Organisation Structure, Management Style and IT: The Case of Hong Kong Chinese Building Companies

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ABSTRACT

The paper reports a study of how managers of Hong Kong Chinese building firms have changed their styles of management and the organisation of their firms in response to the introduction of information technology. In some cases these changes have been quite marked and have led to the erosion of the role and influence of middle managers as information has become more readily available to senior and lower level managers. The study suggests that the conflicts between traditional management philosophies and those required of IT can be resolved and used to strengthen commitment to organisational performance.

Key Words

information technology; culture; organisation structure; management style

INTRODUCTION

Many research studies have suggested that the utilisation of Information Technology (IT) should lead to an overall shift in decision making within construction firms and the construction industry. This will take place initially through the greater devolution of decision making and eventually, because of a trend away from internal decisions within firms, towards the use of markets to coordinate activity. As a result the structure of the industry will change markedly. However, such developments will require the widespread adoption of IT which for construction industries in most countries is still some years away. Bröchner (1990) has suggested that in the meantime a transitionary structure is likely to develop for the industry with the final direction of the development of the structure of the industry depending on the interaction between a number of complex factors.

Amongst those factors are those which are determined by the personal aspirations of managers, their skills, styles of management and the extent to which they wish to embrace IT or choose to stand apart from it.

Although the potential benefits of IT to the construction firm and the construction industry have been widely discussed in the academic and

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professional literature (for example, Betts et al, 1989) the impact of IT on the organisational structures and management styles of construction firms has not been widely reported. Those reports which are available tend to focus on the immediate benefits of IT and difficulties of implementation. They do not address the wider issues such as the impact of IT on the organisation structure, style of management and culture of the firm, although the importance of such factors is generally acknowledged.

This paper addresses the influence of the adoption of IT on the way in which firms are structured and the personal styles adopted by their managers. It considers the experience of middle-managers working for Hong Kong Chinese building firms.

THE LITERATURE: ORGANISATION

The well-established organisational literature provides little guidance on the potential impact of IT. At best it is ambiguous but generally it is contradictory (Swanson, 1987). This is especially the case when making predictions about the way in which an organisation might change as a result of the implementation of IT. Further, although there are many writings on the implications of IT for the way in which a firm might be managed, there are few studies of the impact of IT on styles of management.

If one theme does emerge from a review of discussions about IT it is a debate about the extent to which organisations will become more or less decentralised and whether decision-making will become either more concentrated or more devolved. For example, consideration of the primary dimensions of organisation structure defined by Pugh et al (1968), suggests that specialisation, standardisation and formalisation will increase as a result of IT. Also, it would appear that IT provides opportunities for increased control and centralisation as well as for decentralisation and localised decision making. According to Child (1984) decentralisation is usually coupled with increases in formalisation, the number and scope of procedures and with bureaucratic control of lower levels. As a result, routine decision-making may be decentralised but power and control may become more centralised.

The seminal paper by Leavitt and Whistler (1958), which created a focus for much subsequent research, speculated that the computer would move the locus of decision-making from the centre to the periphery of the organisation leading to a loss of autonomy by middle managers, increasing control by top management and shifts in power structures. Centralisation through computerisation would enable the better coordination of interdependent activities and would lead to benefits from economies of scale.

Studies carried out by Whistler (1967) and reinforced by the findings of others have shown that, with a few exceptions, the introduction of computers has led to changes in systems of organisational control, to decisions being

made at higher levels, to changes in ways of managing lower levels in organisations and to an increase in the number of controls on any one department emanating from others. Other studies have shown the impact of computers to be more complex and to be contingent on many factors (Noble and Newman, 1993). These factors include size (Zeffane, 1989), environment (Robey, 1977), culture (Storey, 1987), strategies of decision makers (Robey, 1981), and development processes (Kling and Iacono, 1989).

At times the increase in bureaucratisation noted in some studies has been seen to conflict with other developments which influence the design of organisations and with the desire of many workers to exercise greater freedom and discretion. These other factors have been leading to much looser styles of organisation based on an increase in professional work and knowledge-based activities. As a result of many influences, organisations may have become more systematised. Also it seems clear that information has become the life-blood of the operation of many firms and IT the dominant technology.

It is the twin issues of decentralisation and devolution which pose many challenges for those operating in well established construction firms especially where traditional attitudes towards organisational control and decision making exist. This is further underlined in those settings where a desire for close control and direct decision-making is reinforced by a societal culture which places a high value on control and centralisation.

Thus, the setting for this research, traditionally managed building contractors in Hong Kong, seems quite pertinent to investigating a range of organisational, managerial and cultural issues which might influence the way in which IT is incorporated into a firm. One of these issues is whether there is a fundamental conflict between the likely consequences of the implementation of IT and the way in which Hong Kong Chinese managers prefer to organise and manage their firms.

CULTURE

Prior observation of firms in Hong Kong had suggested that their managers prefer to operate within organisations in which authority and decision making are centralised but where responsibility for ensuring the successful implementation of decisions is shared amongst all employees. In most organisations specialisation and formalisation appeared low, roles were flexible according to particular situations. Some of these managers suggested that strong leadership was the key to effective organisation rather than a concern for systems, procedures and well defined roles.

However, their suggestions of what constituted strong leadership differed from those definitions which are often applied by western managers, for example, of top management providing meaning and direction and absorbing uncertainty for a core of rational efficiency-seeking middle managers which

in turn are concerned with calculation, administration and communication responsibilities (Zaleznick, 1977). For those interviewed, leadership was seen to be demonstrated through a much closer link between strategic decision making and operational activities.

These general observations have been supported by a wealth of comparative studies of cultures. For example, Lee (1972) has shown that Chinese-owned enterprises tend to have fewer departmental units and flatter hierarchies than non-Chinese owned enterprises of the same size. The work of Hofstede (1980) has shown that managers in Hong Kong prefer organisations which exhibit large power distances and high levels of collectivism. However, these managers are most comfortable with organisations characterised by a low level of uncertainty avoidance and rather neutral values in respect of Hofstede's masculinity dimension. Redding (1976) and Redding and Casey (1976) found that Hong Kong managers exhibited strongly autocratic styles and had somewhat little faith in the abilities of their subordinates to make decisions or to take initiatives. These managers did not believe in the need to involve subordinates in decision making nor did they believe that subordinates had the capacity to motivate themselves.

These characteristics appear to come from an ingrained sense of natural hierarchy, a history of autocracy, a paternalistic leader-subordinate relationship and a sense of collective responsibility towards achieving goals set by top people.

Consideration of these characteristics suggest that the requirements for the successful implementation of IT would conflict with the ways in which Hong Kong managers prefer to run their businesses.

THE STUDY

A preliminary survey of 50 of the 54 largest building contractors registered in Hong Kong suggested that all had implemented computerised information systems. However, in some cases the straightforward and simple application of these systems would not warrant the label of IT. In general the systems were used for routine administration, finance and personnel work and for estimating, project planning and quantity surveying. The main study (Ng, 1992) involved a self-completion questionnaire by 39 project managers and other professionals representing 20 firms. These firms had a local background. Generally they were not international firms nor were they subsidiaries of overseas firms. They were quite clearly traditional Hong Kong Chinese firms which could not be regarded as strongly westernised.

The questionnaires were administered during the middle of 1991. They were supplemented by in-depth interviews with four project managers and two quantity surveyors and informal discussions with other personnel with the aim of clarifying issues raised by the survey and confirming interpretations of the

questionnaire data. Project managers were surveyed largely because of their involvement with the implementation of IT systems and their accessibility. Prior investigation had suggested that those at lower levels would not have a sufficiently detailed view of how their firms operated or of the potential usefulness of IT. Senior staff would be both difficult to persuade to take part in the study and might not be very close to some of the issues involved in the implementation of IT even though they would have been involved in the formulation of IT policies.

Most of the respondents were aged between 30 and 49 (85%) and had benefitted from an education to either technician level at a technological institute (21%) or to technologist or graduate level at either a polytechnic of university (46%). Nearly two thirds of the respondents had over 10 years working experience (65%) whilst a further 28% had between 6 and 10 years.

THE FINDINGS

The questionnaire consisted of five main sections: managerial beliefs about subordinates, attitudes towards computers, impact of computers on organisation structure, impact of computers on management style, and computer implementation strategy. Some personal information on respondents was also gathered.

With the exception of questions relating to management style each section consisted of a number of statements which required respondents to indicate their level of agreement on a scale of responses designed to elicit their opinions about key issues. Each of these statements is given in the text which follows (some in abbreviated form) together with the mean score achieved. The scoring system ranged from 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), 5 (strongly agree). Those statements for which there is strong statistical support for a departure from an overall neutral response by the managers (that is, from a mean score of 3) have been indicated in the text with an asterisk (p<5%) or double asterisk (p<1%). The percentage of respondents either agreeing or strongly agreeing with each statement is also shown.

Managerial Beliefs about Subordinates and Style of Management

The general view of the respondents reflected neither a positive nor negative belief in the abilities of subordinates or the need to develop them or involve them in decision making. Apart from accepting that a manager should use the resources which were available in the best possible way, there was little acceptance of the need for participation of staff in decision making. This is shown by the findings for a number of key questions:

mean		%positive	
4.18	**	87	"The overall quality of decision making and performance will improve as the manager makes use of the full range of experience, insight and creative ability in his department."
3.26		46	"The manager should attempt to continually expand the areas over which his subordinates exercise self-direction as they develop and demonstrate greater insight and ability."
3.00		33	"The manager's basic task is to create an environment in which his subordinates can contribute their full range of talents to the accomplishment of organisational goals."
2.77		21	"The manager should allow and encourage his subordinates to participate not only in routine decisions but important matters as well."

These responses were also reflected in the preferred styles of management of the respondents and the styles which they considered they had adopted prior to the introduction of computers - largely a consultative style (one which seeks advice from subordinates but where the manager makes the final decision). It was also reflected in the general perception that top management were more autocratic than middle management prior to computerisation. Definitions of the styles are given in the appendix.

Of the 39 respondents 10 considered that they adopted autocratic styles, whilst a further 26 adopted consultative styles. The remaining 3 adopted democratic styles prior to computerisation. In all but two cases respondents adopted their preferred styles. At that time 18 considered that their top management adopted autocratic styles whilst a further 18 and 3 considered that the style of their top management was respectively consultative or democratic.

Respondents considered that computerisation had influenced management styles in quite a significant way. This is shown by the dramatic change in the styles of the respondents, to almost wholly consultative styles, and their perception that top management had become more autocratic.

Whilst 10 respondents judged their styles to have been autocratic before computerisation, after computerisation no respondent considered that they had adopted an autocratic style. Overall, 32 replied that they had a consultative style and 7 thought they had a democratic style. Also, whilst prior to computerisation 18 judged their top managers to be autocratic, after computerisation 26 of the respondents perceived their top management as autocratic. Thirteen considered their top management to be consultative compared with 18 before computerisation. However, none considered their top management to be democratic.

The remaining sections of this paper reveal some of those factors which underlie these perceived changes in style by considering in turn attitudes towards computers and the impact of computers on organisation structure and management style.

Attitudes Towards Computers

The responses supported the view that computers were likely to benefit top management more than middle management. But, in general, views were rather ambivalent.

There was a strong belief that the utilisation of computer technology was higher where users had control over the computer facilities, were well trained and knowledgable about computers. Even when well managed the presence of Electronic Data Processing (EDP) departments was seen as constraining because of the need to negotiate with another organisational level, for example the EDP manager. Indeed, generally it appeared that the managers did not have as ready access to computing facilities as they would have liked.

mean   %positive

4.15   ** 90   "Users should seek more training on computer application development and control."

4.10   ** 89   "Users should understand how computers work."

4.08   ** 97   "Users with control or possession of their own computing facilities would utilise the technology more efficiently and effectively."

The views about the constraints to the application of computers due to system design were varied, but generally were not strong although there was a view that systems needed to be tailored very specifically to the needs of specific projects and to individual managers.

mean   %positive

3.33   ** 39   "There needs to be more computerised applications than currently exist in the company."

3.21   39   "Many decisions are constrained by the predetermined programs of the computers."

3.18   36   "Computer specialists have influenced decision making."

However, opinions were more positive about whether computers provided top management with useful information and with a worthwhile investment.

mean   %positive

4.05   ** 85   "Computers make more information available for decision making at top management level."

3.49   ** 49   "Investment in computers provides significant returns and is worth the cost."

Finally, the overall view about the contribution of computers to improved decision making was neutral. Indeed, generally there was little support for the notion that computers had contributed to organisational performance overall and there was disagreement with the view that computers might enhance decision making.

mean   %positive

3.44   ** 49   "Computing is very often used because it convinces important parties that careful decisions are being made."

3.15   21   "The computer's contribution is very important to the company's survival and growth."

2.72   31   "Computers are forcing decisions to be made too fast."

2.69   20   "The information provided by the computers is fit for decision making."

2.44   ** 5   "Computers enhance information processing capability and extend the thinking range."

Impact on Organisation Structure and Management Style

The overall view was that in most companies the introduction of computers, and in more sophisticated companies, the introduction of IT, has had a significant impact on the structure of firms.

For example, their was a strong view that computerisation had led to greater a degree of centralisation and integration with top management becoming more central to decision making.

mean   %positive

4.15   ** 85   "Centralisation limits and constrains the creativity and scope of middle level managers."

4.10   ** 82   "The computer system has led to greater concentration of decision making at the top management level."

4.10   ** 84   "Power will shift as a result of change in degree of centralisation or decentralisation."

3.85   ** 82 "Computer system will encourage centralisation and integration of decision making."

3.51   ** 54 "Computers can centralise the organisational performance of any sub-unit in the firm."

The view that computerisation has the potential to lead to decentralisation, with lower levels becoming more involved in decision making was positive. Also, there was the view that this had led to an increase in the level of participation.

mean   %positive

3.95   ** 87 "Computers have increased the capacities of subordinates to make decisions."

3.44   ** 41 "The advent of computers causes the adoption of relatively decentralised management policies in relation to subordinates."

3.44   ** 41 "Larger amount of information to deal with than when without computers."

3.40   ** 36 "Need to consult subordinates more frequently before making decisions."

3.36   * 36 "Need to consult other staff or acquire information from other specialists more frequently before making decisions."

3.20   18 "Computers can enable the majority of subordinates to exercise far more participation in routine decisions and important matters."

However, the extent to which lower levels are able to exercise their decision making power was unclear. The view that computers improved integration was only moderately supported. Nevertheless there was a strong opinion that it led to greater standardisation and routinisation.

mean   %positive

4.31   ** 87 "Specialists have to be employed in the firm"

3.90   ** 72 "More communications are written as documents."

3.77   ** 72 "Computers make more task specialisation necessary in the company."

3.74   ** 69 "Working procedures are more standardised."

3.56   ** 49 "Now involved a lot more in computer operation."

3.31   * 41 "More rules and instructions are written as documents."

The overall impression was that computerisation has enabled the exercise of greater levels of autocratic behaviour by senior management through the centralisation possibilities offered by computerisation but has only weakly supported the greater devolution of decision making. However, it appears that because of the availability of information to lower levels those at middle management level now need to consult those at lower levels more often. The resulting changes in the power structure of the organisations is seen to have placed limitations on the creativity and scope of those at middle management level.

DISCUSSION

From the findings of this small survey of middle managers the introduction of computers appears to have caused Hong Kong contractors to change the structure of their organisations and their styles of management. In particular organisations have become more centralised, specialised and routinised. Possibly they have provided greater scope for routine decision making at lower levels. Also, top management has become more autocratic.

Initially it might appear that computerisation has reinforced traditional Chinese management styles, at least for top managers. However, it is argued that the strengthening of autocratic styles may have been unhelpful to the functioning of middle managers and, as a result, may have prevented the full realisation of the benefits of computerisation to the firms. Because of the availability of information through computerisation top management has become more involved in decision making, much of which may be routine in nature, rather than freed to handle strategic issues. At the same time those who are in a better position to handle routine decisions, the middle managers, have become less involved. Whilst, in itself, this development might have enhanced the operation of the firm it has not been accompanied by a redefinition of the roles of those who occupy middle management positions including project managers.

In some ways middle management has unwittingly been ignored as a result of greater accessibility to information by top management. In fact there is a paradox in this finding. It suggests that rather than aiding communication in the firm in some obvious and natural way, computerisation requires top management to consciously communicate with middle management so as to involve middle managers more fully in the operation of the firm and also to compensate for the natural tendency of IT to reinforce top management's autocratic styles.

However, the impact has not been entirely to reinforce the traditional styles of top management. For example, in traditional Chinese firms there is little formal structure. Job descriptions and organisation charts exist in only a small number of firms. People work on an ad-hoc basis. Lateral

communication with individuals relying on personal linkages, *quanxi*, is very common both within firms and externally. The lack of recognition of these requirements, which provide firms with their flexibility, together with the isolation of the position of middle managers could seriously threaten the competitiveness of firms if formalisation and specialisation increases in an unplanned way. The danger is that without such planning firms may adopt organisation structures which reflect western ways of organising, and which in turn represent western ways of thinking and value systems. These would be totally inappropriate to firms with staff who have been steeped in traditional approaches to working relationships.

CONCLUSION

To conclude, whilst there is superficial evidence of a consonance between the organisation implications of IT and the preferred methods of organisation and managing in Hong Kong building firms, it is suggested that there are serious underlying conflicts. This is particularly true for the roles of middle managers. However, Chinese managers sensitive to these issues can enjoy the best of both worlds. To do this they need to reappraise their attitudes towards power, face and particularly *mien tzu* (that is, the acquisition of prestige from success and wealth through personal effort and drive) in order to develop middle management roles and to encourage those who occupy those roles.

Finally, whilst the findings from this study are consistent with those from many other research programmes and with much theoretical work on organisations, the study also illustrates the value of conventional social science approaches for understanding organisational change in construction.

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APPENDIX   STYLES OF MANAGEMENT

Autocratic   Makes decision promptly and communicates it to subordinates clearly and firmly. Subordinates are expected to carry it out loyally.

Consultative   Before making a decision tries to ask for advice from subordinates or managers at the same level by explaining the problem to them. Their advice is weighed and the decision is announced. The decision may not reflect their input.

Democratic   Superiors and subordinates analyse the problem and come to a decision together. The core direction is the mutual understanding and agreement as to what the organisational goals are and the means by which they are to be obtained. Management believes in staff influence over decisions. The decision of the majority is accepted more often than not.

Bureaucratic   Makes a decision and gets the agreement of staff before implementing the decision. Emphasis is placed on helping and leading the subordinates and keeping a good relationship with subordinates rather than pushing them.

Laissez Faire   Mainly communicates decisions from higher management level to lower. Then subordinates are left to fend for themselves. When making decisions often sticks to the rules.