

**Preface**  
**to the Chinese translation of**  
**Building the Virtual State:**  
**Information Technology and Institutional Change**  
**Jane E. Fountain**

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## Preface

During the past decade governments throughout the world have put into motion the beginnings of a renaissance in information and communication. China represents a stunning example of dramatic change, going so far as to name 2002 “the year of e-governance” (dianzi zhenwu). The Chinese government is reported to have developed approximately 3,000 websites by the beginning of 2003. Citizens are demanding such websites to meet their needs for reliable and timely information and interaction with their government. Moreover, during 2003 the Chinese government allocated Rmb 35 billion for IT contracts, an increase of 17% over 2002 according to several sources. In addition, other estimates predict that China’s outsourcing for e-government systems will reach 54.8 billion yuan in 2004. Recent development of tax information systems, as well as tools for security and financial management, exemplify the types of systems meant to build capacity to govern a rapidly changing political economy and society. Given the scope, scale and speed of China’s development of digital government, it is timely to deepen debate and research on this fundamental policy area.

Each country charts its own path in its use of technology as a tool of governance according to its particular political economy, culture, history, values and goals as a society and economy. This is not to deny the importance of technology transfer but to embed transferred practices in distinct settings. China and the United States offer marked comparisons and contrasts. China is one of the oldest civilizations in the world with a recorded history of 4,000 years. Tradition, culture, and history undoubtedly influence the use of information technology in the Chinese government. Even in a young nation like the United States, not yet 250 years old, history, tradition and culture strongly affect perceptions and implementation of technology, as dramatically detailed in the second part of this book. China and the U.S. are approximately the same size in area, behind only Russia and Canada in terms of land mass. With 1.29 billion people, China leads the world in population, five times the size of the U.S. Approximately 22 percent of the world’s people live in China, and approximately 64 percent of Chinese reside in rural areas.

China’s economy is the second largest in the world after the U.S. (measured on a purchasing power parity basis). The Chinese GDP has quadrupled since 1978. But these comparative statistics obscure differences between China’s “hot” regional economies in the coastal areas near Taiwan and Hong Kong and distinctly cooler rural areas which pose challenges for the use of IT in Chinese government because of corruption, difficulties in tax collection, rural poverty and environmental degradation. Finally, political development in China differs radically from that of the U.S. To note one distinction, the Government of China is leading the private sector in that country in the development of Internet use for information, services, and interactivity.

If each country and path toward digital government differs, why translate into Chinese an American book which contributes a theoretical framework developed in the 1990s in the United States and illustrated with detailed American cases? The objective is decidedly not to bring the American experience to China. China is distinct in terms of history, political economy, population and culture. And if one wanted to compare information across the two

countries, global flows of human capital, best practice, expertise, and professional services in the domain of e-government transport current thinking and trends more rapidly than ever before.

The purpose of this translation is to stimulate and deepen discussion of information technology, institutions and governance in China. Although market analysis and interesting examples of e-government applications abound, there is in fact little analysis of the organizational and institutional challenges that follow from the use of the Internet, World Wide Web, and related information and communication technologies in Chinese governance. As a result of the publication of *Building the Virtual State in the United States* in 2001, considerably more attention had been paid to the institutional and organizational contexts of government. In particular, policymakers and researchers have begun to examine the ways in which these structures and arrangements influence – and are influenced by – uses and effects of information technologies. This type of discussion, which is of immense importance to digital and electronic government, has yet to emerge in China. Stimulation of such debate is the primary rationale for this translation.

Around the world, a powerful mix of advertising, marketing and technological determinism substitute for serious research on the complexities of technology, institutions and governance. Given the financial incentives of firms engaged in selling information systems and tools to governments in China, and around the globe, it is not surprising that simplified market-based notions of e-government tend to dominate over deeper reflection concerning the implications of technology for governance (rather than simply administration and management). As a related matter, rather than serious scholarly research, much writing tends to describe examples of innovative uses of technology rather than probing more deeply into second- and third-order effects and longer term implications of fundamental changes in information processing and communications. Such writing resembles marketing or advertising rather than rigorous research. Moreover, there is a tendency for technical issues such as bandwidth, computing power, processing speeds and the like, to substitute for examination of more difficult questions regarding the organizational structures within which information technologies and their potential can be leveraged and the implications of newer, networked organizational arrangements for governance.

This book is meant to redress a neglect of attention to institutions. It challenges assumptions that have guided previous studies of technology and government – and that guide current IT outsourcing for e-government in China. In the absence of a coherent theoretical framework and connections to traditional streams of research in the social sciences, research on IT and governance can seem like a fad, an atheoretical research agenda, or a set of activities to be outsourced to private firms. This book develops and contributes a high-level, robust analytical framework, called technology enactment. Technology cannot determine its own course. Nor is it typically used in a rational manner. Technology is enacted by individuals as they decide how to design, implement and use information and communication systems embedded within organizational and institutional environments. Information systems that work splendidly in one setting fail to produce effective results in other, comparable settings. Why is this so? It is due to the strength of the mediating influences of organizational,

political and social arrangements within which information technologies are perceived, understood, designed and used.

This book clarifies interrelationships between existing organizational practices and the use of IT in order to provide researchers with a conceptual toolkit for analyzing the development of the state and state-society relations in the information age. It provides a way to move beyond simple descriptive or prescriptive studies lacking theoretical substance. The technology enactment framework is not a predictive theory -- one cannot make predictions about the effects of IT without understanding the context in which IT is designed and used. By contrast, it provides a rigorous way of analyzing the central elements of organizations, networks, and institutions undergoing change in relation to the use of information and communication technologies.

This book also brings an interdisciplinary perspective to research on IT and governance. It bridges current research and thinking regarding decisionmaking with constraints from sociology, political science, institutional economics and policy studies. Thus, the book links new phenomena with important streams of theory and research, in particular, with neo-institutional perspectives, economic sociology and embeddedness.

The theoretical framework that forms the core of the first part of this book, presented in the initial six chapters, is illustrated using three detailed cases of technology enactment in the United States government drawn from the domains of international trade, small business development and national security. Chapters 7 and 8 analyze the development of the International Trade Data System, initiated to transform international trade administration in the United States. This ambitious project illustrates the challenges of large, multi-agency IT projects necessary to realize networked government. Chapter 9 also focuses on a cross-agency effort, the creation of the Virtual Agency for Business, a web portal that would combine information and services from several government agencies with jurisdiction over business. The development of this project was derailed by disagreements among agencies and lack of institutional arrangements to support multi-agency, networked projects. Chapter 10 provides an account of the U.S. Army's initial confrontation with networked systems and their effects on communications, decision making and knowledge management.

What relevance might these American cases have for a Chinese audience? The paradigmatic cases examined in this book demonstrate the complexities faced by large governments as they conceptualize and implement new information technologies. First, the cases demonstrate the vital role in political development played by policy entrepreneurs. These are civil servants, bureaucrats whose expertise in the implementation of policies and the intricacies of programs is essential to the development of information-based governance. Close examination of developments in government show consistently that private contractors may provide expertise regarding information systems. Only internal government specialists can redesign their decisionmaking flows and internal systems in ways that adhere to the myriad of laws, regulations, history and knowledge of practice required to design and implement feasible systems.

Second, the cases demonstrate the complexity and intensity of human labor and political negotiation required to develop and implement the capacity of government agencies to share information for decisionmaking. One might argue that the autonomous nature of U.S. federal government agencies contributes to the difficulties in producing needed cooperation and standardization. But this argument ignores and misses the difficult cognitive, professional and organizational adjustments required to develop new ways of working. These difficulties and challenges exist even in the most congenial collaborative environments.

Third, the cases demonstrate that it is not simply the bureaucracy that is being reorganized and transformed. The bureaucracy is interdependent with and connected to other major institutions of government that are themselves profoundly affected by change in government agencies, across government agencies and levels of government and, directly, by the Internet and world wide web. Budget processes, oversight processes, legislative processes, and the organization of interest groups have developed around autonomous agency structures in which policies and programs were carried out within agencies. Developments of information, and hence decisionmaking, across agencies forces a readjustment of the institutions.

This book contributes also to understanding the limitations of market-based thinking during a period of major structural change. The value of competition should not be confused with the dominance of vendors over governments and the inefficiencies produced by such asymmetrical relationships. Vendor domination is present when e-government is viewed primarily in terms of the size of lucrative contracts for IT companies and the estimates of investment levels by countries. These measures and objectives obscure the complexities of actual governance challenges. E-government has become synonymous with large contracts to put computers in government agencies, to build websites to provide information and interactive services to the public and for building systems to connect civil servants. But these are rather shallow issues compared to the institutional challenges involved in developing governance in the context of digital information, communication. Among the primary challenges are alignment of technical projects with governance objectives; balancing the benefits of centralization and decentralization in federated governance structures; and retention of appropriate levels of diversity in systems when efficiency goals push toward standardization.

Markets are intended to weed out ineffective and inefficient users of technology in contrast to institutions in which norms and practices, even those that are “inefficient” can continue and proliferate. Indeed, as I have pointed out in other writing, government actors may resist the dramatic efficiency gains made possible by the Internet because they anticipate loss of budget, staff and authority as well as increases in transparency. Yet the experiences of the U.S. central government during the past 15 years have shown the importance of knowledge and social capital of experienced civil servants when they are working for the public good. In fact, most of the e-government entrepreneurs are career government servants. Outsourcing cannot accomplish the depth of structural and organizational change needed to leverage the potential of the Internet.

Integration of information and decisionmaking across government organizations is not simply like supply chain integration, an exercise in logistics. Integration within government organizations fundamentally affects politics and policymaking processes.

I have shown in previous research that the key cost savings and efficiencies from the Internet are likely to lie far beyond efficiencies in transactions and information provision. Organizational and institutional restructuring among government ministries and agencies is required. The potential to eliminate needless duplication, overlap and redundancy across the many large complex organizations of government is enormous. Yet it can only be realized through labor-intensive restructuring that requires social and political sophistication more than market competition or technical prowess. And in order to retain the human and knowledge capital of institutional actors, they must be brought along and their knowledge retained through restructuring processes that recognize their value, use their expertise, and allow for government officials to climb steep learning curves. Indeed, the strength and size of the central government of China makes these institutional challenges more important because the market in China cannot help build e-government to the extent that it can in the U.S. where professional services firms regularly hire former senior civil servants and political appointees possessing finely honed experience and a range of important professional relationships within the government. Moreover, social capital, organizational capital, and knowledge capital are necessary pre-requisites for using IT for government. These are not technical problems to be solved by industry regardless of the size of the market for e-government in China.

The connectivity made possible by the Internet and Web might be understood as the possibility to connect existing entities as they are currently organized. But the potential for connectivity actually lies in the ability to rethink and transform organizations and institutions. Therefore, building e-government on top of current organizational structures fails to leverage huge potential benefits in the transformation of information processing, communication patterns and decision making. Moreover, building digital systems that reinforce the current organizational structures and decision making processes further solidifies that status quo and markedly increases the difficulty, as well as the costs, of organizational changes. The development of information sharing across organizations is not a technological problem, but a cultural, social and political set of challenges that cannot be resolved through technical analysis or outsourcing. Complex negotiations and problem solving required to effect organizational changes must be carried out internally. Outsourcing provides rapid technological uptake but does almost nothing to motivate the shift in mental models required to think in terms of networked governance and its implications for power, decision making, conflict resolution, accountability, transparency and a host of other central governance issues.

The ability of governments to organize and manage shared data, functions and processes across departments and units of government requires paradigmatic shifts in traditional, Twentieth Century conceptualizations of oversight, control, budgeting and accountability – all of which are based on a government structured in relatively autonomous, hierarchically organized bureaucracies. In each of these important areas of governance, Twentieth Century conceptualizations rely on an assumed bureaucratic state in which vertical structures of

command and control form the basis for governance. These structural elements of governance transcend differences among democracy, socialism, authoritarianism. By contrast, they are fundamental to complex organizations and the implications for governance that flow from the structure and process of complex bureaucratic organizations.

No country in the world has yet fully come to terms with these issues. Indeed, the most “advanced” countries in terms of technology use in government have barely begun to frame these issues in ways that allow for productive discussion and decisionmaking.

The audience for this book is primarily faculty and students in schools and departments of public policy and management, political science, organizational theory and analysis, information and computer sciences, and communications. It has been used by traditional social science groups in sociology, political science and economics departments and, equally, in professional schools of management, health policy, science and technology studies, and engineering. Government managers and decisionmakers, as well as those in nongovernmental organizations, have found the book to provide valuable insights and a way to structure their strategic analysis of technology projects and web-based strategies for organizational change.

The book has been used as a text at the undergraduate, graduate and executive teaching levels in a variety of courses ranging from general treatments of the Internet and society and current challenges in public policy to specialized courses in technology implementation and information-based governance. In some courses, the empirical cases in Chapters 7 to 10 of the book are taught first followed by the theoretical analysis. For other types of courses, the thorough review and synthesis of social science concepts and the development of the technology enactment framework, in Chapters 1, 4, 5, and 6 are used to give a solid foundation to researchers. Regardless of the use of the book, I hope that this translation will stimulate and further the dialogue regarding information technology, institutional development and governance that has emerged so rapidly in China among scholars, students, and decision makers.

This translation would not have been possible without the initiative, energy and thoroughness of Guosong Shao. My debt to him is enormous for undertaking this project. The translation was reviewed and key concepts and terminology discussed and debated by an impressive group of scholars, government leaders, and graduate students including Fan Zhang, Jing Cao, Wenhua Di and Wenhao Cheng. George Xue and Wei Ha provided detailed comments and refinements to the translation. In particular, I am grateful to Dr. Zhiren Zhou for his careful review of the manuscript and for writing the Foreword to the translation. Ines Mergel provided able assistance with notes. Puja Telikicherla and other editors at the Brookings Institution Press helped make this translation possible. Finally, my thanks to the editors and staff of Renmin University Press for undertaking this effort and timely production of this book for a Chinese-speaking audience.

Jane Fountain  
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