neighbouring councils forming the Western Suburbs Regional Organisation of Councils in Western Australia were surveyed to establish the level of geocentricity or cybercentricity exhibited by their organisations. The results from this survey indicate variation in the level of cybercentricity exhibited by individual councils with the WESROC co-alliance. However, the fact that all councils lie on the cybercentric side of the continuum indicates that operation as a virtual organisation, specifically a VEE, should be explored.

The necessity of this shift in management dimension is consistent with the move towards New Public Management required of public sector organisations, where services must be delivered in a more transparent, accountable, cost-effective and efficient manner. Further areas of research to maximise the use of WESROC as a virtual organisation for regional service delivery have been identified.

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The Usability of E-Commerce Systems: A Model for User Participation in Development Activities

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ABSTRACT

Throughout the literature since the 1960's, a commonly cited factor pertaining to system success has been user participation in the systems development process. Among other things this is likely to lead to increased user satisfaction and the perceived usefulness of the application. In the competitive world of e-commerce, attracting customers to a Web site is expensive; keeping them is a business imperative. The utility of the Web site from the user perspective is critical to success, and evidence suggests that an unrewarding initial experience will thwart further interaction with the site.

This paper examines the literature on user involvement in systems development and analyses the issues that are particularly related to e-business development. A model is then proposed and discussed for the analysis of user involvement. This differs from previous models on the topic in that in our model the notion of the user takes a multi-stakeholder perspective. The stakeholder perspective emphasises the role of the prospective customer despite the logistical difficulties of including them.

Keywords: User participation, electronic commerce, systems development

INTRODUCTION

Since the 1960's it has been generally acknowledged that user participation in the Information Systems (IS) development process increases the likelihood of project success (Barki and Hartwick 1994; Foster and Franz 1999). Put another way, lack of communication between users and developers has been a common theme in the well-documented reasons for failures in IS implementations (Bussen and Myers, 1997). User involvement is likely to result in increased user satisfaction (Garceau et al. 1993), and the perceived usefulness of the application (Foster and Franz, 1999; Franz and Robey, 1986; McKeen et al., 1994). Foster and Franz (1999) emphasise the need for user involvement, most importantly in the early stages of development, concluding, “managers should actively seek user involvement in systems development activities” (p.345).
The portfolio of applications being developed today has changed with the emergence of the B-Commerce (EC) business paradigm. Organisations are capitalising on the potential of new technologies such as the Internet, Intranets and the World Wide Web to improve communications and transaction efficiency, reduce operation costs and increase market share. This paradigm shift in business has been supported by applications with a different focus. While organizations continue to implement IS for internal use and to integrate with known business partners, the focus of this paper is business-to-customer (B2C) applications that are available for universal use.

The literature to date regarding user participation in IS development has not differentiated between applications designed for traditional environments or for B2C. In comparing the two domains. Fraternali (1999) states:

“Applications for the Internet in such domains as electronic commerce, digital libraries and distance learning are characterized by an unprecedented mix of features that makes them radically different from previous applications of information technology” (p. 227).

However the underlying process for developing applications is addressed by Yourdon (2000), who questions whether e-business/Internet projects are really that different by suggesting “E-business projects face the same demands pressures and risks as any other kind of IT development project, but to a greater degree”. This added pressure comes from not only squeezed timeframes for delivery, but also from the necessity to change accompanying business processes. He suggests also that “the e-business phenomenon is much more fundamental because it creates a much more intimate connection with customers, vendors and suppliers”.

One feature of B2C systems that differentiates them from traditional MIS applications is the identity of the “user”. Traditional systems are developed for a clearly defined set of known users either in-house or business partners. The development may be undertaken in-house or by external parties, but either way, the user community are clearly identifiable. They are often championing the project and possibly funding it from their budget. Likewise off-the-shelf packages allow organisations to see what they are getting before software purchase. Customisation of the package to meet the organisations needs can then precede implementation. Again the known, distinguishable in-house user community is able to be involved in decisions regarding the adoption and adaptation of the product.

In the global business environment of today, a B2C application is inviting the consideration of the world at large. Rather than serving a known user group, B2C sites may target the world at large. Potential users are diverse in all respects, ethnically, culturally as well as geographically. They are also diverse in their computing skills as noted by Fraternali (1999),

“Universal access by individuals with limited or no skills in the use of computer applications introduces the need of new man-machine interfaces capable of capturing the customer’s attention and facilitating access to information” (p.227).

The ability to have representative end-user participation in B2C IS development is radically different from obtaining user involvement in traditional systems. The question is “are potential B2C end-users being included in the development process?” Terry and Standing (2001) in a series of preliminary interviews with five project leaders reported that “despite the business need for remote, untrained users to quickly feel comfortable and satisfied in an e-commerce site encounter, it appears that organisations are making very little effort to engage users in any e-commerce site developmental activities” (p. 671).

This paper investigates the relevance of user involvement in B2C IS developments. It first of all reviews the literature in the area. It then proposes a model for the analysis and assessment of significance of user-involvement in e-business development. The multi-user perspectives are those of the business sponsor of the EC development, the project leader, internal users of the application and external customers. These are all discussed in relation to the model.
The term “user” is open to ambiguity. Land and Hirschheim (1983) acknowledge the existence of different types of user: senior management who bear ultimate responsibility for the organisation’s well-being and who may use outputs of IS developments; middle management who are responsible for the operational staff using the IS, and finally those staff who regularly interact with the system. From project conception, through the development lifecycle each of these users may contribute or participate in IS development activities. The term “user” is not generally defined specifically in the many studies published in literature, beyond the Ives and Olson (1984) definition of them as “representatives of the target user group” (p. 587).

User involvement has traditionally been referred to as participation in the system development process measured as a set of activities that users or their representatives have performed (Baroudi et al., 1986; Doll and Torkzadeh, 1989; Ives and Olsen, 1984). Barki and Hartwick (1994) proposed a clearer definition for user involvement, distinguishing it from user participation as in other disciplines. They define user participation as a “the assignments, activities and behaviours that users or their representatives perform during the systems development process” (p. 60). User involvement refers to the “subjective psychological state reflecting the importance and personal relevance that a user attaches to a given system” (p. 60). These definitions appear to have been generally accepted in the ensuing literature (Hunton and Beeler, 1997; McKeen and Guimaraes, 1997) as they are in this paper.

The literature has not found the identity of the users or their representatives to be a contentious point. Often all of the three user types above are domiciled in the same workplace and are identifiable to IS development project managers. Their participation in for example, problem definition, specification of requirements, design and testing could be mandated within the organisation. So the users involved in IS projects are clearly identifiable to practitioners and to researchers.

Identifying the user community in B2C systems development is more difficult. The three user types identified by Land and Hirschheim (1983) still exist. Senior management involvement in the conceptualisation of a system is particularly important given the structural business change that will need to accompany the introduction of EC. While middle management is not as prevalent in the workforce, this group covers expert users who will have essential input developing requirements and design. Organisations will also have operational staff interacting with the system. However another user type has emerged. B2C transactions involve remote customers who may not be known to the organisation. They are the ultimate end-users, but are beyond the accepted definition of users above. They are not staff and do not fall under the control structures of the organisation. Business success is based on their acceptance and usage of the system. However their participation cannot be mandated. Likewise their involvement or attitudinal disposition to the system. We will call this group of users “customer-users”.

USER SATISFACTION

While there is no direct measure for the success of an Information System, (see DeLone and McLean, 1992), empirical researchers have commonly used user satisfaction as the dependent variable (Doll and Torkzadeh, 1990; Franz and Robey, 1986; McKeen and Guimaraes, 1997; Powers and Dickson, 1973). Prominent among the independent variables studied for their influence on this measure, are user involvement or participation in the system development process.

Although the efficacy of user involvement in information systems development leading to system success has been the subject of much research, it has not been studied in the context of B2C systems development. However, the concept of system success as measured by user satisfaction may be more relevant to B2C developments than to traditional systems. Ensuring a system is successful from a user perspective is related to:
Meeting requirements

For a system to be useful to users it should provide appropriate functionality. This may include providing relevant information, entertainment, downloads, or transaction capabilities.

Usability

There are many aspects of information systems design that impact on usability including: the design of the user interface, ease of navigation, online and offline help, system performance and error handling (Fisher 1999). With no compulsion to visit and interact with a site, an Internet user needs to feel comfortable with a site’s usability – and quickly. If not they can and do take their trade to another site. Shopping cart abandonment rates of 20 to 60 percent per transaction reported by Schwarz (2001), are testament to dissatisfied customers.

It has been said that there is only one chance to make a first impression. In the Internet world it may be better to have no site than an unintuitive one that is unlikely to be revisited. Furthermore customer-users are not availed of the training in application use that traditional system users expect. User support is also not likely to be as readily available. So there is a need for EC developers to be particularly sensitive to usability issues.

A RESEARCH MODEL FOR USER-INVOLVEMENT IN E-BUSINESS DEVELOPMENT

Many potential factors may influence the relationship between user participation and system success. Tait and Vessey (1988) described the need to reduce the number of factors being studied:

Rather than attempting to investigate all factors affecting user involvement and its impact on systems success, the model provides a structure within which to examine constructs central to influence of user involvement on system success (p. 92).

A model for the analysis of user involvement in e-business development is proposed in figure 1. Two contingent variables have been included, resource constraints and system impact. These are perceived to be particularly relevant to EC developments. Terry and Standing (2001) in an exploratory study found that EC projects appeared to be particularly time-constrained. The extent of impact of the system is also particularly relevant to EC developments due to the need to adapt the business model to one that supports a non-traditional way of doing business. It has been suggested that EC implementations have failed because of the inappropriateness of the business model to support the impact of EC (Porter 2001).

The relationship between customer-user participation in EC system development, and system success is the central focus the model. This relationship has been ignored in the academic literature to date; it is beyond the scope of the generally accepted definition of “user participation”. The link between internal-user participation in EC system development and system success is equivalent to a typical MIS systems development project. In this situation the users of the system are internal to the organisation and are assumed to be able to be available to participate in activities throughout the development lifecycle.

System success is measured by both sets of users as user satisfaction, and also by the business sponsor in terms of organisational impact.

The research questions based on the issues from the literature and addressed in the research model are as follows:

Q1. Will constrained resourcing impact the likelihood of EC system success?
Q2. Will constrained resourcing affect the likelihood of customer-user participation in EC development?

Q3. Will constrained resourcing affect the likelihood of internal-user participation in EC development?

Q4. How does the impact of the EC system on the organisation affect its likelihood of success?

Q5. How does the impact of the EC system on the organisation affect the likelihood of customer-user participation in the EC development?

Q6. How does the impact of the EC system on the organisation affect the likelihood of internal-user participation in the EC development?

Q7. Is there greater participation in EC development by internal-users or customer-users?

Q8. Does customer-user participation have a positive effect on system success?

Q9. Does internal-user participation have a positive effect on system success?

Q10. What is the relationship between system success as measured by user satisfaction and organisation impact?

A Proposed Data Collection Strategy

It is estimated that approximately forty organisations would yield sufficient data to test the model. For each organisation, the perspectives of key stakeholders as well as users will be surveyed by the completion of a focused questionnaire (table1). The targets of the data collection will be:

The business sponsor. This is the person who has accepted the business case for the investment in the EC development.

Figure 1: Research model for User Involvement in E-Business Development
The project leader. This individual has been responsible for the development of the EC application and can respond to questions regarding the developmental process.

The internal-user perspective. This is essentially the traditional in-house user of the application.

The customer-user perspective. This is the business target of the EC application and the user at whom the external interface is directed.

### Table 1: Data collection sources

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<tr>
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<th>System impact</th>
<th>Resource constraints</th>
<th>Internal-user participation</th>
<th>Customer-user participation</th>
<th>System success</th>
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<td>Customer users</td>
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### Survey Instruments

This section of the paper discusses the development of the survey instruments for the stakeholders. Four separate questionnaires have been developed for the stakeholders/users. To be consistent with previous studies, where appropriate, the questionnaire design has been adapted from earlier studies in the area. The business sponsor questionnaire was developed and validated by Mirani and Lederer (1998). It assesses system success through organisational impact. It reviews the three dimensions of the impact of an IS project on organisational performance: the strategic dimension, the informational dimension and the transactional dimension.

The project leader questionnaire is a compilation of questions regarding:

- System impact or expected change brought about by the system. Three questions were derived from Anderson (1985).
- Resource constraints that may limit the effectiveness of the development process. Five potential constraints were derived from Tait and Vessey (1988), Doll (1987) and Terry and Standing (2001).
- External-user participation in the EC development process. This contained twelve multi-dimensional questions pertaining to potential areas for inclusion of customer-user input throughout the development process i.e. requirements gathering, design, usability testing, beta testing, post-implementation review and metrics generation.

The customer-user questionnaire addresses user satisfaction to measure system success. Measuring web site quality from the customer viewpoint has received little attention in the academic literature. It is clear that previous measures of user satisfaction are inadequate for when taken from the traditional user in the MIS environment. For example in their popular short-form measure of user satisfaction (Baroudi and Orlikowski 1988), four of the thirteen questions are to do with the relationship between the user and the EDP staff. This relationship is expected to exist for an internal user but not an external one. A further two questions relate to systems development activities that again are beyond the scope of a party external to the organisation. An unpublished paper built on the Ph.D dissertation of Eleanor Loiacono (Loiacono 2000), (Loiacono, Watson et al.) use a survey instrument of 36 questions. The research draws on marketing literature as well as IS success literature to develop questions are based on the concepts of usefulness, ease of use, entertainment and complementary relationship. In another unpublished paper (Barnes and Vigden) describe the development, testing and validation of an instrument “WebQual” for assessing EC quality. This instrument uses 23 questions to survey EC site
users online based on three areas: website usability, information quality and interaction quality. Except for the areas of entertainment and complementary relationship (Loiacono, Watson et al.), there is a high level of correspondence between these two survey instruments. For this study the (Barnes and Vigden) survey instrument was selected for its clarity and relative brevity.

Olson and Ives (1980) developed an instrument with 44 questions spread over the areas of system definition, physical design, implementation and general control. This instrument was refined by McKeen, Guimaraes et al. (1994).

Many studies have assessed the extent of internal user participation in systems development, although these have related to typical MIS application systems development projects. The application type however is not relevant to the nature of user participation in system development processes. The survey instrument is used and described by McKeen, Guimaraes et al. (1994). It consists of 23 questions relating to participative behaviour throughout systems definition, systems design and implementation. Each question requires a dichotomous (yes/no) response indicating whether or not the particular participative behaviour was affected.

For comparative purposes, the internal-user questions regarding user satisfaction working with the installed application, are a subset of those directed at the customer-users. The questions on user satisfaction and information quality are generic to using any software interface, and are retained. Those labelled “interaction quality” are clearly aimed at an external customer of an EC site, and are omitted.

CONCLUSIONS

The generally accepted traditional view that some user participation is going to impact user satisfaction is not seen to be particularly relevant to EC developers. End-user input to design and acceptance testing has been moved outside the development lifecycle to post-implementation. In other words it takes the form of customer feedback after the system has been implemented. This opportunity for customer feedback would not then impinge on the tight timeframe for development.

Although EC developments have features that are different from traditional IS, the two have much in common. Eric Singleton, director of Electronic Business at Raytheon Co. in Lexington, Mass. has suggested that “people claim they’re flying by the seat of the pants and really being creative, saying this a whole different world and we have to make it up as we go along. But that’s the oldest argument in the world, and it’s been proven wrong time and time again”. If user participation and involvement are accepted inputs to traditional IS success does it follow that because customer-users are less easily identifiable, that their influence is less important?

The development of the research design presented in this paper has been motivated by the need for a comprehensive study addressing the relationship between system success and user participation in modern systems development. Myers et al. (1996) state that “users expect highly efficient and easy-to-learn interfaces and developers now realize the crucial role the interface plays” (p. 794). It is questioned whether developers have maintained this realisation in the EC world with less tangible customer-users from whom to seek input.

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Advertising and Sales Promotion: New methods for Mobile Era

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ABSTRACT

Advertising and sales promotion have been the two main promotion tools for marketers. Prior to the arrival of the Internet, advertising and sales promotion were mainly conducted through mediums like newspapers, magazines and the television screen. The next stage for advertising and sales promotion appears to be the mobile stage. Mobile telecommunications has empowered people and in recent years, marketers have began to see the mobile device as an extension of the Internet and more importantly, as another digital tool for advertising and sales promotion. This paper investigates the views held by Australian marketers about the current state and future potential of mobile advertising and sales promotion.

Keywords: Advertising, Sales Promotion, Mobile Telecommunications, Mobile Advertising and Sales Promotion

INTRODUCTION

The potential significance of mobile commerce advertising and sales promotion ranges across many areas. One area is the potential financial gains that can be made. An estimate given by the financial company Merrill Lynch states that $25 billion will be spent by 2005 on a global scale on wireless software and mobile marketing with approximately 500 million users engaging in mobile marketing (Korper and Ellis, 2001). This is a large figure indicating that a potentially huge customer market is available to companies involved in mobile marketing. Companies now have the potential to launch advertising and sales promotion campaigns over the mobile phone to consumers in a similar manner to the Internet phenomenon when companies realised its marketing potential.

Even though this potential mobile market exists, it is worth noting however, that in the past, the Internet was seen in a similar way as an instant tool to make profits by many companies that operated purely on an online level. Many of these dot.com companies have become bankrupt and are now permanently closed due to the inability of these companies to fulfill many of the expectations of customers. One reason for the failure of e-ventures is that many services - in particular those where people are asked to part with substantial sums of money - ignored the importance of human contact (Craig and Shadbolt, 2000). Success in today's economy depends not only on giving customers what
they want and when they want it but to also being able to anticipate what they want and deliver it to
them before they even ask for it (Maack, 2001). This can only be achieved when a company adopts the
correct methods that suit the target customers. Businesses taking short cuts, over using anecdotes and
intuition, poor analogies, group thinking in which the business members convince each other that the
product being offered will be well received without doing any market research and using so-called
‘out-of-the-box’ thinking will make any business model collapse (Weiss, 2001).

The significant impacts of Mobile advertising and sales promotion are only potential impacts at this
point in time. Nevertheless, they do indicate the value of incorporating these practices into a marketing
plan. The question remains as to how much attention the customer will actually pay to the marketing
efforts that are coming from their mobile device. If the benefits to the customer are significant enough,
then there will be an opportunity for advertising and sales promotion to flourish over mobile devices.

ADVERTISING AND SALES PROMOTION

Before an in-depth examination of advertising and sales promotion aspects can commence, it is
necessary to understand the characteristics and the differences between the two. While they are often
interrelated in a marketing plan, advertising and sale promotions have a different function and purpose
from each other. Advertising can be defined as ‘any paid form of non-personal communication about
an organisation, product, service, or idea by an identified sponsor’ (Belch and Belch, 1998). Advertising
is non-personal in the sense that the message being sent to the target audience is a one­
way form of communication. The target audience themselves, do not send any feedback immediately
to the advertising source after they receive the message. Due to the non-personal nature of advertising,
it also involves a mass audience being targeted often at the same time. Advertising is used in a lot of
scenarios from creating awareness about a company, product or service to generating immediate
responses from the target customers to buy a product or to avoid a certain activity such as smoking.

Sales promotion can be defined as ‘marketing activities that provide extra value or incentives to the
sales force, distributors, or the ultimate consumer and can stimulate immediate sales’ (Belch and
Belch, 1998). In a business-to-consumer (B2C) setting, the target audience is the ultimate user of a
product or service. This is generally referred to as consumer-oriented sales promotion and would
consist of providing coupons, samples, discounts and other extra items to consumers for the sole
purpose of generating an immediate sale.

From the definitions, two major differences can already be identified. The first concern the aims.
Advertising is generally informational only with little or no exchange value involved, while sales
promotion is used to encourage consumers to buy a product in order to generate an immediate sale
(Kumar, Rangachari, Jhingran and Mohan, 2001). Advertising has long-term effects while sales
promotion works in the short-term. The second major difference is that advertising is non-personal
whereas sales promotion can be both non-personal and personal. This difference has resulted in
advertising becoming a one-way message being communicated whereas the message in sales
promotion can work in both directions should the sales promotion message be conveyed in a personal
manner to the target audiences.

RESEARCH OBJECTIVES

The objective of this paper is to gain an insight into the role of B2C advertising and sales promotions
within mobile commerce. Part of the objective is to create a model that allows a view into how
advertising and sales promotion should function in the mobile commerce environment. The actual
model is out of the scope of this paper but described in Weng (2001).
RESEARCH METHODOLOGY

The initial phase of the research was a literature survey so that appropriate interview questions could be formulated based on existing knowledge. The main aim was to determine existing views from literature on how advertising and sales promotion is currently implemented or should be implemented within mobile commerce. The realism paradigm was used for this research which accepts that reality is 'real' as it is but in an imperfect way and therefore, it is necessary to obtain information from different sources to try to fully understand it (Perry, Riege and Brown, 2001).

Structured Interviews

The second phase of research involved a series of interviews with key company respondents operating in the industry. The interviews were conducted within Australia itself. Although the companies chosen were Australian based, they had international dealings and could therefore, provide answers to the research questions, which pertain to the general environment of mobile commerce and not just within Australia itself. The interview process was conducted entirely over email. This allowed respondent companies to carefully formulate the appropriate answers to the questions. It also made the interview a cost effective and provided an access to busy executives.

The interview first began with questions that ask the respondent general definition questions about their interpretation of key concepts involved. This then lead to a series of questions about the nature of mobile commerce and its current state in Australia and its relations to the rest of the world. This was then followed by questions, which specifically ask how advertising and sales promotion could be implemented in a B2C mobile setting and how they see the future of advertising and sales promotion in Australia. For actual questions see Weng (2001).

RESEARCH FINDINGS

The first set of questions that were asked of the respondents pertained to the general development of mobile commerce within Australia and around the world. This also included asking the respondents to predict what future developments would be around for Australia in the next few years.

Mobile commerce environment

An initial reading of the respondents' answers revealed a pessimistic outlook on the current state of mobile commerce in Australia and around the world as well. It appeared that many of the respondents did not feel that mobile commerce would become a large and influential industry in the near future. However, the mentioning of SMS was very frequent and was seen as a potential tool. The following selected responses provide some indication of the respondents' views.

'With notable exceptions of certain European countries, the present and near future of mobile commerce (particularly transactional commerce) continues to spectacularly under perform on forecasts. In Australia, despite high penetration, there appear to be little or no reason to believe an explosion in m-commerce is around the corner...'

'As a number of large players move seriously into providing infrastructure for effective mobile marketing, and as the marketplace begins to accept digital advertising as a core aspect of the media mix, we will see an initial explosion of SMS promotion, falling back to an acceptable level for users...'

'SMS is starting to take off as an advertising marketing medium. Regulatory boards are getting into the act by forming policies about SMS usage and spamming the user.'
'Well over 95% of the mobile commerce industry in Australia has not embraced the latest in Wireless Internet Technology. The reason being due to lack of knowledge and lack of adequate and cost effective telecommunications infrastructure - not to mention utilisation of infrastructure...

'The larger telco's are pushing SMS at the moment because it is a proven technology and they can obtain a ROI…'

'Over the next 3 years, a number of mobile commerce developments will take place. These developments will be aimed at two industries, namely the finance and entertainment industries…'

Business models and the influence of technology

In this section the questions probe the way the respondents build their marketing and business model as well as how technology affects the mobile commerce advertising and sales promotion process. The technological concerns being queried are the influences of third generation mobile services (3G) and Bluetooth technology. A specific and detailed query of Wireless Application Protocol (WAP) and Short Message Service (SMS) is also present in order to obtain a better understanding of how these two components stand. For a brief explanation of the technologies see Whatis.com (2002).

The initial reading shows uncertainty in a number of areas. No two respondents appear to agree on how 3G and Bluetooth would affect advertising and sales promotion. Business models appear to be different from each other. The use of SMS also appears to be different in many aspects. With regard to WAP usage however, there appeared to be a constant pessimistic opinion to it. The following selected responses provide some indication of the respondent’s views.

'Obviously, there is significant TECHNICAL potential in these technologies. However, advertising is driven primarily by reach. It doesn't matter how good the technology is if you can't reach your audience with it. Advertisers would rather reach lots of consumers through a less flexible medium than a handful through a new exciting one (witness the current state of iTV advertising in Australia).'

'Definitely, with three provisos. First, there is still an emerging technology, with quite narrow usage profiles (excellent for youth activities for instance). Second, the technology is lagging in terms of interactive, responsive, high traffic volume applications. Thirdly (and most importantly in any long-term considerations), SMS is more a part of a CRM strategy than a pure 'advertising' strategy. The key is to gain permission to talk to interested consumers, who find the contact valuable.'

'With the EXTREMELY limited number of users currently actively using the technology, WAP is a complete NON-EVENT in any advertising context. There is little to no rationale for using it unless you can actively force usage of the technology (eg. Sales force connectivity). As an advertising tool, less rich tools like SMS far outweigh WAP purely on volume of usage.'

'3G push technology used for advertising and sales is quite realistic, especially with the combination of location based services. 3G will usher in the same sort of 'problems' that 'email' did in the early 90's, i.e.: unsolicited spamming.

The advantage 3G technology has as an advertising mechanism, is that most mobile phones and communications devices will be equipped with it in the near future. This equals excellent market penetration of all socio-economic groups.
Bluetooth may have a place in bringing connectivity together for data and voice communications. It may be bypassed though by the fusion of data and voice capabilities in mobile communication devices. As for being used for advertising and sales, it may only ever get to be used on very niche markets. It's not going to be a 'mainstream' advertising medium.

IMPLEMENTATION STRATEGIES

This section now looks at the several characteristics, strategies and challenges that companies implementing advertising and sales promotion within mobile commerce would encounter. To begin, a simple analysis of the ratings of the different aspects of mobile commerce advertising and sales promotion was done.

The first part of this section required the respondents to rate the following characteristics of mobile commerce advertising and sales promotion on a scale of one to five. One represented the characteristic of being the least important and five represented the characteristic as being the most important. The section began by asking the respondents to rate the following mobile commerce advertising characteristics. The averaged results are as follows:

<table>
<thead>
<tr>
<th>Characteristics of mobile commerce advertising</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual personalization</td>
<td>4.6</td>
</tr>
<tr>
<td>Interactivity</td>
<td>4.4</td>
</tr>
<tr>
<td>High content</td>
<td>3</td>
</tr>
<tr>
<td>Attractive design</td>
<td>3.4</td>
</tr>
<tr>
<td>Links to WAP sites</td>
<td>2.2</td>
</tr>
<tr>
<td>Location-based service</td>
<td>3.6</td>
</tr>
<tr>
<td>Advertisement size</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Examining at the table 1, it appears that the most significant characteristics are individual personalisation, interactivity, attractive design and location-based services. High content appears to be rated as a moderate characteristic. Links to WAP sites appears to be the least significant characteristic.

<table>
<thead>
<tr>
<th>Characteristics of mobile commerce sales promotion</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual personalization</td>
<td>4.6</td>
</tr>
<tr>
<td>Interactivity</td>
<td>4</td>
</tr>
<tr>
<td>High content</td>
<td>2.8</td>
</tr>
<tr>
<td>Text embedded</td>
<td>2.8</td>
</tr>
<tr>
<td>Links to WAP sites</td>
<td>2</td>
</tr>
<tr>
<td>Location-based service</td>
<td>4</td>
</tr>
</tbody>
</table>

The most significant characteristics seem to be individual personalisation, interactivity and location-based services. The text-embedded characteristic appears to be moderately placed while the links to WAP sites and high content characteristics appear to be the least important characteristics.

With regard to the challenges facing the respondents, the convergence here is concerns about the cost and return-on-investments i.e. whether mobile commerce advertising and sales promotion can be
implemented at an affordable cost and whether the investment will pay off or not. This is a general negative perception that mobile commerce must overcome. Some believe that creating an opt-in database is the biggest challenge to mobile commerce advertising and sales promotion campaigns. The following selected responses provide some indication of the respondent's views.

'There is little role for 'display advertising' (i.e. Placing advertisements within free content) on mobile devices. Sales promotions form the bulk of what we perceive to be the immediate deliverable campaigns, and as such a subset of what we would term "mobile advertising".

'One key point of convergence is the use of sales promotion campaigns to drive acquisition of users into a relationship management channel, that then provides ongoing advertising to those users who respond…'

'Limiting commerce to SMS (which we currently feel is a legitimate position), the advertising and sales promotional elements of commerce are almost always push based, though as the 'relationship' progresses, the user begins to define what sort of push activities are desirable and at what times.'

IMPLEMENTATION CHALLENGES

The challenges that are present are numerous. According to the respondents' answers, the most significant would be ROI and the cost involved in the initial set-up. The major challenge facing companies in mobile advertising and sales promotion is the recruitment of skilled and knowledgeable experts that can train employees to run the system. This requires a substantial amount of time and money that would also add to the overall cost of production. At this point in time, mobile commerce applications are still relatively new and many companies are still struggling to understand the proper usage of the various applications.

In the past implementing a new technology has not always been welcomed by users. For example the slow adoption rate amongst users and the lack of interest in WAP meant that companies, which invested in mobile commerce, did not get the return they expected. In order to reverse the situation, various strategies have to be considered to motivate the customers to become a part of future mobile commerce advertising and sales promotion campaigns.

With 3G and Bluetooth becoming available, the challenges are even greater as companies would have to learn how to properly utilise these tools in order to gain the most out of them. The other challenge would be to convince the target market of the benefits of becoming the target of mobile commerce advertising and sales promotion campaigns. As mentioned previously, technology and applications cannot be given to customers simply because they exist. Companies must overcome any negative or empathetic perceptions of devices like WAP and educate the target customers on the actual benefits before introducing the technology. Once this can be accomplished, the next step would be to create the opt-in database containing the information on customers.

CONCLUSION

This research has examined the mobile commerce environment and how advertising and sales promotion should be conducted within it. It is quite evident that the mobile commerce environment in Australia is still considered to be in a stage of infancy with slow adoption rates. One of the likely reasons for potential customers is the lack of compelling reason to be part of the mobile commerce process. In some cases companies are not marketing the actual benefits of the technology to the customers and are just releasing the technology for the sake of its existence. If the mobile environment is to pick up, companies must show potential customers what the exact benefits are to them. On the other side of the coin marketers must be able to realise reasonable return for their investment.
In practice, both consumers and advertisers are slowly adopting mobile commerce. The appropriate lessons must be learnt from this early stage with a greater understanding of the potential strengths and weaknesses before mobile advertising and sales promotion can gain a significant presence in the field of electronic marketing.

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Think Globally, Act Globally: What are the enablers and inhibitors? A study of factors influencing globalisation in a large organisation.

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ABSTRACT

Expanding into global markets creates many challenges for an organisation. To remain competitive in the market place organisations may need new management approaches, and these more than likely will be accompanied by structural change. Whilst there has been some research into change management and the enablers and inhibitors to global expansion there has been very little undertaken with an Australian perspective. The purpose of this case study of a large Australian business is to provide some insight into the relationship between organisational structure and culture and the demands placed on these by global expansion. It also investigated what factors enable or inhibit a company’s transition into global markets. Although not exhaustive, and recognising that it is based on a single case, it would appear that, in this instance, the key factors attributable to effecting the global and organisational relationship are organisational structure and cultural differences, statutory and/or regulatory requirements at the local level, technology and management strategies.

Keywords: Ecommerce, globalisation, organisational change

INTRODUCTION

In 1998, Boudreau et al stated that, over the previous 12 years, sweeping changes aligned with ‘customer demands’, ‘industry regulations’ and ‘technological innovations’ had created global competitive markets, which have challenged traditional organisational and management strategies. They also acknowledged that organisations had to restructure accordingly, if they were to be competitive in the global marketplace (Boudreau et al 1998). Consequentially, comprehensive ‘new management approaches’ were needed in order to maximise these opportunities (Kalakota & Whinston 1997).

A review of the literature found some research had reported on the change management principles and outcomes of organisations' adoption of information technology, where it was shown that structured (hierarchical) organisations were more likely to resist technological change (Macredie & Sandom 1999; Galliers & Newell 2001).
The purpose of the study, upon which this paper is based, is to provide some understanding of the interrelation between the organisation and globalisation and to identify any inhibiting and/or enabling factors that might assist or impede a company's transition into the global markets. Accordingly, this information could be of use to other organisations contemplating a move into global markets and provide an understanding of technology's role in such a move.

The following section will outline the research. The object of the study will be identified and the data analysis will be briefly described.

RESEARCH METHODOLOGY

Research Approach

In the absence of any related, researchable outcomes - measurable objects and their relationships - the purpose of this study is to 'explore' and 'describe' a situation at a given point-in-time. This type of research is best suited to the qualitative case study (Leedy 1999; Myers 1999).

The Participant

We required that the chosen organisation was Australian owned, or at least based in Australia, had both national and global business interests with high level technology activity, and had to fit the description of a large sized organisation, which is defined as having 200 or more employees (Australian Bureau of Statistics 1999).

The organisation finally selected had shown considerable growth in the short period since entering the global market. There was also a strong technology focus, which was considered an excellent base from which to explore any inhibitors and/or enablers of globalisation from a technology perspective.

The business is a supplier of global financial services and technology solutions that manages over 52 million account holders worldwide. Established in 1978, the company, which for ethical reasons we shall refer to as ABC, was a local, niche, technology company totalling approximately 30 - 40 staff members. In 1994 it embarked on the acquisition of Australian and New Zealand finance businesses, and in 1997, entered the overseas markets. ABC now provides a range of proprietary technology products, and financial services to over 15 countries, and consequentially, operates in a number of different finance markets.

ABC's acquired international and Australian based financial, and technology, business units comprised a number of disparate local operations. These units were considered a hindrance to the company's future growth. Consequently, in 1999 there was consolidation, into central locations, of all finance operations in each country and state. In 2000 the company's prolific acquisition of global finance businesses was the catalyst for further reorganisation of its acquired and existing, global and local operations. On this occasion the company rationalised its corporate infrastructure and consolidated its business units into region-based group structures with the objective of providing better support to its global and local operations.

Data Collection

According to Myers' (1999) description of qualitative data techniques it was decided that a case study would best serve to 'describe', 'explain' or 'evaluate' the research problem. In the light of the research aims, the study needed to focus on describing the situation and in choosing the case study approach, open-ended interviews were used.
For the purpose of this study open-ended interviews were conducted with the high-end decision-makers within the organisation's respective, strategic business components. The result was a broad overview of the issues associated with the research problem and by not focusing narrowly on one aspect of the problem information could be drawn from a range of influencing factors. Each interviewee represents an operational component of ABC. The interviewees, who have been given aliases, are listed in Table 1.

Table 1: Staff interviewed and position within ABC

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Section of Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlie*</td>
<td>CEO</td>
<td></td>
</tr>
<tr>
<td>Mary</td>
<td>General Manager - Australia</td>
<td>Computing Services</td>
</tr>
<tr>
<td>Paul</td>
<td>Executive Manager - Victoria</td>
<td>Financial Services</td>
</tr>
<tr>
<td>John</td>
<td>Manager</td>
<td>Strategic Business Development</td>
</tr>
<tr>
<td>Peter</td>
<td>Director</td>
<td>Marketing</td>
</tr>
<tr>
<td>Rick</td>
<td>Manager</td>
<td>Web Services</td>
</tr>
</tbody>
</table>

*Not interviewed. However emails to staff are used with approval

The interviews were recorded with the approval of the participant, transcribed immediately and returned to the interviewee for verification (Seidman 1998). A comparative analysis of the literature, textual materials and documents provided by the organisation, and the data derived from the interviews formed the basis of these findings. This provides a degree of triangulation.

Method of Analysis

Creswell (1998) has identified case study data analysis as relying on ‘description’, ‘themes’ and ‘assertions’ with research findings best conveyed using the ‘narrative form’.

As this research was an explorative, single case study it was deemed inappropriate to use a data analysis technique that was based on tables, matrices, figures, or any other structured reporting process. There were no known datasets to compare, group or codify. Instead, the free-flowing interview profiles, literature and other data materials, were combined to provide a preliminary snapshot of events at a given point in time, exploring the interrelation of e-commerce, the organisational structure, and the management of information technology.

The object of this study was to explore the factors that influence, and identify any enablers or inhibitors of the relationship between organisation and globalisation. This was undertaken by first identifying, then comparing any recurring or contradictory issues arising from the interview data, textual materials, and the existing literature. The analysis of the data revealed some distinctive factors in the organisation's transition from a local operation to a global market player. What follows is a description of those factors.

THE 'AS IS' GLOBAL ORGANISATION

At the time the interviews were completed (August 2001), the ABC organisation was segmented into regions. Within each region there is a ‘group structure’ that comprises a mix of business units. Mary, Manager, Computer Services, Australia, provides a functional overview of the ‘as is’ structure:
We have subsidiaries operating globally in all time zones. A technology section, computer services, develops software for our financial services businesses, including our internal MIS systems. Computer services also supports all our desktops, global communications and all ABC’s infrastructure. We provide scanning services and workflow to our businesses globally. In addition, computer services has an internal web development team. A business section, financial services, looks after our finance businesses. A document services section - "ZZ" - are our printing and publishing subsidiary. ABC analytics, who actually do analysis for clients, and ABC plan managers who look after and process employee share plans globally (on behalf of the company's clients).

The Structure

Mary described the general organisational structure as:

'... a very flat structure, which is quite unusual for a company as large as ABC.'

Paul, Victorian Manager, Financial Services, described the organisational structure with a hint of frustration:

'The current organisational structure. It's a difficult one because it depends on which part of the organisation you're looking at. If you look at the financial services part of the business it's got a structure. It's got a structure within Australia that influences part of the global financial services structure and it in turn forms part of the total ABC group. So it depends on which part of the organisational structure you are looking at.'

Consequently, there appears to be two very distinct organisational structures. There are the business units that were acquired from finance firms. Then there are those units that were the existing components of the organisation that have been expanded or restructured - or have been created - to meet the company's objective to create a truly global financial services industry. Paul explains the differences:

'ABC has come from a quite flexible approach - having a fluid structure - almost not even having an organigram [shape or form] that you can put your hand on and say that this is what the structure looks like. That's why there is a cultural difference between that part of the business, which is the organically grown ABC [the original business units that have evolved], to this part of the business [financial services], which has grown by acquisition [those businesses that the company has bought into].'

According to both John (Manager, Strategic Business Development) and Paul, the businesses that have been acquired were traditionally components of accounting firms or banks. They were said to be very hierarchical, process driven and very old fashioned - an industry (finance) profile that was said to be prevalent throughout the globe.

In the light of these comments we can assume that ABC’s financial services functions within a hierarchical framework, an example of which is displayed at Figure 1. This structure is what Hope and Hope describe as the ‘classic M-form multidivisional organisation’, where interorganisational relationships are underpinned by position and/or authority (1997). This type of structure is indicative of a management style based on gathering, presenting and controlling information. In short, it is a communication regime that mirrors the military chain of command where information flows upward through the hierarchy and decisions flow downward (Hope & Hope 1997).

ABC’s other business components operate within what Peter describes as a ‘matrix’ structure, which is displayed at Figure 2. ‘...a structure where there continues to be dotted line responsibilities to each of the business heads.’ Rockart refers to the matrix organisational structure as one of the new
communication-intensive', organisational styles that evolved because of the need for organisations to operate in progressively more complex environments (1998). Rockart added that large organisations operating in the global markets tended to ‘regionalise their organisations’, and without relinquishing overall control, instigated autonomous management strategies at the regional level (1998).

**Figure 1: The Hierarchical Structure**

The Culture

Paul also mentioned that there was a cultural difference between ABC’s two organisational components. According to Morden, the organisation culture is collective of the ‘enterprise and its members’, and comprises, in part, the vision, behavioural standards, value judgements, principles and practices, and business acumen of that organisation (1996).

ABC sees itself as a flexible organisation that is adaptable and open to change and ready to grasp opportunities to meet its business objectives. John described the organisational culture from a business development perspective; he started with:

'The organisational culture is schizophrenic in that there is the old ABC, which is technology focused, very open, very social, it’s a nice place to work.'
When I asked Paul to comment on the organisational culture he responded with:

'When you put those organisations [organic and acquired businesses] together and grow them into a business, which is owned by ABC, with its culture, whilst there has been a blending of the two, financial services, which has come from an established traditional background, has still got some of that baggage - in fact lots of it. There is a distinct difference in culture and operating procedures.'

Mary's view of the organisation culture, from a technology perspective, was contrary to that of John and Paul. She felt the organisation had a 'very unique culture', supported an 'open door policy', encouraged innovative ideas, and fostered an everybody is approachable ethos.

It appears that there are two distinct cultures within the organisation. There is the 'open door' culture that is attributable to the 'organic' business units, then at the other end of the scale there is the culture that underpins the traditional or acquired businesses.

The Operational Environment

The financial services businesses have been categorised into established and emerging finance service operations. Each is headed by a chief operations officer, with a managing director overseeing a
country's local operation. Executive managers head the financial services operations at the states and/or local level. There were numerous local operations within each country, and for this reason, ABC chose to consolidate each country's local services by dividing them into state and/or location based operations.

Paul focused on describing the Australian based financial operations, while John provided a broader description of the financial services international operations. Both raise interesting issues. Paul commented that the Australian national financial services operations were moving toward centralising some processes, namely the call centre, which indicates that the state businesses have, to some extent, independent, or duplicate business processes. Similarly, John pointed out that the regional operations run in isolation of each other, meaning they either have distinctive business process requirements, or are replicating work flows. More importantly, Paul mentioned that each financial market operates within a different business environment, and each market has its own business model.

This phenomenon could explain the company's objective in segmenting its finance service operations into two sections: to enable the efficient management, resourcing, and processing of any generic workflows within the established regions. This is an organisational, and strategic management change, which can be viewed as a move away from the traditional hierarchical structure.

**Global vs Local Content**

The underlying issues that emerge when this company moves into a different market environment, with the view to implementing the same business ethos, are largely, structural, cultural, technological, and jurisdictional. Peter stated his position on the application of a global marketing strategy, and raises issues an organisation might consider if operating in another cultural space:

>'The idea of this is not to stifle the way in which the local businesses go about having themselves supported through our marketing. Absolutely not. I mean you have got to realise that the English culture is quite different from the Chinese culture, from the South African culture. There is not a chance that we would just throw this great Australian cultural umbrella over everything and say this is the way you do it. You have to rely on the local expertise to say look, this is the way in which we would like to approach this. We don't try and control that and we never will.'

To further its global presence, the company advocates a particular financial business model to its clients. This model is used successfully and effortlessly in those world markets where a similar financial market framework, or standard model exists. ABC refers to its financial services operations within these markets as 'established businesses', meaning that the company has been able to efficiently implement its technology solutions and business culture with minimum rework. Paul expressed some apprehension about the likelihood of having an 'over-arching' business model '.... because not every jurisdiction globally has that model in place.' His reasoning was also based on the probability of building a practicable, global, technological solution that would be able to accommodate every variable from the respective financial markets.

**The Technology**

Technology is described as the organisation's core competence, and the main business driver. The organisation started in this space and, according to Mary, to 'keep abreast of the world' it invests heavily in technology research and development. In the 1999-2000 financial year alone the company expended A$30 million, concentrating on its core industry - the financial services market. Web technologies, are currently the organisation's biggest development area.
However, Paul's experience from a financial services perspective is demonstrable as to the extent of statutory and industry regulatory influences on the implementation of technological solutions:

'We're trying to make communications electronic rather than paper because as in many of these fields of endeavour, the technology is in advance of the legislation. There are some things, which we can do electronically, are physically able to do but not legally allowed to. Some of those sorts of issues are still really impeding our progress; although, we are still making good progress.'

According to Rick, Manager, ABC web services, the company's international network is a global technology platform comprising a number of proprietary based financial transactional and analytical systems. These systems provide a service for ABC client's regional operational requirements, and at the same time contribute to the company's own global expansion.

New versions of its products are rolled out on a needs basis to new and existing clients so as to meet the industry's regulatory, and its clients' obligatory, requirements. These requirements can be legal and statutory by nature, are jurisdiction dependent, and are intended to regulate the financial management of an organisation. Where necessary, the company will customise its proprietary based systems to enable its clients to meet those requirements. Thus there are external pressures and internal responses.

Global Management Strategies

Given Rick's assessment of the company's approach to technology management, it would appear that the two factors; the regulatory nature of the financial services industry, and ABC's objective to become a truly global financial service provider, have reshaped the organisation's operational environment. This could explain the necessity for ABC to support separate regional and local operational structures. The issue in this instance is global versus local contingencies.

To reinforce its global presence, a number of business units were brought together to support the regional structures. Peter, who oversees the company's global marketing strategies, commented on the organisational restructure from a marketing perspective, and describes how the transition evolved:

'You will appreciate that our growth from this point [1995 onward] was very rapid. The businesses we were buying had, in many cases, established "marketing" departments. ....the in-house marketing departments in each of the businesses developed a silo mentality and looked after the local businesses needs in isolation of any global considerations. .....it wasn't perceived to be necessarily fundamentally important that we would impose a global structure on these groups at that time. And that thankfully has changed. I would try to establish a sense of "global" and put up proposals for changing the marketing structure to reflect this. However, I did get some opposition from the business leaders who had entrenched their marketing staff within the business to their total satisfaction. One of the consequences suffered by other companies who go through rapid expansion - a fragmentation of image and an absence of "global" thinking. The phrase "think globally, act globally" is the key one in determining what it is we are trying to achieve.'

The issues emphasised by Peter are twofold. First, in this instance, he identifies the need to implement a global strategy or uniformity throughout all business operations. Second, he touches the issue of change management - the importance of preparing personnel and/or organisations for change.

A global management team oversees the regional group structures. This team consists of the CEO, and one member from each of the business units; financial services, computer services, document services, plan managers, marketing, and finance. Within this group there are also representatives from the finance sub-groups, business development and legal and compliance, for example.
The organisational restructure has enabled the company to share its resources across international boundaries. The benefits of this exercise have resulted in infrastructure cost savings, and access to a global staff pool of technical and commercial expertise.

However, it appears that the pooling of resources from vastly different cultures has not always gone smoothly as Charlie attests in his memo to all staff:

‘...we will be arranging some visits by the US marketing team to other offices to advise in this area. This initiative is critical to the success of the organisation and I therefore ask for the support of all staff. If we cannot co-operate to make this work then we will never be a successful global company and I will not tolerate local politics undermining our global mission.’

GLOBAL ENABLERS AND INHIBITORS

There appears to be a number of distinctive factors arising from the company’s transition into the global financial services markets. What this study shows is that there are a number of issues inhibiting the company’s global activity, while at the same time, there are issues that have enabled its transition.

1. The lack of uniformity in the organisational structure has been compensated, to some extent, through the implementation of strategic management practices. For example, the regionalised group structures, global management team, and the organisation’s strategic alliances.

2. There is an intraorganisation cultural difference, and there are cultural differences between each country of operation. To support the organisation’s global business objectives, the company implements as the enabler, an all embracing interorganisation global marketing strategy. In addition, the organisation readily deploys its mature change management principles and practices.

3. State and country statutory, jurisdictional, and/or regulatory requirements are considered a global inhibitor. However, the enabler here is technology whereby the company will customise its proprietary systems and web solutions to accommodate local content both for the benefit of its own operations and that of its clients.

4. There is a measure of duplication and paper centric business processes between state, national and global financial services operations. ABC, where possible, has centralised some business processes at the regional and local levels, and has used technology as the enabler to create generic workflows across these domains.

SUMMARY AND FURTHER WORK

What can be gleaned from this study is an understanding of the interrelation between the organisation and globalisation, but more importantly, an appreciation of the key factors that are the inhibitors and/or enablers of global market activity. Although not exhaustive, it would appear that, in this instance, the key factors attributable to effecting the global and organisational relationship are, namely, organisational structure and cultural differences, statutory and/or regulatory requirements, technology, and management strategies.

There are a number of other factors to be considered such as decision making within the organisation, strategic planning for the global environment, and management of global web solutions. These all require further exploration and will be reported on at a later time.
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A Model of e-Business Migration

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ABSTRACT

A staged model of transformation is proposed for guiding organisations through the successful implementation of their e-business strategy. This model is based on the findings from a set of case studies of traditional organisations that pioneered e-business implementations through ERP. These cases span the 'dot.com' era that inspired great expectations for new wealth from e-business opportunities to a new reality of B2B interactions from e-business networks. The case findings demonstrate; the integration of technologies, the differentiation of business models, and the demonstration of value adding in products and services along the customer and supplier chains. The key issue for managers that emerges from the case studies is that employee empowerment and e-business readiness of customers and suppliers is needed for effective e-business migration.

Keywords: e-business through ERP, B2B value chains, virtual organising, e-business change, B2B interaction, e-readiness

INTRODUCTION

The aim of the paper is to demonstrate to senior managers of ERP enabled enterprises, what they need to consider during the various stages of e-business development. The paper consolidates three phases of a longitudinal study into organisations that pioneered e-business implementations with their existing ERP systems (e-ERP). A final conceptual framework of e-business migration is developed that brings together the components of e-business progress from three sources.

The longitudinal study used three interdependent research models; (i) virtual organising, (ii) B2B interaction, and (iii) e-business change. The case findings from exploring these research models identified the various antecedents of the e-ERP phenomena. Each model exhibited factors that have influences at different stages of e-business progress. One in depth case study revealed six stages of progress with e-ERP implementations.

A generic model of e-business migration (eBM) is now proposed that focuses virtual organising (Venkatraman and Henderson, 1998) as realising the benefits of B2B interaction by utilising the facilitators of successful e-business change. This model of eBM represents a comprehensive view of e-ERP as the union of the three research models, mapped into three stages of e-business adoption. The management focus is on employee empowerment and e-business readiness of customer and supply chains. The paper argues that; successful e-business migration with ERP occurs when value propositions are realised through integration and differentiation, of technologies necessary to support new business models for the delivery of products and services online.
THEORETICAL FRAMEWORK

A study was carried out between September 1999 and June 2001 of e-business implementations. The study used three distinct research models to explore the antecedents of e-ERP:

- Virtual organising as an enterprise e-business strategy (Venkatraman and Henderson, 1998)
- e-Business change for management outcomes and performance gains, (Guha et al, 1997)

Research Models in the Three-Phased Study of e-ERP

![Diagram of the three research models]

Figure 1: Three Faces of e-ERP Implementations

Figure 1 illustrates the top-level components of the three research models used in the study. Each model reflects a different business focus that represents an area of organisational theory; strategy, management, and work practices. Collectively the three models could be used to construct a comprehensive conceptual framework of e-business development or progress. Since each model has such a distinct nature and scope, the difficulty is finding the underlying commonality across the research models:

1. Virtual Organising is represented by a three dimensional model (1) of e-business activity that is “applicable to any company”. Progress is along the three dimensions of “customer interaction, asset configuration, and leveraging knowledge” (Venkatraman and Henderson, 1998).

2. e-Business Change is represented by a flat model (2), in which progress is across eleven interrelated components within three broad sections based on relevant research in the areas of; “organisational change, strategic management innovation, and information systems evaluation” (Guha et al, 1997: 123).

3. Benefits of B2B is represented by a two dimensional model (3) in which greater e-business activity occurs within a set of B2B models (Carlson, 1995). B2B refers to the class of business-to-business (B2B) models that include; business-to-supplier (B2BS), business-to-employee (B2BE), and business-to-corporate customer (B2BC), (Ash and Burn, 2001).

These brief summaries of each model in Figure 1, reveals their distinctiveness but also a common theme of e-business progress. This common thread of e-business progress becomes the focus of a new comprehensive model. It is extended to embrace the spectrum of e-business migration (eBM). The concept of eBM is viewed as; realising the benefits from the application of virtual organising in B2B models, by utilising the facilitators of successful e-business change. This definition represents a comprehensive staged model of e-business change. It is based on the union of the three research
models for its underlying structure and scope, including a unified framework from case studies for evaluating success.

MODEL OF E-BUSINESS MIGRATION

To develop a precisely defined theory of eBM, we begin by identifying the basic framework from the research, as illustrated in Figure 2. The detailed descriptors for each element of the model are mapped into a 3x3 matrix (Table 1). These elements are derived from analysing the research findings.

Figure 2: e-Business Migration Model

Figure 2 illustrates eBM as a comprehensive business architecture that focuses on three interdependent dimensions or pillars of online business; ICT technologies, Products and Services, Business Models where:

- ICT Technologies - refers to the convergence of technologies (IT and CT) for information flow within and between organisations, e.g. e-ERP implementations;
- Products and Services - refers to asset and competency sourcing for providing cheaper, faster, and quality of products and services;
- *Business Models - refers to the architecture of the firm and its network of partners for creating, marketing and delivering value.

* Osterwalder et al, (2002) provides the definition of a business model;

"as nothing else than the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, in order to generate profitable and sustainable revenue streams."

In the e-business model ontology proposed by Osterwalder et al, (2002) four pillars of e-business are identified; infrastructure, product, customer, and finance. In the eBM model the cost of financing e-ERP infrastructure for an e-business solution is part of the B2B value proposition.

Stages of e-Business Migration

Each dimension in the eBM model is further detailed at three stages of greater e-business implementation commitment; integration, differentiation, and realisation of value propositions. Progress in the first stage focuses on integration for achieving efficiency gains in task units; such as, customer service, purchasing, and new product development. The second stage focuses on differentiation by selecting the most effective resourcing and marketing activities. The third stage
focuses on realisation of value propositions within an inter-organisational network to design and leverage multiple interdependent communities to create superior economic value (Singh and Thomson, 2002; Venkatraman and Henderson, 1998).

E-Business Migration Matrix

Table 1 represents a map of the issues distilled from the findings of this three part longitudinal case study. It is used to demonstrate the interdependence of the dimensions and the stages of e-business progression. The findings were be mapped along the e-business stages of progress; integration of e-business and ERP applications, and differentiation products and services as e-business positioning, for realising value propositions.

The management issue focuses on the shift from self-service to empowerment, within a cultural of e-business readiness (e-readiness) with the company and partners - suppliers and corporate customers (Barua et al, 2001).

Table 1: Matrix of e-Business Migration for ERP-based Organisations

<table>
<thead>
<tr>
<th>Business foundations (Virtual Dimensions)</th>
<th>Stage 1: Integration</th>
<th>Stage 2: Differentiation</th>
<th>Stage 3: Demonstration of Value Propositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Technologies (virtual infrastructure)</td>
<td>*ICT Integration</td>
<td>ICT Differentiation</td>
<td>ICT Value propositions</td>
</tr>
<tr>
<td>ERPl with eStores &amp; eProcurement applns.</td>
<td></td>
<td>ASP v's cost of ownership on the outsourcing spectrum</td>
<td>e-marketplaces</td>
</tr>
<tr>
<td>2. Products/Services (virtual opportunities)</td>
<td>Information Integration</td>
<td>* Asset Differentiation</td>
<td>Resource propositions</td>
</tr>
<tr>
<td>Information exchange</td>
<td></td>
<td>Customerisation v's standardisation,</td>
<td>Foster customer, supplier, and employee expertise,</td>
</tr>
<tr>
<td></td>
<td>e-Mail integration for information exchange</td>
<td>Brand identity &amp; integrity (e-Branding)</td>
<td>Emerging collaborative e-communities</td>
</tr>
<tr>
<td></td>
<td>B2B Integration of eSales &amp; eProcurement systems</td>
<td>B2B positioning, Open marketplaces v's private</td>
<td>One2Many v's One2One partnerships</td>
</tr>
</tbody>
</table>

Outcomes and Performance Gains

Examples

Remote experience of eCatalogs. More tasks, "group ware" skills for online communication.

Assemble and coordinate assets; through effective use of online integration.

Business network to design and leverage interdependent e-communities. Dependent on relationships.

Outcomes and Performance Gains

Improved operating efficiency (ROI)

Effectiveness through empowerment (QWL)

Virtual and economic value added (EVA)

Key: Return on investment (ROI), Quality of working life (QWL), Economic value added (EVA)

*The complete details of eBT matrix are mapped with essential elements “shaded in”

Essential Elements of e-Business Migration

The model of eBM specified by Table 1, shows business focused at three stages of development with outcomes and performance gains for greater virtual progression:

Stage 1 – Integration of technologies is essential for cost reductions and operating efficiencies;
Stage 2 – Differentiation of products and services is essential for e-business market positioning and effective sourcing;

Stage 3 – Realising value propositions within B2B interactions is essential for superior economic and virtual value.

In Table 1, the shaded cells in the 3x3 matrix indicate the essential elements of eBM. The other elements contribute to the organisation’s performance gains and competitive advantage.

METHODOLOGY

The paper synthesizes the three phases of a longitudinal multi-case study, carried out between September 1999 and June 2001, of organisations that pioneered the use of e-business applications with their existing SAP R/3 systems. A convenient sample of established SAP-based organisations was selected across a wide range of industries and business-to-business models. This sample of eleven case studies was used to test the hypothesis; the strategies and performance objectives of eBM are applicable to all ERP enabled organisations when adopting e-business.

Semi-structured interviews were used to collect the primary research data about the case organizations. The case material collected is used to verify all the strategic characteristics of e-business and to demonstrate the business tactics possible from eBM (Table 1). This is described as closeness of strategic fit. In addition, the case material is offered to illustrate exemplars of e-business tactics.

Data Collection and Analysis Matrix

Data was gathered from three sources; primary, secondary and tertiary:

- Secondary data – from company documents collected or sent via emails.
- Tertiary data – from case articles written by third party authors and industry specialists.

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Collection Instrument</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do the strategies with e-ERP implementations fit the model of eBM?</td>
<td>Semi-structured interviews questionnaires; Nov 1999</td>
<td>Match case content to each dimension and within each level.</td>
</tr>
<tr>
<td>a. Are the dimensions and the stages of eBM appropriate for e-ERP implementations?</td>
<td>Structured interviews questionnaires; June 2000</td>
<td>Cross-case content analysis to verify the dimensions and the stages of eBM.</td>
</tr>
<tr>
<td>b. Are the outcome objectives appropriate for e-ERP implementations?</td>
<td>A final case interviews; June 2001</td>
<td>Cross-case content analysis to demonstrate the issues with outcomes objectives of eBM.</td>
</tr>
</tbody>
</table>

After collection, case data was collated and analysed according to; the literature, technology developments and industry insights, findings from B2B models, and reflections of the researcher.

Target organisations

The selection and contact of potential organisations was performed as convenience sampling. In November 1999, initial interviews of eleven sites, were conducted in person by visiting each
organisation at their headquarters. Senior e-business project managers were questioned about “the benefits and barriers arising from extending their R/3 business processes onto the Internet” (Ash, 2001). A repeat visit to each site was performed between June and July 2000 to collect the detailed information for this study, using the following protocol:

- Qualitative structured interview questionnaires were used during the two visits to collect primary data for the study from eleven (11) SAP worldwide sites
- Multiple archival documents, as well as many conversations via e-mail.
- In each case the focal point of contact was the most senior level IT/SAP project manager.

All eleven cases are mapped against the project selection criteria updated from Guha, et al (1997) study of “business process change”, criterion was changed from ‘inter-functional’ to an ‘inter-organisational’ focus. Therefore the eight cases are exhibited ascending order of B2B interaction. This ranking is based on the logic and findings developed in the second stage of the study.

CASE FINDINGS TO VERIFY THE E-BUSINESS MIGRATION MATRIX

Stage 1: Integration

1. The findings show that to maximise savings and cost reductions, enterprise application integration is essential ‘back-end’ to ‘front-end’. Integration of the system architecture is made possible through a variety of ‘back-end’, ‘sell-side’ and ‘buy-side’ systems.

2. Two cases of B2B e-business integration with a global computer supplier and its largest corporate customer demonstrate a more complex model. These exemplar cases demonstrate the integration of ERP and non-ERP systems with other ERP systems (Fan et al, 2000). Web-based technologies, were used to provide the infrastructure needed to optimise the overall B2B value chain.

3. Integration of e-business models, supported by a technology infrastructure, enables people to do their job efficiently.

Stage 2: Differentiation

1. The findings show the importance of e-business tactics in the virtual space and the need to differentiate to deliver products and services.

2. Dell with its largest corporate Customer shows a second dimension. The tendency of the pioneers was seen to be a starting with development of public relationship building then shifting to private relationship building between suppliers and buyers. There is the similarity with the building of people relationships and the level of trust.

3. Further, had not the product been of high technology then it is more than likely that the degree of e-readiness would have been too low to even consider the value proposition.

Stage 3: Demonstration of Value Propositions

1. In the short term it is better to adopt the e-commerce implementations (e-sales and e-procurement) with new customers and suppliers. This has the power to demonstrate to existing customers and suppliers

2. The findings show the importance of e-business stages of growth to enable the value chain and the need for e-business positioning, and the need to demonstrate the value propositions.
3. A pilot approach to demonstrating a value proposition, is shown in One2One relationship formed by Dell and a large corporate Customer. Also, the study is used to emphasize the synergistic benefit stream from B2B integration, the interaction of inter-organisation e-business solutions.

OUTCOMES AND PERFORMANCE GAINS OF EBM

The stages of eBM classified in Table 1, are viewed as interdependent and supportive of each other. This is especially so with respect to the business focus and the performances objectives in Table 8.3; where efficiency and effectiveness through empowerment of customer care is used to support value adding activities for sustained competitive advantage.

To achieve the outcomes from e-ERP projects, organisations are utilising three B2B models. They offer customers cheaper products with efficient service by utilising exploiting self-service in B2Bc. They source materials cheaper and more efficiently through procurement agreements in B2B8 and utilising employee self-service, in B2BE. They now optimise processes in B2B8 with B2BE for customised service by utilising employee self-service in B2BE.

Stage 1: Efficiency

1. The competitive desire to reduced costs through ‘Online Stores’ has end-consumers, and corporate customers permitting their employees, to exercise greater self-service buying the latest, quality products, faster.

2. The efficiency gains of ‘Online Procurement’ comes from standardised catalogues and Web interfaces, with automatic approvals has companies committing their employees to greater self-service purchasing of materials.

3. The Intranet groupware applications enabled efficiency gains with administrative tasks of communicating and sharing corporate information, by saving time and costs. Easy to use Web interfaces, is essential to exploit employee self-service.

Stage 2: Effectiveness

1. Improved intelligent Web sites offer customised products and services to enhance customer “stickiness”.

2. ASP of standard information intensive processes allows more time for staff to concentrate on core business competencies and the firm to better utilise assets.

3. The Intranet groupware enabled effectiveness gains from optimising processes. An employee reward scheme to foster employee self-service should be aligned to the strategy that, knowledge as a corporate asset should be managed.

Stage 3: Virtual and Economic Value Added

1. Customer communities have emerged having a distinctive focus on value added products and services through electronic community designs and facilities.

2. The role of procurement staff has shifted from purchase order administration to strategic negotiations with vendors. This has been utilised through assembling capabilities of private e-marketplace.
3. The shift from an e-business to a global engineered network of business is most possible if driven by the e-community through the creation of a centre of e-Excellence, and supported by an open R/3 system architecture.

In summary the efficiency gains from online marketplaces and are enhanced by intelligent systems for adding value to products and services, and in turn expanded to designing and building customer communities. To this end, companies are making the online experience rich and fulfilling for customer expectations and demands. Their goal is to be the best Web site for buying and selling the best possible products and services.

Outcomes and Performance Objectives

The eBM matrix (Table 1) classifies the generic outcomes and performance objectives as:
- Improved efficiency,
- Greater effectiveness,
- Value adding that refers to complementary benefits realised for all network partners, along the value chains, when doing business online.

Figure 3 shows the generic e-business outcomes and performance objectives and the relationships between them.

![Figure 3 Criteria for eBM (matrix) Outcomes and Performance Objectives](image)

The performance gains for e-procurement were achieved from two sources; 25% cost savings, and reduced cycle time from 2 weeks to 2 days, from customer access (24x7) to supplier data via e-ERP technology. The project enabled efficiency gains from minimising of delays in customer orders, and effectiveness gains from optimising employee/staff time. The cost savings through operational efficiencies of all equipment sourcing, compare favourably to those cost savings (efficiencies) in other e-procurement case studies. However, improvement in ‘quality of work life’ for staff comes from learning of new skills, understanding of processes and acceptance of new responsibilities.

Implications for e-Business Readiness

The importance of e-business readiness and the role change management to support the people could get the job done effectively (Barua et al, 2001). The key to successful implementation comes from innovation that is bottom-up driven and from both sides of the value chain. This is balanced by a top-down approach for providing the IT architecture:
- Seeing and using the technology as the interface to the business process; for efficient work.
- Knowledge of the business processes; for effectiveness through improving individual work practice that allows more time for One2One relationships.
- Ownership of the business processes; for top-down optimisation from management and bottom-up innovation by teams and project champions.
This summary reflects a staged view of empowering of employees with online work.

CONCLUSION

The proposed model of e-Business migration (eBM) can be used as a detailed criterion to direct and evaluate the progress in the virtual space for traditional organisations or new entrants. The nature and value of the model is based on a set of exemplar SAP-based organisations (innovators) that pioneered e-business implementations through their ERP systems for sustained competitive advantage. Although limited to discrete snapshots of each organisation's e-business migration, nevertheless the proposed model of eBM serves the purpose of demonstrating the transition rather well. A model that represents a documented recipe, as a comprehensive and long term plan that should assist managers of ERP-based organisations, in migrating their company towards a successful e-business organisation.

Although the research findings are presented here in a time frame; from integration, then differentiation, followed by demonstration of value proposition, the overwhelming recommendation to executive managers is that eBM matrix is a recipe for achieving e-business goals. The model should be viewed as a comprehensive map, in which improvement along the three dimensions should be interpreted as; all aspects of integration should be tempered by differentiation, for supporting the demonstration of B2B value propositions. The management focus progresses through the exploitation of self-service, the empowerment of employees, and the e-readiness of business partners necessary for accommodating emergent change.

eBM should be focused on business models, and not technology. It will vary in terms of the business focus of the organisation, such as customer focused, or product focused. No one element of the eBM matrix adequately captures the potential opportunities of e-Business. The elements of diagonal cells of the matrix; the integration of information technologies, the differentiation of products and services, and the demonstration of value propositions with business models, although rarely practiced, are viewed as essential to eBM. Improving performance along all dimensions of integration, differentiation, and the demonstration of value propositions is necessary for maximising benefits.

REFERENCES


Individualist and Collectivist Representations of Technology

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ABSTRACT

This article presents various individualist and collectivist positions on representing IT systems and discusses the benefits and dangers of such representations. The article emphasizes the importance of examining the social context in which the IT system operates and suggests that in order to examine social situations there needs to be a recognition of the importance of structure and agency. It discusses the use of structuration theory to represent technology and proposes the development of a new model based around critical realism.

Keywords: critical realism, structuration theory, enterprise systems

INTRODUCTION

The interaction between information technology (IT) and the social/organizational setting in which it is embedded continues to be an ongoing issue within the IT and organizational literature. Early examples of IS researchers emphasizing the social nature of IS include Kling (1980), Land and Hirschheim (1983), Lyytinen & Lehtinen (1984) and Zuboff (1988). More recent writings have developed on this theme and suggested varying theoretical foundations for the inclusion of a social context within IS research. Examples include Orlikowski (1992), Lyytinen (1992), Walsham (1993), Baskerville, Smithson, Ngwenyama and DeGross (1994), Orlikowski, Walsham, Jones, and DeGross (1996), Hirschheim, Klein, and Lyytinen (1996), Introna (1997), and Baskerville, Stage and DeGross (eds) (1997). Barley (1990) suggests that such sociological examination has traditionally focused on two broad perspectives, one top-down and the other bottom-up. The first perspective posits a set of overarching macrosocial structures exerting a common influence on organizational structure, individual action and technological design. The second perspective sees technology as impacting organizational structure primarily through the microsocial processes triggered by such new technologies.

More recent emergent process theories (Walsham 1993) such as Giddens’ Structuration Theory have proven useful in incorporating both micro and macro level factors within a single model. Markus and Tanis (2000) adopt such an emergent process model to develop a framework for examining the success of ERP implementation within organizations. They suggest that emergent process theories usefully emphasise the importance of external environmental factors and thus acknowledge the often unintended consequences of the actions of organizational members – “outcomes are often different from those intended—sometimes better and sometimes worse. External forces sometimes make a mockery of peoples’ goals and actions, but sometimes the forces line up to favor the most unlikely goals”. They suggest that the success of an ERP implementation can only be measured by considering the individual multi-dimensional and contextual factors that each organization use to define success.
This highly contextual focus is a common theme within such contemporary realist approaches as Giddens’ structuration theory and Bhaskar’s critical realism. Unfortunately both philosophers have little to say concerning the role of technology within their theories. Orlikowski (1992) addresses this shortcoming for structuration theory and presents a model clarifying the role that technology plays in the theory. There has been no similar such representation within critical realism and this paper thus addresses this issue and suggests that critical realism provides a more useful representation of technology than structuration theory.

The paper also highlights the importance of social structures in examining the effects of an ERP implementation. Enterprise systems are integrated software solutions that are typically provided by a vendor as a package. Such solutions promise to provide seamless integration of all information flowing through a company, such as financial, accounting, human resources, supply chain data, and customer information. Examples of such commercial systems include SAP, BAAN, PeopleSoft, J. D. Edwards, and Oracle. As Markus and Tannis (2000) note, the key characteristics of enterprise systems—integrated software, commercial packages, generic processes based on “best practices,” additional hardware and software integration requirements, and evolving architectures and functionality—all have significant impacts on the organizations that adopt them. For example, as Baskerville, Pawlowski and McLean (2000) suggest, such systems are less flexible in their implementation than internally developed softwares in that business practices often need to be substantially changed in order to accommodate the generic best practices built into ERP systems. Such change in internal business process often requires significant cultural transformation.

Similarly the relational aspect of business systems operation is most important for ERP systems in that, for example, the relationship with the package vendor is critical to the ongoing success of the package. As (Baskerville et al 2000) suggest the target of user satisfaction is largely transferred to the package vendor rather than the systems developer as the package vendor primarily sets the user interface and accommodates customer suggestions in successive upgrades. This suggests that successful implementation requires a careful relational role with package vendors to initiate and encourage system changes. As Baskerville et al (2000) suggest the largely fixed nature of the ERP package means that the organizational system developer tends to move more towards becoming a business programmer rather than computer programmer as they modify business practices creatively to meet the requirements of the ERP system. The integration requirements both internally and externally with suppliers and customers also suggest that the impacts of such social relations must be taken into account in any examination of ERP implementation. The importance of social relationships and the strong structuring influence of ERP systems suggest that a theory which emphasizes social structures and their interaction would be most appropriate in the examination of ERP systems.

This paper argues that critical realism and other contemporary realist approaches can provide this necessary focus. It suggests that the implementation of ERP systems has such a wide impact that there necessarily needs to be a careful analysis of impacted structures and their inter-relationships.

THE SOCIAL CONTEXT OF IT

Avgerou (2001) argues it is important that IS practitioners consider the social context in which IS Development takes place and the broader organisational processes under which it operates:

Most of the knowledge developed and taught in the IS field promotes a normative professional practice, based on a limited perception of context. Broader organizational processes are usually outside the perceived terms of reference of IS practice. Further research is needed to develop appropriate analytical knowledge to equip professionals with capabilities to pursue contextualist analyses.

Contextualist examination of organizational situations is not easy and requires new techniques that properly reflect that complexity. As Avgerou (2001) suggests, in the past many authors in the IS arena
have separated the technological content from the social context in which the IT change ensues. This
has been useful as it has allowed useful specialized IS knowledge to be developed separately from the
social context. However, such a separation is becoming harder to justify given the increasingly
ubiquitous nature of information technology. As Scarborough and Corbett (1992) suggest an
information system contains elements of both the social and the technical with technology intimately
entwined within organisational life:

The relationship between technology and organisation is neither one of "impacts" [of IT] nor of
"choice" [made by managers], per se. Rather technology and organisation are closely
intertwined through flows of knowledge and ideas which transcend the individual organisation
but which find expression in, and are reinforced by, political interests and agendas at the
organisational level (p. 157).

The examination of such a complex reality is difficult and requires a consideration of the action of
concerned players and the structures and constraints within which they operate. A number of IT
researchers in the past have adopted theories developed from within the social sciences arena to
address such complexity. A good example of such argument is the award winning paper of Wanda
Orlikowski (1993) which uses Giddens' Structuration Theory to examine the impact of CASE tool
adoption within two different organizations. Other papers specifically applying Structuration Theory
and Walsham (1993). To date there has little use of critical realism to address the role of IT within
organizations (a rare refutation of this is Mutch (1999) who addresses managers and information from
a critical realist stance). This is surprising, perhaps prompted by the difficulty in operationalizing such
difficult and complex philosophy. I would contend that organizational reality is a complex and
difficult thing to represent and thus needs similarly difficult and complex representations.

INDIVIDUAL AND COLLECTIVIST REPRESENTATIONS OF TECHNOLOGY

Traditionally social investigation has tended to emphasize either collectivist concepts or individualist
concepts but not both. Individualists within the social arena are committed to social atomism, ‘that is
to the claim that the important things about people can ... be identified independently of their social
context’ (Archer 1995, p.35). Individuals are seen to be the ultimate constituents of the social world.
In contrast the collectivist sees society as more than simply the sum of the individuals. Society can be
viewed holistically as having emergent properties that cannot be explained solely through examination
of its individual components. Archer (1995) argues that the ongoing conflict between micro and macro
views of society and the problem of agency and structure is an important and recurring debate within
the sociological field. She feels that the importance of such an issue requires that all social theorists
(and social investigators) define their stance with respect to this fundamental issue.

The difficulty in representing social reality (and IT within that reality) is the need to include both
collectivist and individualist perspectives. As Scott Poole and Ven de Ven (1989, p. 564) suggest such
a target is difficult given the underlying collectivist/individualist paradoxes evident within
organizational theory:

- the difficulty in reconciling the explanation of behaviour as a function of structural
determination with the equally strong claim that it is the product of purposive action;
- good arguments for two incompatible conceptualizations of organizational climate – as an
aggregation of individual climate perceptions or as a macro level system property;
- the question of whether social organizations are fundamentally stable orders or continuously
changing emergents;
- the trade-off between the need to establish individual identity in groups and the collective
nature of group action.
Olesen and Myers (1999, p. 320) present Table 1 to emphasize the difference between a collectivist and an individualist perspective on technology (based on De Sanctis 1993). They describe how collectivist and individualist perspectives can alter the focus in the examination of Group Support Systems:

*Whereas individualistic assumptions lead the researcher to be concerned with the efficiency and effectiveness brought about by the GSS, collectivist assumptions lead to an interest in the social meaning of the technology, its symbolism, how cultural practices affect technology development, and how technology, in turn, reinforces cultural norms (De Sanctis, 1993, p. 101).*

**Table 1: Opposing perspectives on technology (based on Olesen and Myers 1999, p. 320)**

<table>
<thead>
<tr>
<th></th>
<th>Individualism</th>
<th>Collectivism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit of Analysis</strong></td>
<td>Individual</td>
<td>Society</td>
</tr>
<tr>
<td></td>
<td>Group as an aggregate of Individuals</td>
<td>Organization</td>
</tr>
<tr>
<td><strong>Technology Metaphor</strong></td>
<td>Tool</td>
<td>Product</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Service</td>
</tr>
<tr>
<td><strong>Technology Goal</strong></td>
<td>Decision efficiency</td>
<td>Support of the social order</td>
</tr>
<tr>
<td></td>
<td>Decision Quality</td>
<td></td>
</tr>
<tr>
<td><strong>Technology-induced Change</strong></td>
<td>Active (deterministic)</td>
<td>Passive (emergent)</td>
</tr>
<tr>
<td><strong>Guiding Paradigm</strong></td>
<td>I</td>
<td>We</td>
</tr>
</tbody>
</table>

**REPRESENTING IT AS STRUCTURE**

As Dobson (2001) argues the usefulness of representing IT systems as a structure depends to a large extent on the underlying collectivist or individualist emphasis. Table 2 below details the implications of adopting differing interpretations of structure.
Table 1: Differing representations of structure (from Porpora, 1989)

<table>
<thead>
<tr>
<th>Emphasis</th>
<th>Definition of structure</th>
<th>Benefits of such representation</th>
<th>Dangers of such representation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individualist</td>
<td>patterns of aggregate behavior that are stable over time</td>
<td>Highlights individuals’ actions and motivations.</td>
<td>Ignores the impact and potential influence of external influences</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Practitioner focus.</td>
<td></td>
</tr>
<tr>
<td>Collectivist</td>
<td>lawlike regularities that govern the behavior of social facts</td>
<td>Allows for industry wide examination and conclusions.</td>
<td>Does not recognize that individuals can change the way things operate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Academic focus.</td>
<td>Can encourage structural reification.</td>
</tr>
<tr>
<td>Structuration</td>
<td>rules and resources which are implicated in social practices and have no existence independent of them</td>
<td>Easy incorporation of actors interpretive schema.</td>
<td>Cannot examine changes over time as time is not included in the model.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accommodates structure and agency.</td>
<td>Conflates structure into agency.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provides an emphasis on agency action.</td>
<td>Structure has no reality independent of action.</td>
</tr>
<tr>
<td>Social relationships</td>
<td>systems of human relations among social positions</td>
<td>Separates agency and structure and thus allows examination of their interaction over time.</td>
<td>Causation focus encourages too deep and complex structural analysis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Structural emphasis allows easy incorporation of external influences.</td>
<td>Agents interpretive possibilities not specifically emphasized.</td>
</tr>
</tbody>
</table>

Structuration theory and critical realism are recent attempts to incorporate both collectivist and individualist elements (or equally structure and agency) within their analysis but both theories provide little practical help on developing useful methodologies. Even more relevant from an IT perspective is their lack of a specific recognition for technology itself within each model. For example, within critical realism material objects are given little relevance, the concentration being on human relations. Lawson (1997, p. 327) briefly comments on technology and sees technology as a representable within critical realism as the social implementation of a material object; the social implementation of a particular technology being in part a response to human transformative activity. Under this definition technology and its associated human elements can be seen as a structure (although few definitions of "structure" within critical realism include any reference to material objects). Under this view an ERP system could be seen as a particular structure encompassing, not purely the hardware, but also the many internal and complex relationships between the package vendors, users, owners, partners etc. This structure can both constrain and enable agency action.

In contrast to this real existence for structure structuration theory only provides for a virtual existence for structure. Giddens “inserts the concept of 'system' between the two [structure and agency] in order
to create what he calls an interdependent 'duality'. Social systems are constituted by the activities of human agents, enabled and constrained by the structural properties of these systems” (Whittington 1994, p. 62). However, under this conception of structure, “while structural properties make action possible, structures themselves have no reality except as they are instantiated in activity or retained mentally as remembered codes of conduct or rights to resources” (Whittington 1994, p. 62).

This virtual existence for structure sees structure as having no existence external to agency - they are functionally inseparable - structure only becoming real when instantiated through agent’s actions. Structural properties are seen as being reinforced through the comfortable rule following and routinized behavior of knowledgeable agents.

Structuration theory sees structures as having no existence external to agency - they are functionally inseparable - structures only becoming real when “instantiated” through agent’s actions. In my view this virtuality for structures makes the representation of IT difficult. Orlikowski and Robey (1991) and Orlikowski (1992) have included a model for IT within structuration theory as having a duality expressed:

\[
\text{in its constituted nature - information technology is the social product of subjective human action within specific structural and cultural contexts - and its constitutive role - information technology is simultaneously an objective set of rules and resources involved in mediating (facilitating and constraining) human action, and thus hence contributing to the creation, recreation and transformation of those contexts. (as quoted in Rose (2000, p. 119))}
\]

The model sees technology as being a structural property of organizations - it embodies and hence is an instantiation of some of the rules and resources constituting the structure of an organization. Technology becomes both a medium and a product of human action (see Figure 1 below) and the users of the technology are seen to separate into those that use the technology and those that design and mediate the technology for users. Orlikowski’s model suggests the consideration of two modes of interaction – the design mode and the use mode - to reflect the major modes of interaction between actors (the developers and users) and structure (the technology) at different points in time.

Multiview 2.0 (Avison, Wood-Harper, Vidgen, and Wood, 1998) provides an example of an IS development methodology loosely based on Giddens’ structuration theory that attempts to incorporate a structural perspective and an agency perspective. They see their Multiview 2 development methodology as an interpretive scheme that is drawn on when developing and deploying information systems (action) in an organizational context (structure).

From a critical realist perspective the Multiview 2 framework wrongly equates structure with "organizational context". The realist perspective would argue that the organizational context provides a complex interplay of multiple interacting structures and mechanisms that affect the agent’s use of an ISD methodology in various ways. It would see the model as being too simple in its equating of context with structure. Interestingly along with Archer (1995) Avison et al (1998) also see a need for an analytical separation between the real world of objective structures and the transitive world of agency interpretation:

\[
\text{At the heart of Multiview2 is a belief in the inseparability of object and subject worlds... Rather than see ISD as a process of bringing together the social and technical aspects, we argue that it is more appropriate to view ISD as a way of making temporary and artificial separations in which objectivist accounts of meeting real-world requirements and subjectivist accounts of a socially-constructed reality achieve a synchronization (p. 133).}
\]

Multiview 2 does not propose a prescriptive approach to systems development instead suggesting that the analyst draws on the interpretive frame throughout the development process. This non-inclusion of a time element is a characteristic of Giddens’ structuration theory. From a critical realist perspective such neglect is a major problem with structuration theory in that there is thus an inability to examine.
the interaction of structure and agency over time. They suggest that “structure and agency can only be linked by examining the interplay between them over time, and that without the proper incorporation of time the problem of structure and agency can never be satisfactorily resolved” (Archer, 1995, p. 65). Giddens’ theory suggests that structure and agency are inseparable, one *sinking* into the other (termed by Archer as elision) thus disallowing the study of their interaction over time.

The use of Giddens’ framework and the representation of technology as structure raises a number of issues. As Archer (1995) argues Giddens’ representation of structure makes it difficult to investigate the interplay of actors and technology over time. Orlikowski’s model (Orlikowski, 1992) reduces the impact of this shortcoming by looking at two separate instantiations of technology, the *use mode* and the *design mode*. However whilst such separation is useful it does not allow for a full ongoing recognition of the interaction between developers, users and the technology over the often considerable time involved in systems design and implementation.

Another issue with Orlikowski’s model is the equating of technology with structure, thus providing technology with a virtual existence, the technology only being ‘made real’ on instantiation. Such a model for technology does not encourage a deep investigation of the properties of the particular technology – these properties having the potential to impact later use and design. Giddens’ framework cannot insist on a clear specification of *virtual structures* since they do not in fact exist until action makes them visible, they only exist as ‘rules and resources’. Yet technology has emergent properties that cannot be represented solely as ‘rules and resources’.

Volkoff (1999) uses Giddens’ Structuration Theory to analyze an ERP implementation and in so doing highlights the role of the ‘active agent’ in changing and modifying the ERP system. The concentration within structuration theory on the active agent and its lack of a recognition of the reality of structure and their emergent properties suggests that it would be difficult to properly analyze the particular properties of ERP systems and how they may constrain agents actions. For the critical realist a major problem with using such a theory is the inability to include time in the analysis. Such a neglect limits the possibility of examining the important ongoing structural elaboration that ensues through agency action.

**TOWARDS A NEW MODEL FOR EXAMINING ERP SYSTEMS**

The critical realist sees structure as “systems of human relations among social positions”. A critical realist approach to the examination of an ERP system would suggest that the ERP system can act as both a mechanism and structure. This representation of the ERP system as a social structure allows an emphasis on relational properties with other groups as well as allowing for an examination of the complex internal relations. The ERP system technology can also be seen to provide a mechanism by which organizational structures are transformed in both intended and unintended ways as the ERP system is implemented, used and transformed.

In contrast to the virtual existence for structure given within structuration theory the realist interpretation sees structure as referring to actual forms of social organizations, as ‘real entities with their own powers, tendencies and potentials’ (Archer 1995, p. 106). Such structures cannot be perceived and thus cannot be identified except through examination of their effects. Social systems depend on the relations between and within a plurality of structures, such relations having their own independent causal properties. The resulting system founded on the various relations has emergent properties which may affect agents acting within the system. This interpretation of structure is in contrast to Giddens’ approach which is non-relational seeing structure as ‘rules and resources’. Giddens’ approach emphasizes the role of the active agent; Bhaskar’s realist interpretation elevates the role of structure and its shaping role in social situations.

Structuration theory does not allow for the separate investigation of the emergent and irreducible properties of structures and agents. In particular the collapsing of structure into agency negates the
investigation of their interplay over time - how a pre-existing structure may constrain action and how action reproduces or transforms existing structures. Critical realism argues for the consideration of both structure and agency and, specifically, brings time dependency into account. The central argument is that 'structure and agency can only be linked by examining the interplay between them over time, and that without the proper incorporation of time the problem of structure and agency can never be satisfactorily resolved' (Archer, 1995, p. 65).

ERP systems have important wide ranging impacts on various social structures within and external to the organization. As detailed in Figure 2 they can be seen to constrain existing users in that the largely pre-defined business practices enforce a particular structure on the involved parties. They can also enable existing users in that they can provide new possibilities for integration both internally and externally. As detailed above a theory which recognizes that organizational reality is made of a complex network of social relations provides a good basis for examination of the effects on and influences by such concerned parties. Critical realism also provides methodological guidance in that the philosophy indicates what sort of questions can be answered and the means by which such questioning can be progressed. Despite the lack of exemplars it seems a useful and worthwhile basis for developing useful and practical research.

**CONCLUSION**

This article discusses a number of different ways of envisaging technology as structure and discusses the ways that the adoption of a particular theory can ultimately define the object under study. A hypothetical example is provided to demonstrate the way that different conceptions of structure can limit the explanatory possibilities in examining ERP systems. A collectivist definition of structure as “law-like regularities that govern the behavior of social facts” is a tempting means of examining the impacts of ERP on organizational life, however, as indicated above, it does not go far enough in allowing for a consideration as to how agents may amend the system and their own behavior to adjust to such “law-like regularities”.

A more complete analysis can be attempted by the use of Giddens’ Structuration Theory (Volkoff 1999). However, Giddens’ structuration theory is difficult to operationalize; it is a varied and complex theory that Craib (1992) associates with the perhaps unkind metaphor of an omelette to highlight its complexity. For IS research it seems that the fundamental assumptions underlying the theory do not seem to mesh well with the reality of technological systems. The critical realist perception of accepting a technological system as a pre-existing object with emergent and irreducible properties rather than as a virtual object only made real through instantiation seems a more useful and practical representation, yet, as for structuration theory, there is little practical guidance and little specific conceptualization of material objects such as technology within the theory.
Institutional Properties

C

Human Actors

Information Technology

A

B

D

<table>
<thead>
<tr>
<th>Arrow</th>
<th>Type of Influence</th>
<th>Nature of Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>IT as product of human action</td>
<td>IT as an outcome of such human development as design and development, appreciation and modification</td>
</tr>
<tr>
<td>B</td>
<td>IT as medium of human action</td>
<td>IT facilitates and constrains human action through the provision of interpretive schemes, facilities and norms</td>
</tr>
<tr>
<td>C</td>
<td>IT as product of human action</td>
<td>Institutional properties influence humans in their interaction with IT, such as intentions, design standards, professional norms, state of the art in materials and knowledge and available resources (time, money and skills)</td>
</tr>
<tr>
<td>D</td>
<td>IT as product of human action</td>
<td>Interaction with IT influences the institutional properties of an organization through reinforcing or transforming systems of signification domination and legitimization</td>
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Figure 1: A representation of IT within structuration theory (from Olesen and Myers, 1999)
<table>
<thead>
<tr>
<th>Arrow</th>
<th>Type of Influence</th>
<th>Nature of Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Structural reinforcement and elaboration</td>
<td>The introduced IT system changes existing structures within the organization as new positions are created and organizational actors use the IT system to reinforce or transform existing structures.</td>
</tr>
<tr>
<td>B</td>
<td>Structural reinforcement and elaboration</td>
<td>The introduced IT system impacts external structures through enhancing communication, changing business practices and perhaps altering the IT.</td>
</tr>
<tr>
<td>C</td>
<td>Structural reinforcement and elaboration</td>
<td>Organizational actors reinforce or transform the existing structural impositions of the introduced IT system via changed work practices or changes to the technology.</td>
</tr>
<tr>
<td>D</td>
<td>Structural reinforcement and elaboration</td>
<td>New changed structures are consequent on the structural reinforcement and elaboration emanating from agency action.</td>
</tr>
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</table>

*Figure 2: Representation of an IT system within critical realism*
REFERENCES


