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Culture's Consequences for IT Application and Business Process Change:

A Research Agenda

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Culture's Consequences for IT Application and Business Process Change: A Research Agenda

Abstract

Enterprises cannot fully realise the benefits of information technology (IT) by merely automating their existing business processes. Consequently, large-scale organizational changes enabled by IT, including business process *re-engineering* efforts, have become popular. Differences between nations and societies make it critical to understand how institutional and cultural factors influence IT application and the nature of IT-enabled business process change. Unfortunately, the study of cultural issues still represents a rather isolated and underappreciated subdiscipline within information systems (IS). This article builds upon Martinsons and Davison (2003) in order to advance our understanding of how societal culture influences specific IS phenomena. Hofstede's five dimensions are employed systematically to develop a set of researchable propositions. A Hong Kong case provides strong preliminary support for the twelve propositions, which represent an agenda for testing theory by researching how culture influences IT application and business process change.

Keywords

Research Agenda, Theory; Business Process Change; Societal Culture; Comparative Management; Information Systems Management.

1. Introduction

Information technology (IT) has been used traditionally to automate existing business processes. However, the emergence of business process re-engineering (BPR) highlights the potential to benefit more fully from IT by radically changing the existing work processes. There is now a growing consensus that efforts to improve organisational performance can be enhanced by integrating IT applications with changes in business processes.

The theoretical roots of business process change go back to at least the beginning of the 20th century (see Davenport, 1993; Martinsons, 1995). The emphasis on the bi-directional nature of technology's relationships with work tasks, social (or organisational) structures and individual characteristics is most apparent in the socio-technical systems literature (see Cherns, 1986). Recent advances in the underlying technology have prompted a growing interest in IT-enabled business process change, as evidenced by the widespread adoption of BPR in the U.S. during the 1990s (Hammer & Champy, 1993; Kettinger et al., 1997).

Even as the popularity of the BPR concept wanes in North America and Europe, enterprises in other parts of the world are adopting its principles. Hammer & Champy (1993) suggest that re-engineering "capitalizes on the same characteristics that have traditionally made Americans such great business innovators: individualism, self-reliance, a willingness to accept risk, and propensity for change". This implies that the principles of BPR will best fit a distinctive set of values, and be less suited to other sets of values.

The re-engineering concept implicitly assumes that drastic and discontinuous organisational changes are both necessary *and* possible (Hammer, 1990). This assumption was widely accepted in the U.S., but it is far from universal. The broader

concept of IT-enabled business process change faces similar obstacles and constraints. Like most management ideas and theories, the concept can be applied widely, but cultural and/or institutional differences are likely to significantly influence both its transferability and efficacy.

This article focuses on how cultural factors influence IT-enabled business process change. In reference to management scientists, Hofstede (1994) has remarked that "...their theories cannot but reflect ... [their] national culture". Theories tend to be developed in a specific cultural environment. Expecting them to transfer seamlessly across cultural boundaries is naïve.

Much of the mainstream Information Systems (IS) literature continues to assume or at least imply that theories and practices conceived and tested in Anglo-American environments (such as the United States, Canada, the United Kingdom, Australia, and New Zealand) are valid universally. Many such assumptions or implications are erroneous. For example, the technology acceptance model (TAM) is valid in the U.S. and Switzerland, but not in Japan (Straub et al., 1997).

Contextual factors are also known to affect phenomena such as knowledge management (cf. Burrows et al., 2005), the pattern of IT application (cf. Martinsons & Westwood, 1997), and the implementation of ERP systems (cf. Davison, 2002). Nevertheless, many management and information systems people still tend to seek universal formulae for successful practice while ignoring the messiness of human factors (see Martinsons & Chong, 1999).

IT is often perceived to be a magic bullet for transforming organisations and improving performance (Markus & Benjamin, 1997). This is an erroneous and even dangerous belief given that Davison & Jordan (1998) have shown that IS success

depends critically on the intended setting while Cooper (1994) has identified specific factors that can foster organisational inertia and impair an IT-enabled change effort.

Nevertheless, IT applications can dramatically improve business performance when they are accompanied by organisational changes, such as alterations to core business processes (Hammer, 1990). This potential has attracted the interest of business stakeholders all over the world (Grover et al., 1998), including those heading up the thousands of poorly-performing state enterprises in the People's Republic of China (PRC) and newly-privatised firms across the former Soviet Union.

However, organisations often go through change cycles without achieving any tangible improvements because their efforts are inconsistent with the prevailing culture and/or they fail to build a culture to support change (Schneider et al., 1996). The difficulties of achieving a cross-cultural technology transfer, assimilating a new IT application *and* making the necessary changes in business processes mean that it is critical to be well prepared for an IT-enabled change effort. This preparation should include a careful consideration of the inherent assumptions and values of both the donor and recipient contexts, and the implications of the differences between them (cf. Cooper, 1994; Harris & Davison, 1999).

Our understanding of how and why specific cultural attributes affect the planning and implementation of IT-enabled business process change efforts remains rather limited. Martinsons & Davison (2003) note that the study of cultural issues still represents a rather isolated and underappreciated subdiscipline within IS research. Ford et al. (2003) found that the focus of this subdiscipline has been on IS planning and usage, while IS development and operations management remain relatively unexamined. Their analysis also reveals that the dimensions of national culture outlined by Hofstede have not been used to develop and build IS theory. This

prompted Martinsons & Davison (2003) to argue for researchers to move beyond simple comparative studies, and offer some general suggestions for future research of culture and IT management.

This article builds upon Martinsons & Davison (2003) by systematically considering the five cultural dimensions identified by Hofstede (1980/2001) and the Chinese Culture Connection (1987). A comprehensive set of propositions about IT application and IT-enabled business process change is developed. Each proposition can be subjected to empirical testing and thus together they form a research agenda for studying how societal culture influences IT-enabled business process change. Empirical testing lies beyond the scope of this article, but material from a published Hong Kong case is used to illustrate the propositions and thus suggest how such testing could proceed.

The theoretical research reported here began by identifying a set of culturally-independent concepts through a search for equivalences across a wide cross-section of cultures. This overcame the problem of simply relying on a convenient but potentially ethnocentric set of concepts from the Anglo-American management literature (see Hofstede, 2001; Martinsons, 1991). The identified concepts were then used to consider various facets of IT-enabled business process change in order to develop a series of propositions from a cross-cultural perspective.

The distinctive nature of Chinese management (see Martinsons & Hempel, 1995) and information systems in the Chinese business culture (see Martinsons & Westwood, 1997) are used to highlight instances where the conventional wisdom from Anglo-American societies like the United States and the United Kingdom may be inappropriate. The decision to focus on Chinese business contexts was based largely on two factors: (1) the large *cultural distance* between Anglo-American and

Chinese societies (see Hofstede & Bond, 1988) and (2) the growing global importance of the PRC. As a result, a solid knowledge of the Chinese business and society is increasingly critical in order to successfully manage IS on a global basis. The final part of our paper discusses the implications for researchers and practitioners by considering key problems and issues that may arise from efforts to implement IT-based solutions in different cultural settings. We begin by clarifying what we mean by “culture” before considering Hofstede’s dimensions.

2. Culture

A universally-accepted definition of culture remains elusive, but it is generally conceived in terms of the "shared ways of thinking, feeling, and reacting; shared meanings and identities; shared socially constructed environments; common ways in which technologies are used; and commonly experienced events..." (House et al., 1997). Hofstede (2001) defines culture as the "collective programming of the mind which distinguishes the members of one group or category of people from another". Although we grow up and live in a particular *culture*, it is also something that we acquire (or learn) over time as a result of social interactions. Just as the transmission of genetic data accounts for biological similarities among people, so the transmission of cultural data may be seen to be responsible for behavioural similarities. Significantly, cultural differences are asserted to be the "ultimate determinants of human organisation and behaviour and thus of economic growth" (Hofstede & Bond, 1988).

Culture relates, of course, not only to societies (or nations) but also to industries, professions and organisations. Societal (or national) culture is largely based on distinctive values whereas an industrial, professional or organisational culture is conformed by distinctive practices (Hofstede, 2001). IT-enabled change

efforts must consider all of these *levels* of culture. The suitability of a particular change will depend on the organisational culture as well as that of the industry and society in which it operates. In fact, even the organisational and industrial cultures within a single country or society may be expected to vary greatly. This is evident from the significantly different organisational cultures that were found within the American computer industry during the 1980s. The individual empowerment within Apple contrasted sharply with IBM's formalised hierarchies (see Berger, 1987).

Nevertheless, the difference between societal and organisational culture is very important. Although cultures in general are relatively stable, societal culture is much harder (and therefore slower) to change than that at the industrial or organisational level (Hofstede, 2001). An organisation may decide on a new strategic direction or an entire industry group may follow a new paradigm for action, and the organisational or industrial culture will adapt to the new conditions. Similar changes in societies occur far less frequently and almost always take place over an extended period of time. Indeed, the very notion of *managing* culture at this higher level is culture-bound. While most Americans tend to see culture as something they *have*, their counterparts in Europe (and many other societies) tend to consider culture as something they *are* (see Schneider & Barsoux, 1997).

The research evidence (cf. Hofstede, 2001; Merritt, 2000) also strongly indicates that the societal background of employees affects the work environment: workers do *not* abandon their societal values and attitudes upon entering an office or a factory. Societal culture also has an important impact on the mindset of senior executives (House et al., 2002), as demonstrated by the fact that material from a published Hong Kong case can be used to explain the openness of a top manager with a certain background to a change in organisational strategy.

Societal culture will have a salient and long-lasting impact on the work environment, including artificially and externally induced modifications such as IT-enabled business process change. Consistent with this perspective, this article focuses on the impacts of culture at the *societal* level. Human behaviour is affected by societal values and attitudes (Hofstede, 2001). Entrenched societal values and attitudes together with organisational policies and entrenched practices are thus expected to constrain the transferability of IT-enabled changes since the needed changes in behaviour may be inhibited by the existing values and attitudes.

The literature on societal culture was quite fragmentary until 1980, when Hofstede reported his study of work-related cultural values in more than forty countries around the world. Using a database with responses from about 116,000 non-management IBM employees, he delineated four dimensions of societal culture: 1) power distance (PDI); 2) individualism (IND); 3) masculinity (MAS), and 4) uncertainty avoidance (UAV). Hofstede's work has come to be recognised as a seminal contribution to the field, and many replicative studies have confirmed its findings even as it has been subjected to criticism (see House et al., 1997, for an incisive review of the latter topic). A subsequent study (Chinese Culture Connection, 1987) revealed a fifth dimension, labelled Confucian dynamism, to complement the four originally noted by Hofstede (1980).

Fundamental cultural differences between Anglo-American societies, such as Australia, Great Britain and the USA, and Chinese dominated societies such as Singapore, Taiwan and Hong Kong. The Anglo-American societies form a relatively tight cluster with low scores on PDI, very high scores on IND, fairly high scores on MAS, and low scores with respect to Confucian dynamism. A shared ideology and

language as well as a British (colonial) and Judeo-Christian heritage help to explain this similarity (Ashkanasy et al., 2002; Hsu, 1970).

The Chinese societies form another distinct cluster, with much higher PDI scores, much lower scores on IND, significantly lower scores on MAS, and very high scores with respect to Confucian dynamism. These scores reflect the teachings of Confucius and his disciples. Confucian teachings emphasise the need for inner, social and structural harmony based on adherence to certain principles of propriety (cf. Hsu, 1970; Redding, 1990).

Differences on these five cultural dimensions lead to differences in attitudinal and behavioural norms (Hofstede, 2001). Cultural factors thus influence not only organisations, in terms of characteristics such as formalisation and centralisation, but also the daily behaviour of managers and employees in different societies. Hofstede's cultural dimensions can also be used to consider the suitability and potential consequences of various management interventions or technology infusions. In particular, they may be expected to influence the planning and implementation of IT-enabled changes. In the subsequent sections we describe each dimension and explain how it relates to particular aspects of IT-enabled change, and the philosophy of BPR, as it has been expounded in recent years.

3. Power Distance

Power distance (PDI) reflects the degree to which a society accepts a hierarchical system and unequal distributions of power. A high PDI score implies that less powerful members of organisations and societies accept large status differences between superiors and subordinates. Managers tend to be autocratic and paternalistic while employees are comparatively comfortable doing as they are told, obeying orders without question. Large differences in both the status and the

remuneration between blue-collar jobs and professional and management positions are both common and expected (Redding, 1990).

Chinese social groups have been found to have much higher PDI levels than their Anglo-American counterparts (Hofstede, 2001) and in contrast to the expressed beliefs of those founding the United States, the Chinese consider it self-evident that “all men are born unequal” (Bond, 1986). The bases for this inequality include achievement, wealth and moral example. This uneven distribution of power is useful to sustain an existing authority structure. It is both prevalent and widely accepted in Chinese societies. Confucius taught that social stability hinges on maintaining this status-based hierarchy, with unequal relationships based on reciprocal obligations. Thus, the superior is obligated to look after the welfare of subordinates in return for their respect, loyalty and obedience.

In the Chinese business culture, information is commonly perceived to be a personal asset rather than an organisational resource (Martinsons, 1991). As a result, most Chinese management information really is strictly restricted to managers. Data also resides in a soft form - in the minds of top managers. Discretionary power is maintained by careful control of key information. Information is selectively released to subordinates and co-workers instead of being widely shared among organisational members (Martinsons & Westwood, 1997).

Formal information systems have the potential to undermine the stability of the social status quo if they provide universal information access. Although many Chinese businesses have installed computers, their primary role has been to monitor and control the operations in an expanding business (Burn & Martinsons, 1997; Burrows et al., 2005). The reliance on a directive decision style by Chinese business leaders limits the role of decision support systems (Martinsons & Davison, 2007).

Thus, IT tends to support a narrow form of bureaucracy which often appears to be managed as a virtual fiefdom. Indeed, the structuration and dissemination of information, common in Anglo-American organisations, is likely to be anathema to authority in a fief (Davison & Jordan, 1998).

More generally, organisational power and control reside in the ability to share or withhold information. In a high PDI culture, tight controls on information may be expected. Managers will issue directives to their subordinates, but there will be relatively little peer-to-peer (horizontal) communication that involves co-ordinating or initiating actions. IT will tend to reinforce hierarchical control. In contrast, the greater sharing and wider dissemination of information in low PDI cultures make it more likely that IT will be used to facilitate employee empowerment. Employees may be expected to communicate extensively with their peers in order to co-ordinate their activities and achieve the benefits of teamwork. This leads to our first proposition:

Proposition 1a. High power distance cultures will make comparatively more use of IT for vertical communications to monitor and control business activities than low power distance cultures.

Proposition 1b. High power distance cultures will make comparatively less use of IT for horizontal communications to integrate and co-ordinate business activities than low power distance cultures.

The degree of power distance will also affect IT-enabled business process change efforts. With superiors in high PDI cultures being reluctant to formalise information, there will be a greater reliance on personal and verbal forms of intra-

organisational communication. Indeed, Chinese managers make extensive use of conditional and ambiguous statements to maintain flexibility, promote harmony and preserve face (Martinsons & Hempel, 1995). The release of information that maintains and reinforces the status quo and thus promotes management control will be encouraged. Meanwhile, the distribution of information that calls managerial decisions into question, encourages decentralised decision making or, more generally, undermines stability is likely to be suppressed. As a result,

Proposition 2. High power distance cultures will be comparatively more likely to maintain the status quo and will be less likely to incorporate clean-slate thinking into their IT-enabled business process change efforts than low power distance cultures.

Managers in high PDI cultures will also see comparatively less value in data codification (as required in a computerised database), especially if such a simplification results in the loss of context for the data or discretionary flexibility for the boss. For example, Chinese organisations tend to have less documentation and less diffusion of information than their Anglo-American counterparts (Martinsons & Westwood, 1997). More generally, the concentration of authority in a high PDI culture will moderate both the need and the ability to create formal documents. For IS management, this implies that,

Proposition 3. High power distance cultures will be comparatively less likely to develop and make use of formal IS plans or process models than low power distance cultures.

PDI may also be expected to affect IT-enabled business process change. For instance, Hammer & Champy (1993) argue that top management must communicate a compelling rationale for such a change and oversee the re-engineering effort. In a high PDI culture, those in positions of authority are obligated to look after their subordinates. Employees reciprocate by obeying their bosses. Decisional prerogatives are concentrated at the top of the organisation. For example, the conception and execution of work are very distinct in Chinese organisations.

The Chinese believe that work should be directed explicitly from above (Bond, 1986). Employees will follow the instructions they are given, but the outcomes of their work remain the responsibility of their boss. If the boss wishes to see improved productivity, then it is his responsibility to give better instructions. In this context, employee empowerment would interfere with well-defined and widely-accepted roles and potentially create instability. In contrast, employees and lower level managers in Anglo-American cultures would expect to be consulted before a major organisational decision is made. In the absence of such consultation, there will be a high degree of resistance to the planned change and substantial hesitation to implement it. In fact, individual employment contracts and the role of trade unions often mandate some form of participation in Anglo-American organisations.

Thus, the centralised authority in a Chinese business will make it easier to initiate a re-engineering effort. Employees are unlikely to question changes that are recommended by their bosses. More generally, subordinates in high PDI cultures expect and accept directions from their superiors. As a result,

Proposition 4. High power distance cultures will find it comparatively easier to initiate IT-enabled process changes than low power distance cultures.

In contrast to the planning stage, the implementation of a major business process change requires participatory management practices (Hammer & Champy, 1993). For example, re-engineering success is contingent on deep commitment across the organisation, in terms of both understanding and active involvement. It is also common to delegate decision-making responsibilities and provide increased information access to lower organisational levels. Dramatic improvements in process completion times, customised services and other dimensions of business performance are unlikely if key operational decisions can not be effectively made by those who are closest to the action. Process teams and individual workers must have the skills and self-confidence to accept responsibility. They must also have the power and information to initiate and regulate their own work behaviour. Access to timely and comprehensive data from IT applications will enable them to deliver customer-valued products and services.

Workers in a high PDI culture tend to prefer (or at least expect) autocratic managers (Hofstede, 2001). Participative management would thus represent a radical and unnatural change in such a cultural setting. As a result, the transformation from a hierarchical structure with management control to a flat structure with management coaching is likely to be resisted by both managers and employees. While managers in a low PDI culture may see change as an opportunity for both themselves and their organizations, those in a high PDI culture would be comparatively more reluctant to relinquish their positional power and control.

Meanwhile, high PDI workers tend to wait for explicit instructions from their bosses. They would perceive the change process to be disruptive, and also hesitate to take on the risks and responsibilities that accompany the change, especially those associated with independently initiated actions or directly expressed feelings.

With BPR, managers entrust their subordinates and delegate considerable responsibility to them as the redesigned business model is implemented (Hammer & Champy, 1993). Indeed, it is hard to imagine those affected by radical IT-enabled changes not being actively involved in both the design and implementation phases. It is common to find such a pattern of behaviour in many Anglo-American contexts and even Japan (see Cooper & Markus, 1995). However, it would be exceptional in a Chinese context. Since such participation is problematic in a high PDI culture,

Proposition 5. High power distance cultures will find it comparatively more difficult than low power distance cultures to adopt the participative management that accompanies many IT-enabled process changes.

4. Individualism/Collectivism

Individualism/collectivism reflects the degree to which a society values independence versus group membership. Individualistic societies highly value personal goals, initiative, autonomy and privacy. Managers are encouraged to make decisions without much reliance on group support. On the other hand, collectivistic societies emphasise the importance of group goals and objectives over individual preferences. Collectivistic societies also try to forge a consensus by covering up

differences whereas individualistic societies encourage debate and resolve disputes through persuasion (cf. Watson et al., 1994).

In collectivistic cultures, loyalty to the group is important, whereas loyalty to one's individual principles is more important in individualistic cultures. Dissent in collectivistic cultures is thus frowned upon and usually avoided or discouraged, but group responsibility and decision making is supported. Commitment to group norms and an extensive involvement in group activities are also highly valued in a collectivistic culture. In contrast to most Anglo-Americans, the Chinese tend to be socialised through experiences which shape a collective rather than an individual identity. As a result, they place a comparatively higher value on social harmony and unity and a lower value on individuality.

For example, Hammer & Champy (1993) observe that after an organisation has been re-engineered, workers or case teams "make decisions" and work units change to process teams, which are "groups of people working together to perform an entire process". The formation of such teams would be more natural in a collectivistic culture. However, many process change prescriptions (cf. Davenport, 1993; Hammer & Champy, 1993) also stress the role of constructive conflict, improvisation and innovation among team members in order to improve core process characteristics and to respond successfully to non-routine situations.

Based on their respective attributes,

Proposition 6a. Collectivistic cultures will experience comparatively less difficulty in creating process teams than individualistic cultures.

Proposition 6b. Collectivistic cultures will find it comparatively more difficult to initiate and sustain innovation within a process team than individualistic cultures.

Although performance-based rewards for personal contributions fit with individualistic cultures, rewards for loyalty and conformity as well as group performance would be more suitable in a collectivistic culture. Collectivistic societies, such as those of the Japanese and Chinese, also make extensive use of personal traits rather than task or outcome measures in their performance appraisal and reward systems. Subordinates are subjectively assessed in terms of loyalty, obedience and effort rather than tangible or explicit results (cf. House et al., 1997). Past reliability and dependability are the basis for evaluating individuals in terms of important attributes such as sincerity, integrity and credibility. A focus on circumstances rather than contracts may provide the best basis for personnel evaluation (cf. Martinsons & Hempel, 1998). This makes the relationship between individual contributions and rewards less important. It also conflicts with the advice of Hammer & Champy (1993) that performance management should focus on ends (outcomes) rather than means. Following from this,

Proposition 7. Collectivistic cultures will experience comparatively more difficulty implementing the process-based performance appraisal and reward systems associated with IT-enabled changes.

5. Masculinity

Masculinity reflects the degree to which a society defines achievement in terms of success and the acquisition of money or material possessions. Aggressive attempts

to increase wealth, and assertive behaviour in general, are viewed positively in masculine cultures. Much significance is attached to career advancement and challenge. These cultures favour large-scale enterprises and consider economic profits to be of paramount importance. Indeed, Anglo-American businesses usually identify the maximisation of shareholder wealth as *the* reason for the existence of a firm. Market development and transaction cost reduction are thus key business goals. With these high expectations, concomitant levels of stress are common.

In contrast, feminine societies emphasise caring and nurturing behaviour. Achievement is defined in terms of human contacts, relationships and the quality of the living environment. As a result of their relationship orientation, the Chinese exhibit comparatively more concern for their customers and employees than their Anglo-American counterparts. The traditional Chinese firm, usually owned and managed by a family, exists to promote the welfare of a well-defined social group. The prominence of social control and personal trust in the Chinese business culture also moderate the role of formal reporting and budgeting systems.

The advocates of IT-enabled process change, and especially the proponents of re-engineering, have made substantial use of military metaphors (e.g.: the advice to "shoot those who get in the way") and placed a central focus on financial and operational outcomes, such as increased profitability and productivity. This vocabulary is consistent with a highly masculine culture. Hammer & Champy (1993) emphasize the need to create a disequilibrium in order to dramatically improve performance. In sharp contrast, feminine cultures value friendly work environments, co-operation and secure employment. For example, the Confucian-derived model of change is cyclical and continuous (Marshak, 1993). Movement and tranquillity tend

to complement each other and occur in a constant ebb and flow (yin and yang) rather than progressing to a specific or stable end-state.

Gradual changes in policies and practices, without major disruptions, are favoured. The fears of losing face and upsetting the natural order would dissuade the initiation of radical changes in feminine cultures. Subordinates would interpret a decision to take such drastic measures as evidence of mismanagement in the recent past. This in turn would severely compromise the dignity, respect and prestige of superiors. Dewar & Dutton (1986) confirm that attitudes towards change significantly influence the enacted type of change. Thus, it may be expected that

Proposition 8. Masculine cultures will experience comparatively less difficulty in introducing radical and disruptive forms of IT-enabled process change than feminine cultures.

6. Uncertainty Avoidance

Uncertainty avoidance reflects the degree to which a society tolerates ambiguous situations and the extent to which it has created institutions and beliefs to minimise or avoid these situations. High uncertainty avoidance cultures tend to have very structured activities. They also depend extensively on systematic rules and regulations to clarify expectations and so attempt to reduce risks. Based on a pronounced fear of random events and the unknown, managers will try to plan for and even control the future.

In contrast, managers in low uncertainty avoidance cultures accept the inevitability of environment change and focus on adaptation as it occurs. Their businesses tend to be less structured and less prone to organisational stress. In

these cultures, negotiated laws and programmed algorithms are considered to be too rigid and insensitive to changing circumstances. The rule of man, based on the judgements of wise and compassionate individuals, is considered preferable to the rule of law (Martinsons, 1991).

Anglo-Americans tend to perceive situations as problems to be solved or as opportunities for improvement or entrepreneurship (cf. Mueller & Thomas, 2000). This orientation, which has spawned a profitable self-improvement industry and legitimised the econometric forecasting profession, reflects their relatively high levels of uncertainty avoidance. The Chinese display a much greater tendency to accept a situation and *adapt* to the environment, rather than trying to substantially influence and change it (see Hofstede & Bond, 1988). Even though it may be acknowledged that sociologists and economists can broadly outline the future, the strong Chinese belief in fatalism moderates the need for business forecasts and detailed plans (Redding, 1990). As a result,

Proposition 9. Low uncertainty avoidance cultures will make comparatively less use of IT to pre-program decision-making or action-taking.

More generally, low uncertainty avoidance cultures will adapt to environmental changes rather than attempting to forecast and plan for them. In fact, consistent with philosophies like Taoism, much of their adaptation may be expected to evolve naturally rather than be explicitly imposed. For example, a popular Chinese maxim states that, beyond the fine art of getting others to do things, is the even worthier art of allowing things to be done by themselves. Given this perspective,

Proposition 10. Low uncertainty avoidance cultures will be comparatively less likely to make proactive IT-enabled process changes.

7. Confucian Dynamism

The fifth dimension, Confucian dynamism (Chinese Culture Connection, 1987), is closely associated with the teachings of Confucius. Although harmony at various levels is central to Confucianism, this can promote different types of behaviour.

Societies with high scores on this *Confucian dynamism* dimension focus towards the future. They stress perseverance, thrift and a long-term perspective. Survival is considered to be more important than short-term results, and panic measures (or radical changes) are avoided whenever possible. In contrast, those scoring low on Confucian dynamism may be said to have a greater respect for tradition, greater concern for preserving the image they present in social interactions, and perhaps most importantly, greater respect for *personal* steadiness. Anglo-American countries were found to have much lower scores on this cultural dimension than their Chinese counterparts. This makes the Anglo-American societies more likely to accept Hammer's (1990) proposals.

Automation should **not** be used merely to embed the existing (and presumably outdated) processes in silicon and software (Hammer, 1990). Managers are urged to start with a clean slate and rethink their entire business (Hammer & Champy, 1993). The specific aim is to avoid being constrained by traditional assumptions and practices. In fact, re-engineering ignores and often destroys the *status quo* in order to harness the disruptive power of IT, and to change

fundamentally the way work is done. The implementation of a re-engineered business model commonly results in a large scale, broad scope and rapid pace of change. Although this type of initiative may be expected to improve substantially the key measures of business performance, it can also impair the general health of the organisation and its people, and thus endanger long-term survival (see Martinsons & Hempel, 1998). As a result of our preceding discussion, we expect that:

Proposition 11. Low Confucian dynamism cultures will have a comparatively greater preference for radical and discontinuous forms of IT-enabled process change than high Confucian dynamism cultures.

Hammer & Champy (1993) also warn against a “culture of incrementalism”. They argue that re-engineering simply “can’t be carried out in small and cautious steps”. However, organisations in high Confucian dynamism cultures are often designed so that they can effectively make incremental and adaptive changes. Advice from outsiders, such as BPR consultants, is likely to be resisted, because this would imply that the people already in the organisation lack the competence or simply can not be trusted to resolve the present problems, and *turn around* the business (see Martinsons & Hempel, 1998). Rapid interventions advocated by outsiders would thus be seen as a desperate last resort, because of a cultural belief that they indicate both an inability to persevere and a willingness to risk social instability. As a result,

Proposition 12. Low Confucian dynamism cultures will be comparatively more likely to implement IT-enabled process changes in a rapid manner than high Confucian dynamism cultures.

8. A Hong Kong Case and Future Research

The testing of the propositions derived here is beyond the scope of this article. Nevertheless, it was considered remarkable that evidence consistent with these theoretically-derived propositions was found in a single enterprise - a medium sized accounting firm (the firm) in Hong Kong. In the following paragraphs, we illustrate the propositions with material from this case (Davison and Vogel, 2000), which was written before the propositions were derived. This illustration is then complemented with an exemplification of how the propositions could be tested in practice.

The case itself is interesting as the project leader (also the Chief Information Officer of the firm) came from an Anglo-American society (in this case, the UK) as did one of the project team members. Four of the remaining five team members were born and socialised into the Chinese-dominated culture in Hong Kong, while the fifth was born and socialised in similar social circumstances in Malaysia. The project was facilitated by an action researcher, who was not an employee of the firm. The project sought to *re-engineer* the process whereby the firm bills its clients.

The project leader acted as an internal consultant in this project. He had no formal positional power over the team members although top management supported his work. Given his vested interest in the project, he was an involved insider rather than an objective outsider, and so it was not surprising that he had a clear and pre-conceived notion of how the re-engineered process would look.

The CIO instigated the project and also ran it on a day to day basis. He requested each department within the firm to nominate a representative to the team.

These team members were somewhat unwilling participants, believing it beyond their competence and responsibility to be involved in the project at all. The project leader decided to employ a Group Support System (GSS) to enable anonymous team member contributions. Throughout the project, there were marked dissimilarities between the behaviours of the Chinese and Anglo-American members of the project team. These dissimilarities caused considerable friction and ultimately resulted in a schedule over-run.

Proposition 1:

The project leader regularly used e-mail as a business communication device, directing and instructing the team members, and providing information to the action researcher. However, the other team members made minimal use of e-mail when communicating amongst themselves, though they did send email to the action researcher in response to questions. The project leader wryly commented that they had probably set up an auto-delete function for his e-mail messages as they often ignored his emailed instructions. However, several of the team members noted that some of the instructions given by the project leader conflicted with the directives provided by their own superiors. They further indicated that a desire to avoid conflict precluded them from explicitly refusing to carry out the instructions of the project leader, though they did use email deferentially to point out complications arising from his instructions. Although the project leader wanted to guide the activities of the project team, it was apparent that he lacked the positional power to do so effectively. The project team members did not consider the project leader to be their boss. Consistent with Proposition 1, they used implicit means to defy his authority, and resisted the use of IT to integrate and co-ordinate their project activities.

Proposition 2:

The firm in this case was well-recognised in Hong Kong for its traditional and conservative corporate culture. Although the project leader had a mandate to introduce organisational change, he still had to personally overcome any resistance to the change he had proposed. He was willing to incorporate clean-slate thinking into the IT-enabled change effort, with the IT-enabling itself being an aspect of such thinking, but other managers and employees were not. The project leader had encouraged the other team members to think *radically* in order to come up with innovative ideas. However, he was unsuccessful in persuading the team members to challenge the status quo. They believed that radical ideas should originate with senior management. Thus, consistent with Proposition 2, the team members socialised into a high PDI culture were unwilling to take on the authority and responsibility that the low power distance project leader expected them to accept.

Proposition 3:

The project leader had constructed a detailed model of the existing business process and also set out the sequence of steps that he wanted to follow in the BPR change effort. He asked the team members to read this documentation as well as several articles on BPR so that they would be 'enlightened' about the job ahead of them. This effort was unsuccessful because the team members did not perceive BPR to be central to their concerns. In effect, they did not read the documents provided by the project leader because their own bosses kept them busy with other tasks. However, even those who questioned their need to become 'enlightened' about BPR were unwilling to directly confront their project leader because of their strong desire to maintain social harmony. As suggested by Proposition 3, the project leader from a

low PDI culture was more supportive of formal approaches for both the client billing process and its re-engineering than the team members from a higher PDI culture.

Proposition 4:

The management of the firm had decided to investigate the potential of major changes that would make more use of IT and improve business performance. They appointed the CIO as the project leader and asked different department heads to nominate project team members. However, the top management later failed to provide the project leader with the power he needed to implement the changes that he was proposing. Consistent with Proposition 4, those from a high power distance found it very easy to initiate an IT-enabled project, but difficult to see it through to completion. Although this general pattern may be relatively common, it is believed that the degree of ease at the beginning and difficulty towards the end was significantly related to the prevailing power distance score.

Proposition 5:

Although there was little opportunity for participative management in the project given clearly stated means and ends, the whole notion of participation does deserve discussion. The team members were generally willing to participate in electronic brainstorming sessions so as to generate general ideas about problems. However, they were much less willing to go beyond discussion to the analysis, design and development of the new processes or to write up documents describing the team's work. As suggested by Proposition 5, considerable difficulties will likely be encountered when encouraging participation in high power distance cultures.

Propositions 6 and 7:

In this project, it was not difficult for the project leader to create a process team. His positional power as CIO was sufficient for this purpose. However, once the process team was established, the willingness of that team to be innovative was very low. The firm's reward mechanisms did not encourage creativity or innovation, and hence there was little incentive for team members to develop those attributes. Moreover, the project leader indicated that he had no authority to reward members for their contributions. Indeed, it transpired late in the project that the team members themselves received no credit for their work on the project, which thus took up time that they would have otherwise used for credit-related work. The project leader evinced prior unawareness of the importance of this aspect of the firm's culture. In this case we see that the BPR project was not only struggling with the alternative cultural values of the team members, but also with the culture of the firm where it was being enacted.

Proposition 8:

The native societies of both the project leader (the United Kingdom) and the majority of the team members (Hong Kong) have medium levels of masculinity. In this context, it is noteworthy that while there was limited debate at the outset of the project on the scope and pace of change issues, deadlines were permitted to slide quickly, six months being required for a ten-week project. However, although the CIO was frustrated by the tortuous progress of the project, he was unable to speed it up and the team members questioned neither the need to keep the project moving nor, therefore, the need to minimise their time spent on it.

Propositions 9 and 10:

The project leader saw the need to improve the then current nature of the firm's billing process and took action accordingly. However, he also attempted to simplify the very structured nature of the process, reducing it from twelve steps to four. This move was appreciated by the team members, although some foresaw problems with the new structure because it restricted the ability of their bosses to manage in an *ad hoc* manner. Some team members also indicated (privately to the researchers) that they did not find the new process to be universally appropriate. As a result, they believed that there would be justifications to circumvent it in particular circumstances. As a result, Proposition 9 was supported by evidence from this case, even though accounting is widely acknowledged to be a conservative and precision-oriented activity, where pre-programmed actions are commonplace and unavoidable. The attitudes of the team members with regard to their need for flexibility in their work practice and the inappropriateness of IT-enabled processes as a universal formula for work illustrate Proposition 10.

Propositions 11 and 12:

The project leader's preference for radical and rapid change can in part be attributed to his Western background, but also to his belief in the efficacy of BPR. In contrast, the team members were cautious about the prospects for radical change. Among other factors, they cited the entrenched values shared by the long-term members of the firm and its business success with the existing *modi operandi*. They could see the value of change, but they preferred it to be gradual, and if necessary continuous, rather than either rapid or radical. Such continuous change had the potential to be more dynamic in that it offered the opportunity for continuous adaptation to new

circumstances. This evidence is consistent with Propositions 11 and 12 in a culture with a high level of Confucian dynamism.

The case described above provides evidence from one organisational context, albeit with two distinctive national cultures. In order to test the propositions more thoroughly, we recommend a multi-national study that includes at least half a dozen national cultures. The nations included in the study should exhibit a wide range of configurations on the five dimensions from which the propositions were developed.

An eminently practical case could involve the implementation of an IT-based change initiative in the multiple sites of a multinational corporation. Such an initiative would be likely to reflect the values implicit in the societal culture of the headquarters location. In conducting the case, it should be possible to identify enabling or obstructing factors, e.g. local practices, beliefs, values, interpretations, etc. that reflect the local societal culture. Abdul-Gader (1997), for example, provides many examples of such cultural practices that might impede MNC-induced change in Arab Gulf cultures (Saudi Arabia, Kuwait, Bahrain, Qatar, Oman, UAE), while Martinsons & Hempel (1998) explain how cultural factors may facilitate (or impede) process change in China.

The propositions developed in this paper can be tested through an analysis of the extent to which these cultural practices correspond to the behaviours predicted in the propositions. Ideally, data triangulation would strengthen the analysis, with a combination of participant observation (or informed intervention in the case of action research), company documentation, and survey data: for the latter, an instrument would need to be developed to measure the extent to which each of the propositions was being corroborated.

9. Implications and Conclusions

Managers can undoubtedly learn from the experiences (successful or otherwise) of organisations that have applied IT and changed their business processes. The principles and results of IT-enabled business process change efforts will undeniably enrich their knowledge base. However, their own societal culture should inform and will constrain their decisions and actions. Expected rewards and benefits must be compared to risks, especially when they challenge or disturb existing norms. This is evident from the Hong Kong case, where a cross-cultural team consisted of members (the recipients) predominantly belonging to one culture and a leader (the donor or implementer) belonging to another.

It is essential to fit an IT-enabled business process change to the cultural context. Significant changes in cultural values must precede *or* accompany the successful business process changes. This in turn highlights the difficulty of rapidly and dramatically improving business performance. In our illustrative case, the bi-cultural composition of the project team impaired the planning and implementation of a process that strongly favoured a particular culture. Every society possesses some deeply-embedded cultural values and attitudes. These can not be easily dismissed nor are they likely to be submerged by even the most powerful of professional or organisational cultures (cf. Merritt, 2000).

Increasing migration between nations, particularly into Western Europe and North America, is changing the cultural make-up of many nations. Growing heterogeneity at the national level represents a challenge to both traditional cultures and social stability (cf. Robertson & Hoffman, 2000). At the enterprise level, teams including members from very different cultural backgrounds may be more creative and innovative, but they also experience intercultural problems.

Management actions can improve the fit between an IT-enabled business process change and the cultural context. For example, in high power distance cultures it is helpful to reward the dedication and loyalty of individuals who become process owners. Positive reinforcement to demonstrate trust will also be useful to support employees who do take independent actions. Similarly, managers and workers will be more likely to accept changes that incorporate (or are depicted as incorporating) existing cultural values. Even a radical change process that has undeniably masculine attributes could lead to outcomes that are consistent with feminine attributes, such as closer and better relations with customers.

In other cases, it may be difficult to reconcile a specific change initiative with the prevailing culture. Changes that promote information sharing and authority delegation will be impaired when information is a key source of power. Meanwhile, a cultural heritage which values harmony and stability is expected to favour gradual or evolutionary change rather than radical or proactive IT-enabled change. Planned IT-based interventions, such as re-engineering, that consciously seek to create disequilibrium, will face severe difficulties in social environments that value harmony and balance. Not all IT-enabled business process change is doomed to failure in those environments, but more virulent forms face bleak prospects. More generally, IT-enabled process change is unlikely to succeed without attention to cultural norms, and both management and workforce support and co-operation.

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