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The Changing View of Information Systems In Chinese State-Owned Businesses

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Introduction

China is rapidly rolling out its reforms and has undergone many changes in recent years. One area of interest to many researchers and business people is the role that Information Systems/Information Technology (IS/IT) plays in aiding Chinese businesses to make the transition from a planned to a free-market economy. The present reform leadership in China has identified the importance of Information Systems/Information Technology in achieving its goals of modernization and technology sophistication through scientific instead of ideologic means (Tate and Maier, 1987).

In 1991, Franz, Wynne and Fu (1991) conducted a study of five state-owned businesses in Nanjing, China. They found that IS/IT primarily supported the business objective of reporting on how the company met monthly production and sales quotas passed down by the state planning centers. IS was not found to support strategic decision-making in the organizations. Emphasis was placed instead on accounting for material costs, rejects, production quantity, and efficiency. The IS/IT manager mainly focused on the technical issues of managing data resources for IS/IT applications.

The present study revisits the IS/IT situation in Chinese businesses after four more years of economic reform. Four state-owned companies were selected for this study. All are in Beijing, the capital and political, industrial, technological, and cultural center of China. The goal was to study the changing role (situation in 1995 compared to 1991) of IS/IT in Chinese state-owned businesses, focusing on three aspects: the business objective of these companies and the evidence of IS/IT to support it, the role of the IS/IT manager, and the evidence of technological advances in these companies.

It was hypothesized that with four more years into economic reform, this study would find advances in IS/IT's presence especially in decision support areas, and that the IS manager role would grow beyond its "technology manager" base, and that more advanced technology would be in place, especially as this study considers larger companies in a larger city.

The results of the study of the four companies yielded the following: two companies, although still state-owned, have begun to realize the importance of IS/IT in order to grow in an evolving market-based economy. Competition from private companies that have appeared in the past few years, most with strategic alliances with western multinational

corporations, have forced the top management of these companies to address the importance of IS/IT to support critical decision making areas for strategy planning.

The role of the IS/IT manager is not really changing. While at least one manager in this study sits on the company's strategy planning committee, not one manager was found to make any real impact at the top decision-making level.

Generally, these companies have begun to implement much more advanced information systems and technology to achieve their business objectives. Networked systems, integrated database plans, and decision support systems are among the many technological advances that these companies are implementing today.

This study's contribution is the documented picture it draws of the little reported IS/IT area in an emerging market economy. In addition, because the cases studied are among the top organizations in their industry in all China, it provides extraordinary insight into this once hidden world.

Background

Little research exists on Chinese applications of IS/IT in support of functional business requirements [for example, Chen, et. al, 1993; Franz, et. al, 1991]. This study is based on direct observation and semi-structured interviews in the subject companies as well as on the theoretical literature available in the US. Three main areas are studied in order to understand the changing role of IS/IT in China's state-owned businesses: the business objective of the companies, that is its strategic orientation, and evidence of IS/IT support, the IS/IT manager's role in the enterprise-wide decision-making process, and the technological portfolio in the company. These categories roughly equate to those explored in the 1991 Franz, et. al. study.

The literature background on three main areas studied is not discussed in this abbreviated version of the paper. Also, three tables of detailed results of this study are not presented in this brief version of the paper.

Cases Studied

The four cases studied are summarized in Table 1 and will not be discussed further here due to space limitations.

Findings and Discussion

Case study findings are briefly presented next. The two "growth" companies are presented first, followed by the two "survival" companies studied. Findings about them are presented according to the three areas of interest examined. First, the business objectives of the case companies as well as the IS/IT manager's role in the organization is addressed. Then a technology profile is presented that includes a look at the case company's approach to managing data resources.

Growth Companies

In this study, the steel and port authority companies function as "growth" companies. They are experiencing more freedom from government control and are even able to pursue expansion strategies, both in China and abroad.

The steel company is forcing its leaders to deal with international competition and consider ways IS can be used to help create a competitive advantage. For example, decision support systems for market forecasting and market tests of new grades of steel are in place. Leaders are also paying more attention to external sources of information and considering it important input for strategic decision making purposes.

A top manager, the Vice General Manager, is in charge of IS development and management. This suggests that IS has a role at the strategic management level. However, the real management and implementation work is done by a special department called the "Electronic Department," which has over 1000 engineers and other positions. The head of this department does not participate in strategy-level decisions.

At the other giant "growth" company, the port authority, there is a move away from direct control by the State Transportation Minister where most strategic decision-making normally took place. As a result of economic reform it is beginning to function more like an independent enterprise than an extension of a government department. Its information systems function is being called on to provide information to improve its competition with other ports, both in China and out of China. Other decision support aids include optimization models for pier allocation, equipment, and other machinery.

Like the other giant "growth" company in this study, the head of IS/IT at the port authority is not involved in strategic planning.

Survival Companies

The petrochemical company and the hospital can be categorized as "survival" companies. Both remain tightly under government control so are not free to exercise free market practices. Instead, they operate in a "business as usual" mode.

As expected, the top IS person in both companies has no real role in the strategic management decisions of the company.

Technology Profiles

As expected, the technology profiles of the "growth" companies reflect a move toward state-of-the-art computer technology. But even the "survival" companies, because they enjoy a protected status, are not technological dinosaurs. (This section is deleted here but appears in the full paper.)

Conclusion

The significant change observed in this study from the 1991 study is that Chinese management seems to be more understanding of IS as a vehicle for strategic competitiveness. This is important because since 1991, market opportunities have proliferated for the advantageous use of IS in China. However, specific plans and IS/IT management to exploit the strategic potential of IS/IT are not yet fully realized.

More research is being conducted by the authors on these same companies as well as other state-owned and private companies in China, as well as in other countries experiencing transition from a planned to a free-market economy.

References

(Complete references are available from the authors)