

Chapter 10

Exploring Government Role in Promoting IT Advancement in China: An Empirical Study on Shanghai Firms' IT Usage¹

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ABSTRACT

By analyzing the survey data from 1211 firms across 14 industries and across various ownerships in Shanghai, the study examines factors that influence information technology (IT) usage in Chinese firms applying a technology–organization–environment framework and institutional theory. This study provides an in-depth investigation into the government's role in promoting Chinese firms' IT advancement. The finding suggests distinct paths where government actions affect firms' IT adoption and usage. Although government cannot directly influence firms' IT adoption, it does so by influencing firms' IT infrastructure construction and management respectively. In other words, firms' IT infrastructure development and IT management decision plays as a mediator between different government actions and firms' IT adoption. Furthermore, firms adapt to governmental impact distinguishingly. The findings suggest that e-government approaches and government promotion policies have significant impact on IT usage in manufacturing firms, in local firms and in national-background firms. The study also provides valuable implications to government administrators in China, particularly to those in the modern cities like Shanghai.

INTRODUCTION

With the development of information technology (IT), more and more Chinese firms have invested

heavily in IT to catch up with the “new information society paradigm” emerged in the 1990s. However, as a developing country, China is still in the initial period of informatization. Compared with firms in developed countries, Chinese firms' information

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technology usage is far from mature and is uneven across different types and scales of enterprises. A report from Chinalabs (ChinaLabs, 2004) showed that, out of 1000 surveyed firms, only 3.7% of them achieved mature IT usage. A survey held by Chinese National Informatization Evaluation Center (NIEC, 2008) also shows that top 500 informatization² enterprises in China are mostly large manufacturing enterprises, act as the backbone of China's national economy with revenue above 890 billion RMB. Large scale enterprises tend to have better IT usage level. A report from CMP consulting (CMP, 2005) showed that 17.3% of surveyed larger scale enterprises achieved integrated IT application; the same figure for SMEs is only 3.4%. More than half of the surveyed large scale enterprises applied IT into core business, while only 29.3% of the SMEs use IT to support their core business.

In information system research field, factors that affect IT adoption, usage and valuation have long constituted an active research area (Straub, Hoffman, Weber, & Steinfield., 2002). Many researchers and practitioners have sought theoretical models and empirical evidence to explain these factors and to give suggestions regarding firms' IT decision. Most of the research to date has focused on developed countries. However, since developing countries have different markets, legal systems and cultural factors, models from developed countries may not be adaptable to developing countries' environment (Shenkar & Glinow, 1994) and such factors may have different effects. It seems clear that government and culture factors have a greater impact on firms' IT usage in developing countries than in developed countries (Thatcher & Foster, 2003). Research also points out that government regulation plays a more important role in Chinese firms' decision and IT usage (Xu, Zhu, & Gibbs, 2004).

To better understand the factors influence IT adoption and particularly the role government play in promoting IT usage in Chinese firms, we developed a research model based on Technology-

Organization-Environment (TOE) framework (Tornatzky & Fleischer, 1990) and focused more on government-related factors. With survey data from 1211 firms across 14 industrial fields, the study provides insightful managerial implications to Chinese firms and valuable practical suggestions to Chinese government by exploring the following research issues: how technological, organizational and environmental factors are important for firms to deploy IT, and whether different industry types, investment property types and ownership types influence firms' IT adoption in Chinese cities like Shanghai.

Focusing on measuring Shanghai's government initiatives can largely reduce the potential interference of different influences on policy execution by various local governments and enhance our observation of the government's role. To make the results generalizable, firms either with headquarter or branches registered in Shanghai were included in the sample.

LITERATURE REVIEW

In management science and information system literature, many studies have explored the factors that drive the business value of IT. The research relevant to this study can be categorized into two streams. One is Technology-Organization-Environment framework (Tornatzky & Fleischer, 1990), which is used to identify technological, organizational and environmental factors that affect IT diffusion in organizations. Here, we concentrate more on external institutional elements as a unique environmental factor. The second research stream is institutional theory perspective, which is used to explore effects of path dependency, governmental intervention, and historical context on the evolution of organizational rules (Zucker, 1987). These streams provide evidence of environment constructs, especially government related factors in the model.

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