



# **Developing Medium and Small Technological Enterprises in China: Informatization Issues and Counter-Measures**

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## **ABSTRACT**

*The 20-year economic reform in China has bred a new group of medium- or small-sized enterprises whose businesses are largely based on scientific and technological development. After China joined the World Trade Organization, these enterprises have had to seek strategies of informatization to survive and develop when facing challenges of economic globalization and rapid expansion of information technology. This paper attempts to examine in detail the necessity and importance of informatization of these enterprises within the context of China's national economic system, identify issues crucial to the informatization process, and, by relating to the useful experience of enterprise informatization in the United States, propose some practical strategies of adopting advanced means and procedures through integration of essential information technology into enterprise management and operations.*

*Keywords:* China; enterprise IS; IS problems; information technology adoption; medium to small technological enterprises

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## **INTRODUCTION**

China's economic reform has created a miracle of continuous growth in national economy over the last two decades. Out of the massive transformation of state-owned enterprises to private industries has been bred a branch of enterprises characterized by their technology latent products and their small or medium size. Majority of these medium to small technological enterprises (MSTEs) have performed so well in the current national economic

development that they have become the major force in the nation's high-tech industries and the established national innovation systems. At the same time they have also become the basic enterprises, enabling the upgrade in other national industries and improving the overall ability of the nation to compete in the international market.

The emergence of the MSTEs as a new phenomenon and its significance in China's national economy has not been well studied. Although there exists plenty of research on

small to medium enterprises and their informatization (Lu & Zhang, 2002; Wang, 1998; Yang & Wang, 2002), few really address the technological type. Existing studies of enterprises of this type have mainly focused on enterprise characterization, economic and cultural settings within which they develop and thrive, and their regional and sector competitiveness and so on. Responsible central government agencies and several scholars took the efforts to define and characterize the technological type of medium to small enterprises (CMST & CMF, 1999; Lu, Zhou, Xu, Luo, Xu, & Wang, 2002; Yuan, 2000). Some other researchers attempted to seek survival and development strategies for these enterprises by comparing the development models between the domestic enterprises and those in the western countries (Liu & Wu, 2001; Zou, 2001; Zhu, Wan, & Wang, 2001). In the research area of societal settings for development, it was shown that the Chinese central government and majority of local governments fell behind in establishing a suitable environment for these enterprises (Dang and Kong, 2000; Wan & Ye, 2002). In practice they provided poor to no management of public information, which was very much needed for the informatization of MSTEs. This negligence has apparently impeded the informatization process of the national technological industry as a whole and needs to be corrected. Some researchers proposed that governments establish policies for creating an integrated societal service system to support MSTEs, and the aspects of the system should include financial support, technological services, personnel training, and so forth (Lu et al., 2002; Sheng & Lu, 2002).

Seeing the growing proportion of national revenue from these technological firms over the years, some scholars started to recognize the importance of and urgent need for their informatization (Huang, 2002; Shi, 1999), despite the fact that at the time of research little was known about how to design and implement a feasible plan with proper procedures and strategies. Due to a lack of basic statistics and negligence of these enterprises as they

were relatively new in the national economy, however, even up-to-date research on their informatization process is next to none in the literature. Today, with the widespread economic globalization and rapid development in science and technology, the tidal waves of information technology have swept the world. Information has exerted its strong power to drive developments in science and technology, national economy, and many other aspects of society. As a result, studying issues related to MSTEs with diverse specialties and their changes to adapt to an ever-changing environment in the information era are of great importance and value to the future development of China. Such research forms the subject of this paper. The author intends to fill the research gap by conducting a detailed study on informatization procedures and strategies in accordance with the characteristics of these technological firms in the larger societal and cultural context of China. It is the author's hope that presenting the results of this study to the international audience of enterprise information systems will draw worldwide attention to the situation in China and enhance the exchange of ideas and experiences that may benefit the ongoing establishment of enterprise information systems in China.

The rest of this paper will be organized as follows. A definition of these enterprises is first provided and the characteristics of their development lifecycle are discussed. The nature and functions of enterprise informatization, a process that has been currently going on in many such enterprises in China, are then introduced in full detail. This will lead to a critical examination of the current status and identification of problems related to informatization of these enterprises. In addition, a comparative analysis of enterprise informatization between China and the U.S. will be provided to highlight the important characteristics rooted in the two different social and cultural settings. The concluding section will summarize the findings of this study and provide suggestions to countermeasure the problems found in the course of enterprise informatization in China.

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