

**IMPLEMENTING INFORMATION SYSTEMS  
IN LOCAL GOVERNMENT:  
A CASE STUDY IN THE PEOPLE'S  
REPUBLIC OF CHINA**

**Minyi Huang**

**Submitted for the degree of Doctor of Philosophy**

**Department of Information Systems**

**The London School of Economics and Political Science**

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## ***Abstract***

Despite the considerable potential and significant efforts to use information systems to improve public administration, their implementation remains a challenging task, especially in developing countries. This research addresses the difficulties of implementing information systems at the local government level to achieve administrative reform within the People's Republic of China.

Giddens's structuration theory is used to provide a conceptual framework to understand the interaction between the administrative reform policies at the central government level and the rich social contexts at the local level. In the Chinese context, the reform objectives include: changing from an all-round government to a service government; from respect for authority to respect for law; and from extreme egalitarianism to a performance-based reward system.

The framework is used to analyse a case study of the implementation of a computerised personnel and salary management system in Foshan, a middle-sized city. This Chinese central government initiative was aimed at solving the "ghost worker" problem and improving transparency and efficiency in personnel and public finance management by the use of information technology.

The study shows the difficulties of inter-organisational co-operation between local government stakeholders during system development. In the existing literature, national policy is often seen as a factor independent of the local context or as less important than local social factors. Our study suggests a strong link between administrative reform policies and local information systems implementation. It shows the need to understand such reform policies and their impacts on local stakeholders. It also shows that conflicts involving local stakeholders reflect national problems of administrative reform.

The implications of the findings for local and central government in China, and for governments of similar transitional economies, are discussed. The contributions and limitations of structuration theory for understanding the interaction between national and local contexts are also discussed.



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# ***Chapter 1 Introduction***

## **1.1 Development of Research Ideas**

*“We have today – at the beginning of the twenty-first-century – in a world that is intensely worrying yet full of the most extraordinary promise for the future. It is a world awash with change, marked by deep conflicts, tensions and social division, as well as by the destructive onslaught of modern technology on the natural environment. Yet we have possibilities of controlling our destiny and shaping our lives for the better that would have been unimaginable to earlier generations.”*

*- Anthony Giddens (Sociology, 2001: 2)*

Advanced technologies have provided new opportunities and challenges to everyone. The focus of this research is to study the opportunities and challenges of the use of information technology (IT) from the perspective of governments in developing countries.

The importance of studying information systems (IS) development in public administration in the contexts of developing countries can be understood from the following three perspectives. First, the use of IS is believed to enable socio-economic development in developing countries, therefore their governments are often under pressure from international donor agencies to incorporate IT development in their administrative reform programmes. In African countries (Heeks, 2002), for instance, international donor agencies, who provide a significant proportion of government income, have created powerful leverage for e-government. As a matter of fact, in many developing countries, government rather than business plays a crucial role in the use of IT (Nidumolu et al., 1996).

Second, governments in developing countries hope to use IT as a means to facilitate economic development and improve public administration. Administrators in African countries have adopted IT as an essential tool for economic development and cost-effective management of resources (Zwangobani, 1990). However, despite a large amount of investment in developing IS in governments, many projects have not achieved their objectives. Table 1.1 shows a comparison of the success and failure rates for e-government projects in both developed and developing countries. Heeks (1999) has called this gap between the conceptions of government reform initiatives and the reality of public sector organisations “the conception-reality gap”. Therefore, there is a need to study IS development within governments.

Success/Failure Rates for E-government Projects		
Classification	Percentage for developed countries	Percentage for developing /transitional countries
Success	15-47	15
Partial Failure	33-46	50
Total Failure	20-25	35

Table 1.1 Success/failure rates for e-government projects (Source: Shetty, 2003)

Finally, the large number of unsuccessful IS development projects in developing countries have resulted in a conventional wisdom that is generally pessimistic: developing countries, particularly their bureaucratic establishments, pose enormous obstacles for introducing and ensuring the sustained use of IT (Avgerou, 1990). However, given the large amount of investment in worldwide development projects by international donor agencies and developing countries themselves, more studies need to be carried out to understand IS implementation in government in developing countries in order to make systems development more successful.

The focus of this research is defined as the implementation of IS in government in developing countries rather than e-government development for the following reasons.



First, though e-government is a new term, the implementation of IS in the public sector has been an area of research for more than two decades. Hence, this research can build on the existing knowledge of IS implementation in the public sector and the new research results of e-government implementation. Additionally, e-government has been defined in different ways, covering e-administration, e-service, e-democracy etc. Therefore, this study of IS implementation in the public sector in general enables us to focus our attention on the IS implementation issues in government rather than finding out whether a project is an e-government project or not. Particularly in the context of developing countries, the development of e-government often lags behind developed countries, in some cases office automation has not yet been completed.

Moreover, this research is interested in studying IS implementation at the local government level, which is an important area of study for IS researchers. As Beynon-Davies and Williams (2003) point out, it offers a good opportunity to study organisational changes as the objectives of local government organisations are diffuse, leading to strategies that have to meet multiple and frequently competing objectives. Previous research has found that different government organisations often compete against each other over national and international funding (Qureshi, 1998; Peled 2000). Moreover, with the availability of IT, local governments are increasingly under pressure from citizens, businesses and higher-level government organisations to make good use of IT to improve public services.

More specifically, the question this research addresses is the difficulty of implementing IS, especially back-office integration, at the local government level to achieve the objectives of administrative reform. There are two ideal-type strategic approaches when it comes to formulating a national policy on the introduction of IT at the local government level (Ramsay et al., 1992). One approach is to encourage local governments to use their own resources and expertise to develop a system tailored to their needs, then constantly updating and maximizing the use of the system until the system becomes obsolete. This decentralised arrangement faces the problem of a lack of

a standard to make systems in the organisation compatible and facilitate networking once that becomes possible.

The other approach is to place more emphasis on the central government level to evaluate different options and reach a single, considered and co-ordinated decision on system adoption for local government from the outset rather than retrospectively. In many countries, central government has played a key role in systems development at the local government level. Higher-level governmental organisations prescribe the use of IT applications to lower governmental organisations (Vriens and Achterbergh, 2004) to achieve the objectives of administrative reform. Particularly in those developing countries, like China, India and Indonesia, which were in transition from a centrally planned economy to a market-oriented economy, the central government has always been a key player in developing IS at the local level.

The difficulty of this approach is how to tailor to the local needs and priorities. This requires a system between local and central government, which can meet the national standards and the local needs and preferences at the same time. As pointed out in a report by ODPM (2004), this requires a new relationship between local and national government based on dialogue, strong performance management within all local authorities, clarity about where national standards and local differences are appropriate, and the effective use of the range of providers and technology available.

However, the reality is far from the ideal, particularly in developing countries where the use of IT to achieve administrative reform is comparatively unproven (e.g. Avgerou, 1990). Even in developed countries, there is a lack of empirical studies. Before the availability of new technologies makes data sharing and information exchange among government organisations possible, most studies in IS implementation focus on office automation within individual government organisations (Danziger and Dutton, 1977, Kraemer and Perry, 1979). If we view the use of IS in public administration as an evolutionary process, then the difficulties of implementing IS at the local government

level to achieve administrative reform objectives deserve continuous attention. With the availability of new technologies, the integration of back-office operations at the local government level has become possible, which is also desirable to achieve administrative reform. However, most of the existing research on IS implementation at the local government level focuses on online government services, rather than back-office operations, even though it is recognised that the problems of back-office operations are often more complicated than front-office development.

Therefore, the question this research addresses is how to achieve administrative reform objectives desired by the central government by developing IS to improve back-office operations at the local government level.

The study of IT implementation at the local government level in China was chosen for a number of reasons. First, the economic and political history of China is an interesting context for studying IS implementation at the local government level to achieve administrative reform. Even though the contexts of developing countries differ significantly, many developing countries, including Egypt, India, Brazil and Indonesia that were formerly planned economies are, like China, making the difficult transition to market economies. Therefore, a case study of using IT to achieve administrative reform objectives in China can have implications to those countries in similar situations. More importantly, China has the largest population in the world and is the third largest country in terms of size; therefore, it can provide important lessons for IS implementation in a difficult setting to these countries.

Second, China is committed to using IT to improve public administration. In the meeting of the Chinese National People's Congress held in March 2004, the development of e-government has been formally incorporated in the overall objectives of administrative reform. Like many other developing countries, China has suffered from a lack of technological infrastructure, shortage of skills and financial resources.

Therefore, although this research took place in China, other developing countries can benefit from its findings.

Finally, empirical studies of IS development in the public sector using an interpretive approach in China are still very limited, particularly in terms of the implementation issues of IS in local government. Most studies in China focus on national policies and the general development of e-government. One reason may be the language and cultural barriers; as a Chinese national, we have the advantage of overcoming these barriers.

## **1.2 Research Aims**

This research aims to contribute to the knowledge of how the development of IS at the local government level can achieve the administrative reform objectives desired by the central government in the context of developing countries today. To be more specific, the question this research tackles is to find a way to identify and address the problems of implementing IS at the local government level to achieve administrative reform objectives in the Chinese context today. This research uses a case study of developing a computerised personnel and salary management system in Foshan, a middle-sized city in the People's Republic of China.

This research aims to achieve three objectives. First, it aims to help the Chinese central government in making decisions regarding how to use IS to achieve reform objectives at the local government level in terms of administrative control and reform policies. In terms of administrative control, through identifying and addressing the implementation problems in the case study, this research aims to help the central government understand the problems at the local government level in order to improve policy making and the existing administrative structure. In terms of administrative reform policies, this research differs from previous studies in its assumptions made on government policies. In the existing studies, national policy is often seen as a factor at the macro level that

can influence IS implementation on the local level. In many cases, national policy refers only to the national IT policies, rather than administrative reform policies in general. Moreover, it is often assumed that the project initiated by national government is rational and the difficulties of systems implementation may be due to different interests of the stakeholders. However, this research makes no assumptions from these two perspectives. It is believed that the interests of stakeholders are influenced by, among others, their perceptions of the project, the intentions of central government and other on-going administrative reform policies. Their interests may determine the actions they take. At the same time, the difficulties in IS implementation at the local government level may reflect the conflicts in the policies made by the central government.

Second, this research aims to help local government understand the complications of implementing IS initiated by the central government to achieve administrative reform. Through analysing the changes to the local stakeholders before and after the development of the system, it aims to help local government to understand the interests of local stakeholders from the perspective of ongoing administrative reform.

Finally, from the theoretical perspective, this research aims to build up a conceptual framework by selectively using key concepts from Giddens's structuration theory (Giddens, 1993) to understand the interaction between national policies and social contexts in local government during the IS implementation process. In the existing IS implementation literature, national government policy is often seen as a factor independent of the local social context in the functional/determinist research approach or as a less important social factor than the local social contextual factors in a pure interpretative research approach. Thus, it is believed that Giddens's structuration theory can provide a means to break out of this dualism between individual and society and that between action and structure.

Structuration was set up in opposition to both functional/determinist and interpretative/voluntarist models of social action. Hence, structuration theory represents

a reaction to the perceived deficiencies of the two major schools of sociological thought and establishes an ontology of human society. On the one hand, Giddens is critical of “naturalist” approaches (for instance, functionalism, structuralism and post-structuralism) for underplaying the importance of human agency and imputing purposes, reasons and needs to society rather than to individuals. These approaches are “strong on structure, but weak on action” (Giddens, 1993). On the other hand, Giddens criticises interpretative sociology, such as Schutz’s phenomenology (1962, 1970, 1972), Garfinkel’s ethnomethodology (1967, 1972) and Winch’s post-Wittgensteinian philosophy (1958, 1964) for being “strong on action, but weak on structure” (Giddens, 1993:4).

### **1.3 Chapter Outline**

This thesis uses a case study of implementing a computerised personnel and salary management system in Foshan, a middle-sized city in the People’s Republic of China to investigate the impacts of systems development to achieve administrative reform on local government stakeholders.

Chapter 2 reviews existing relevant literature and justifies why further study of system implementation at the local government level to achieve administrative reform objectives is necessary. It begins with a literature review of IS implementation approaches and theories. It justifies why a social interaction approach rather than factor and process approaches has been chosen in this research. It is argued that IS implementation is a social process, involving the interaction of social and technical elements. Then, different theories used in studying IS implementation are compared and discussed, arguing that only actor network theory and structuration theory can offer equal treatment to both social and technical elements while other theories fall into the traps of technical determinism and managerial determinism.

Since the social context is important to study IS implementation, it then moves on to discuss the literature of administrative reform. This starts with a review of existing trends and then it focuses on discussing the key concept, New Public Management, which is prevalent in administrative reform programmes worldwide. Many existing discussions focus on the conceptual merits and demerits of New Public Management without considering whether reform programmes, especially in developing countries, fit the mould. Furthermore, a review of the literature on administrative reform in developing countries reveals that New Public Management is inclined to managerial determinism; hence its ability to guide administrative reform in developing countries is doubtful. Reform policies in developing countries need to take into consideration specific social contexts, rather than simply following the guidelines of New Public Management.

While IS implementation and administrative reform are both context-based, it is necessary to study how IS are implemented in public administration. A review of the existing literature suggests three general views: technology determinism, dystopian theory and social-technical theory. Particularly in the studies focused on developing countries, it is clear that the use of IT alone cannot achieve the objectives of administrative reform, which often requires a change in the existing administrative culture. Moreover, the use of IT in public administration is an evolutionary approach, depending on the local social contexts.

Based on the above literature review, a gap in the literature is identified regarding the development of IS at the local government level to achieve the unified administrative reform objectives. There is a dilemma between a unified administrative reform objective and diversified local social contexts; little research has been done in this area but it is well worth investigating.

Chapter 3 introduces the Chinese administrative reform and the use of IS in Chinese public administration. It begins with introducing the social background of administrative

reform in China from economic and political perspectives. Then, it moves to introduce a series of reform policies and the general objectives of administrative reform, including the establishment of a civil service system, fiscal reform, tax reform, social security reform and housing reform. Finally, it discusses the existing problems and complexities in the use of IS in China, particularly at the local government level.

Chapter 4 focuses on structuration theory. First, it outlines the key concepts of structuration theory. Then, it moves on to discuss how structuration theory has been used in the IS literature. Through this discussion, it justifies why structuration theory, rather than actor network theory, can provide a way for this research to understand IS implementation in local government, solving the problem of dualism between national policy unification and local government's uniqueness in social context and between structure and action. The final part discusses how structuration theory is used in this research to analyse the data.

Chapter 5 focuses on the design of this research. Before going into the details of research design, this chapter explains why the philosophical foundation utilised is interpretivism. This is followed by a section justifying why an in-depth case study strategy was employed and why the case study approach was chosen. Next, the data collection techniques used to collate data including semi-structured interviews, reference to archival documents and in some instances, observations, are discussed. Finally, the data analysis method chosen is discussed.

Chapter 6 uses the contextualist approach to describe the case study. It introduces the local social background of this case study: Foshan and its city government. Then, it describes the design and objectives of the computerised personnel and salary management system and the systems development process. Next, it describes each stakeholder from the cultural and political perspectives. The final part summarises the conflicts and problems found during the system development process.



Chapter 7 uses some key concepts of structuration theory to analyse the case study. In the first part, we outline the Chinese administrative structure and divide stakeholders into different groups based on their interests in the project. Then, we analyse the changes of perceptions from each group's perspective before and after the development of the computerised system in terms of legitimation, domination and signification. Then, we use the results from the case analysis to reflect on the problems identified in Chapter 6 and summarise the findings.

Chapter 8 summarises the whole thesis. The first part is a summary of the discussions in this thesis. The second part discusses the theoretical and practical contributions of this research. Finally, the limitations of this research and directions for future research in this area are discussed.

## ***Chapter 2 Literature Review***

### **2.1 Introduction**

As discussed briefly in Chapter One, our research area is the implementation of information systems, especially back-office integration, at the local government level to achieve the objectives of administrative reform. The aim of this chapter is to summarise the existing relevant literature and justify why this area is unique and worth investigating. In this first section, we discuss different views of the relationship between IS and public administration, arguing that IS implementation in public administration is an evolutionary process. The second section outlines the rest of the chapter.

#### **2.1.1 Information Systems and Public Administration**

Generally speaking, there are three different schools of thought regarding the role of IT in public administration, including technological determinism, managerial determinism and social interaction.

##### **2.1.1.1 Technological Determinism**

This first school views the technical features of technologies as determining the outcomes of using these technologies. This includes democratisation/decentralisation theorists and dystopian theorists.

Technological determinism assumes that the technology determines the impact on society and organisations; in other words, the use of technologies can determine the functioning of government organisations. The relationship between technical factors and social factors is a cause-and-effect sequence. The social impacts of information

technology can be explained by two extremes. Optimists, such as democratisation/decentralisation theorists, believe that IT can bring socio-economic benefits, while pessimists, such as the dystopian theorists, believe that its use will create information asymmetry and widen inequality. Here, technology is viewed as a factor independent of the social environment, but its use will have impacts on society. Thus, democratisation/decentralisation theorists hold a positive view of IT's influences on public administration, based on their belief that the market-driven spread of IT can provide great socio-economic opportunities. For example, Reschenthaler and Thompson (1996) argue that the information revolution requires a radical reorientation towards governmental restructuring (cutting back to core functions), reinvention through a customer-oriented product-market strategy, devolution to market mechanisms, reengineering (creating new processes rather than incrementally adjusting existing bureaucratic ones), rethinking (creating an adaptive information culture throughout the organisation), and realigning (assuring that organisational structure matches the new information culture). All these can bring positive changes to public administration. Therefore, this school of thought predicts the pluralistic use of IT, relying more on market mechanisms to perform government functions and democratising government bureaucracies. The organisational implications are the transformations from traditional centralised hierarchies to networked, decentralised structures with fewer layers of control, which will empower lower level employees, and will embrace interlocking virtual alliances with other organisations (Agres et al., 1998).

Rejecting such a rosy future, dystopian theorists argue that IT will widen informational inequality and thus amplify organisational and political inequality (e.g. Kolleck 1993, Castelle 1998). They argue that new technology multiplies elite privileges (e.g. Curtis 1988, Vallas 1998), and may reinforce workplace and income inequality (Reich, 1992). For lower-level employees, the pace and workload are increased while discretion is not forthcoming. Therefore, for Dystopian theorists, the research agenda is focused on documenting the social inequalities of the "information revolution" by class, race, gender, and state of national economic development, relating the new capacities of IT to

national strategies for maintaining economic superiority, elite strategies for reinforcing boundary-maintaining functions within organisations, and individual alienation through virtual communication, education and work.

To summarise, technological determinists argue that the capabilities of technology will lead to a particular development direction in public administration, either positive or negative. Technological determinism has been criticised for its simplified assumptions concerning the relationship between technology and people. It only focuses on how technology affects people. It ignores the fact that technology is designed, developed and implemented by people, whose relationships affect the introduction of technology.

#### **2.1.1.2 Managerial Determinism**

Global integration theorists, representing the second school of thought, believe that humankind has the potential to transcend the thought patterns of the workplace and even of nationality to embrace global thinking. Functional rationality is emphasized by global integration theorists, though their views of the relationship between IT and public administration might vary.

Some view IT as a neutral set of techniques, procedures and methodologies that, if used appropriately, can improve public administration. For example, the advocates of e-government argue that the use of IT can allow public services to be integrated around customer needs, enabling more efficient transactions, improving access to services and providing more and better information to the public (e.g. Audit Commission, 2002).

This view has been criticized by other global integration theorists for its simplicity, including the advocates of government informatisation theory (e.g. Van de Donk and Frissen, 1990, Snellen and Frissen 1991, Frissen et al. 1992). From their perspective, IT is not neutral but includes all kinds of assumptions and normative premises on which

technical procedures and methods are founded (Snellen et al., 1989). IT is seen as a cultural artefact, where the specific cultural character of IT is functional rationality (Frissen et al., 1992). Government information, therefore, is a complex of techno-economical and socio-political arrangements in an administrative-organisational context.

At the organisational level, global integrationist theory focuses on what was once framed as the question of whether “what is good for General Motors is good for the country” (see Garson, 2000). For instance, Bakry (2004) suggests a STOPE (Strategy, Technology, Organisation, People, Environment) strategy to standardize basic e-government services at the national and international levels so that well-designed e-government services can be globalised.

One of the most quoted models (e.g. Kouroubali 2002, Heeks 2002, Varavithya et al. 2003) that addresses the gap between promise and actual performance is the ITPSOMO model developed by Heeks and Bhatnagar (1999). They argue that the gap between the conceptions held by key stakeholders, or implicit within the system design and public sector realities, determine IT’s success or failure in reform. This model examines the gap in terms of seven key dimensions: information, technology, implementation process, objectives and values of people, available staffing and skills, management and structure as well as other resources (such as time and money). In addition, the authors put forward three archetypes based on organisational rationality, the difference between public and private sector functioning and different country contexts. However, like other models based on global integration theory, this model has limitations. For example, many government IT projects are outsourced rather than developed in-house. Outsourcing closes some gaps in the ITPSOMO model in terms of money and technical expertise, but creates new gaps, not covered by this model, such as legal and security issues (Huang and Smithson, 2002).

Indeed, although global integration theorists recognise the managerial command over technology and the usefulness of technology, their understanding of the impacts of technology lacks sophistication. As Heidegger (1977) argues, modern technology is not good or bad or neutral, rather it is an “instrumentum”, i.e. a means to an end. Moreover, technology is “revealing”, bringing both dangers and opportunities.

### **2.1.1.3 Social Interaction Approach**

Rejecting technological determinism and managerial determinism, social interactionists view IS as being determined by social choices and demands. The implementation of information systems thus becomes an interaction between social and technical elements.

This school believes that new technologies invariably change the social system, and these changes, in turn, impact technical systems (Whyte, 1997). This approach emphasises that what is technically optimal may not be socio-technically optimal. Technological change is viewed as a profoundly human and political one, requiring a holistic rather than technocratic approach to organisational adaptation to new technologies.

IT and organisational arrangements are viewed as dependent and independent variables, which are connected reciprocally (Fountain, 2001). Each has causal effects on the other. Institutions and organisations shape the enactment of IT and technology may reshape organisations and institutions to better conform to its logic. New IT is enacted - made sense of, designed, and used (when they are used) - through the mediation of existing organisational and institutional arrangements with their own internal logics or tendencies. These multiple logics are embedded in operating routines, performance programmes, bureaucratic politics, norms, cultural beliefs and social networks.

This social interactionist approach is criticised for its emphasis on the importance of complex social factors in the making of technical choices that leaves the researcher with a normative prescription for policy but great uncertainty in forecasting stages of development (Garson, 2000).

It is important to recognise that different IT projects require different managerial approaches (Cats-Baril and Thompson, 1995). Ciborra (2002) suggests that Heidegger's (1977) argument on the interplay between ordering and revealing can guide our investigation of the deployment of IT in public administration and can help in unveiling the complex phenomenon of e-government models, methodologies and policies. He explains that e-government allows an unprecedented ordering of transactions within the administration and between the administration and outside institutions, firms and individuals (citizens as customers). At the same time, its deployment can proceed only by revealing the nature of the administration and the contradictory requirements for its transformation. Therefore, the development of information systems in government is likely to be evolutionary rather than occurring as a single revolutionary act (Milner, 2002). The World Bank (2002) also calls the development of IT in the public sector as "e-volution", which represents a struggle presenting costs and risks financially and politically.

### **2.1.2 Chapter Outline**

The remainder of this chapter consists of five sections, providing a review of the relevant literature and pointing out the gap in our knowledge that this research can contribute to.

In the introduction, we have identified the underlying beliefs regarding IT and public administration within research. We regard IS implementation in government as a social and evolutionary process involving the interaction of social and technical factors. The next two sections review the literature in two general areas. Section 2 focuses on

information systems implementation. It begins with reviewing three different research approaches: the factor approach, process approach and social approach. It is argued that a social approach is more appropriate for this research, emphasising the importance of social contexts. Then, it moves on to discuss the use of social interaction theories in the implementation literature and their assumptions concerning technical and social factors.

Section 3 focuses on public administration, particularly administrative reform. It reviews the general trends in public administration, arguing that new public management (NPM) has become an important issue in policy making. Then, the second part focuses on discussing the concept of NPM, including its underlying theories and the debate on its general applicability. Finally, it discusses the appropriateness of NPM in administrative reform in developing countries.

Section 4 reviews the literature on IS implementation at the local government level in developing countries. With the development of technologies and paradigmatic changes in public administration, the first part argues that it is more important and yet more difficult to understand the interaction between IT and local social contexts. The second part discusses the difficulties of IS implementation at the local government level in developing countries while the final part identifies the gap in the literature that this research aims to begin filling. Section 5 links all the sections together by summarising the key findings from each section.

## **2.2 IS implementation**

### **2.2.1 Research Approaches**

A review of the literature suggests that research of IS implementation generally takes one of three approaches: factor, process or social interaction (Kling and Scacchi 1982, Markus 1983, Kwon and Zmud 1987, Markus and Robey 1988).



The factor approach has investigated a wide range of variables potentially and empirically related to the success of IS implementation, for instance, top management support, user involvement and alignment with business strategy (e.g. Ginzberg 1981, Lai, 1997). It is assumed that these factors are critical for success and they will remain in the same state throughout implementation (Cerveny and Sanders, 1986).

In this research approach, choices of variable sets are somewhat dependent on the chosen level of analysis (Prescott and Conger, 1995). At the individual level, task, individual adopter, and perceived technology characteristics might be included (Kwon and Zmud, 1987). At the organisational level, organisation, communication channel, and environmental variables might be more important (Rogers, 1983). For example, Cook et al. (2002) identify the critical success factors for local government as including rally leadership, learning from other local governments, getting the right people at the table, developing successful vendor relationships, acknowledging political differences, sharing information constantly and consistently, creating innovative partnerships and balancing the right to privacy with the right to know.

However, critics (e.g. Walsham, 1993) argue that this approach takes a rather static view, neglecting the dynamics of the process of organisational implementation, and interactions between different factors are crucial to understand the technological implementation.

The process approach views implementation efforts as consisting of a sequence of generic stages, each of which must be attended to if success is to occur (Kwon and Zmud, 1987). Representative works include Thompson's three stage model (1969), Kolb and Frohman's model of change (1970) and Kwon and Zmud's six stage model (1987). The challenge for local governments is to plan and implement the "right" e-government applications. Such frameworks can be used to guide planning, regarding both its content and its process (Vriens and Achterbergh, 2004).

However, this approach is criticised by Srinivasan and Davis (1987) as its sequential handling of issues does not capture the complexity of the dynamics of change in such areas as user-developer interaction. They advocate a user-centred focus, which is criticised by Walsham (1993) for still sharing the problems with other process literature. He argues that such a focus provides a limited view of the whole process of organisational implementation, which involves the complex interaction of stakeholder groups. The process approach is criticised for ignoring the social context in which the technology is developed and used, and the history of participating organisations. It assumes a rational consensus on the part of developers and users, which takes no account of political factors. Furthermore, it sees the main repercussion of a new technology as the direct translation of technical attributes into social attributes (Kling and Scacchi, 1982).

The social interaction approach believes that IS implementation involves a process of social change (Markus, 1983, Kling and Scacchi, 1982, Kling, 1980, Walsham, 1993). IS implementation is a social process involved the interaction between social and technical factors. This research focuses on understanding the interaction between IS implementation and its wider social context.

In a broad sense, our research on IS implementation in the public sector follows the social interaction approach. As the choice of research approach is based on the theoretical perspectives of the research, the next section reviews different theoretical perspectives in the IS implementation literature, with the focus on their views of social and technical factors.

### **2.2.2 IS Implementation Based on Social Interaction**

Information systems comprise technical and social elements, however the nature of, and relationship between, these elements remain a continuous debate (Jones, 1999). This

section examines the different theoretical perspectives in treating technical and social elements in information systems research.

### **Social Shaping of Technology**

MacKenzie and Wajcman (1985) use examples, mainly historical events such as the invention of electric light by Edison (Hughes, 1979), to argue that technology is shaped by social and economic forces. They promote “a politics of technology that would seek consciously to shape technological change with human betterment and environmental protection in mind” (MacKenzie and Wajcman, 1985: xv). They consider that technical artefacts have political qualities. At its extreme, it is argued that what matters is not technology itself, but the social or economic system in which it is embedded.

Their view has been criticised by Winner (1980) as “social determination of technology” for its ignorance of technical factors. Accepting this criticism, MacKenzie and Wajcman (1999:23) later admitted that “we largely thought of the social shaping of technology in terms of the influence of social relations upon artefacts. The problem with this formulation is its neglect of the valid aspect of technological determinism: the influence of technology upon social relations. In other, more accurate words, it is mistaken to think of technology and society as separate spheres influencing each other: technology and society are mutually constitutive.”

### **Social-Technical Systems Theory**

Social-technical systems theorists (e.g. Trist and Bamforth, 1951, Mumford, 1995) believe that the effective design of technologically-based work processes requires the simultaneous optimisation of both technical and social elements. The optimal social-technical system involves a matching of the inherent characteristics of the technology with the particular social and psychological properties of the organisation.

By teaching technology as a black box with objective characteristics, Grint and Woolgar (1997) argue that socio-technical systems theory underestimates the significance of the interpretive component of human-technology interaction. They also point out that it treats technology and society as being inherently independent of one another. Technology is still seen as objective, essentially unproblematic and following the laws of natural sciences, while the social aspects of the system are still seen as subjective, problematic, and following the laws of the social sciences.

### **Social Construction of Technology**

Social construction of technology (SCOT) was developed by Trevor Pinch and Wiebe Bijker in the 1980s (Bijker et al., 1987; Pinch and Bijker, 1984). In SCOT, “‘relevant social groups’ who play a role in the development of a technological artefact are defined as those groups who share a meaning of the artefacts” (Kline and Pinch, 1999:113). One of the key concepts is “interpretative flexibility of technology” which means that the same technology can mean different things to different social groups of users. This concept is heavily influenced by Bloor’s work (1976) applying a sociological perspective to scientific knowledge. Rather than consider scientific knowledge as a result of unaided human rationality and causal input from the material world, Bloor (1976) argued that proper explanation of all knowledge would involve recourse to material input, psychological processes and social processes.

They recognise that different groups of people involved with a technology can have very different understandings of the technology, including different understandings of its technical features. Such meanings can become embedded in new artefacts, and developmental paths can be traced that reinforce this meaning.

This approach has two limitations. First, similar to social shaping, it only focuses on how social factors influence the technology, ignoring the impacts of technical factors. They admit that this theory “as originally conceived dealt mainly with the design stage of technologies.” (Kline and Pinch, 1999:114) The second limitation is the way they

defined “relevant social groups”. They include “all social groups mentioned in relation to that artefact in historical documents” (Bijker, 1995).

A common feature of the above viewpoints is their emphasis on the contingent nature of the social or technical relationship (Jones, 1999). As pointed out by Grint and Woolgar (1997), this gives a significant inconsistency within this perspective. In seeking to preserve the notion that technologies are socially shaped/constructed, these approaches typically argue that this shaping is somehow “embedded” into the form of the technology which later contributes to its reciprocal influence on social conditions. This implies that at some stage, the interpretive flexibility of technology is closed off and its effects subsequently depend solely on its, now configured, intrinsic material properties. Such an “essentialist” position, Grint and Woolgar argue, amounts to nothing less than another form of technological determinism. The intermediate approaches, therefore, while claiming to strike a balance between the social and technical elements, treat them inconsistently.

Two approaches recently receiving significant attention in the IS field are actor network theory and structuration theory.

### **Actor Network Theory**

The pioneering work of actor network theory (ANT) included Callon (1986) and Latour (1987). After Latour (1996) uses the theory to focus on technology, a series of studies in the area of information systems have used ANT (Allen, 2004) or ANT and structuration theory together (Walsham 1997, Jones 1999, Walsham and Sahay 1999).

ANT differs from other theories in its assumption of “general symmetry” between the technical and social worlds. Both human beings and non-human actors (such as technological artefacts) are equally seen as actants. It asserts that the properties of all actants are not inherent, but relational. When the interests of actants are aligned, a

relatively stable network is formed. Nevertheless, the theory is sceptical about the existence of stable social structures. The stability of a network is only relative because it is continuously translated and strengthened (or weakened) through the enrolment and inscriptions of additional human and non-human actants. In other words, the interests and actions of human and non-human actants constantly transform the networks across time and space. A major focus of the theory when applied in particular contexts is to try to trace and explain the processes whereby relatively stable networks fail to establish themselves.

### **Structuration Theory**

Adopting structuration theory to the study of organisations and technology overcomes the limitations of prior one-sided perspectives (Orlikowski and Robey, 1991). First, the determinism and reification of technology plaguing objectivist theorists is tempered by a recognition that organisations exist only through ongoing human action. Second, the extreme voluntarism advocated by subjectivist theorists is restrained by the recognition that organisational properties become institutionalised and assume objective identities beyond easy reach of acting individuals. Finally, the lack of attention paid to contextual and historical factors by much of the objectivist and subjectivist research is redressed by focusing on the context of interaction, and by integrating the action of humans with the ongoing stream of social practices that produce and reproduce social systems over time. Furthermore, structuration theory allows the elimination of the artificial partitioning of research attention between macro and micro levels of analysis, because the process of structuration operates at multiple levels of analysis.

There is not, and never will be, a best theory. ANT and structuration theory both have their limitations, which are discussed in detail in Chapter 4. Walsham (1997:478) points out: "Theory is our chronically inadequate attempt to come to terms with the infinite complexity of the real world. Our quest should be for improved theory, not best theory, and for theory that is relevant to the issues of our time."

### **2.2.3 Summary**

In this section, we have discussed different research approaches and theories used in the IS implementation literature. We have justified why the social interaction approach has been chosen for this research, recognising the importance of studying the social context of IS implementation project. Following on from this, in the next section we review the literature on public administration.

In terms of theories used in IS implementation, we have found that only structuration theory and actor network theory give equal treatment to the social and technical elements in IS implementation studies. As both have their own limitations, we discuss these two theories again in Chapter 4 and justify why structuration theory is more suitable for this research.

## **2.3 Public Administration**

### **2.3.1 General Trends in Administrative Reform**

Administrative reform is an innovation in government, aiming to bring about deliberate planned changes to public bureaucracies in order to improve efficiency and effectiveness in public services (Turner and Hulme, 1997).

Administrative reform is a global phenomenon, although the details of reform programmes may vary. The administrative reform movement in public management has become popular in the past two decades both in developed and developing countries, for various reasons.

In developed countries, this trend is in large part driven by the requirements that governments should respond to the fiscal stresses brought about by changes in the international economic systems and by the increasing public demands for better

government services and regulation in national political systems (Aucion, 1990:115). Information on international success stories of administrative reform is becoming more readily available, encouraging other governments to imitate them (Tanzi and Schuknecht, 1997).

In developing countries, since the World Bank's World Development Report was published in 1983, with a focus on the management of development, administrative reform has been universally sanctioned as the means to bring about desired changes to the public sector (Turner and Hulme, 1997). Though there are some differences in the details, it is agreed by the major donors that what developing countries must do to improve public sector management is to sweep away the traditional public sector management paradigm that underpins their bureaucracies and introduce new concepts.

In the 1980s, "New Public Management" (NPM), originating from the Anglo-Saxon countries, became the focus of administrative reform programmes across the world. NPM aims to change the traditional public administrative model through deregulation, downsizing and privatisation by creating a new set of values for public administration. Citizens are regarded as customers who become the central focus in designing government service delivery (Osborne and Gaebler, 1992). Public officials are challenged to think about how to empower citizens to take ownership of community problems. The approach urges officials to partner with citizen groups and non-profit organisations to identify solutions and deliver public services effectively. Moreover, successful managerial skills used in the private sector are recommended to the public sector in order to reduce costs.

Nevertheless, despite the popularity of administrative reform across countries, the goals, contents and outcomes of administrative reform remain arguable and inconclusive (e.g. Tanzi and Schuknecht, 1997), especially in developing countries (e.g. Polidano, 1996). Gaps between ambitious programmes and actual outcomes have been identified in various studies (e.g. Wright, 1997).



With the continuing debate on NPM, innovation and inspiration in public administration has become global. Countries tend to learn from each other. As Wolf (2000: 690-691) argues, “the world of public administration today has no centre, and there is no such thing as a ‘best country’. There are ‘good’ and ‘better practices’, which have to be identified on the basis of national needs and require adaptation to the national political and administrative context in which they are to function. In this sense we are hopefully moving towards a truly global learning process.”

As an influencing concept in administrative reforms, NPM plays an important role in understanding varied reform programmes. Therefore, the next section discusses the principles of NPM and its continuing debate.

### **2.3.2 New Public Management**

The traditional Weberian model of organisation views government as a hierarchical bureaucracy (Weber, 1919). Government activities are distributed to different departments or officials in a stable way as official duties, which are strictly delimited by rules. Officials who perform similar functions are grouped and organised into the same administrative unit or department. Each unit is responsible for understanding its clients, assessing the demand for its services, delivering those services, and setting administrative goals for planning and evaluation purposes. To ensure that departmental plans are consistent with each other and fiscally feasible, the budget office, city manager's office, and the city council are responsible for centralised control and coordination.

It focuses on internal and managerial concerns and emphasises departmentalisation, specialisation, standardisation and routinisation (Ho, 2002). This inward-looking management approach led to problems such as over-swelling, as the number of officials and complication of official procedures rather than the quality of public service are seen as a symbol of power in such bureaucracies. Therefore, the Weberian bureaucracy has

been criticised for its rigidity, proceduralism, inefficiency, and inability to serve clients who have preferences and feelings (Hummel 1992; Rainey, et al. 1995; Bozeman 2000).

Administrative reform based on New Public Management (NPM) attempts to reorient the focus of government operations from an inward-looking approach to an outward-looking one by addressing the needs of the public (Hood, 1991; Hood and Jackson 1991). NPM was regarded (Hood and Jackson, 1991) as a point of view about organisational design in the public sector, which they specified as an administrative argument (described as a set of doctrines and an approach based on the administrative values advocating frugality of resource use) and as an agenda-setting climate of opinion (referred to as an accepted administrative philosophy). NPM originated from two different streams of ideas, neo-institutional economics and business-style managerialism in the public sector.

New economic institutionalism tries to analyse how the structure of property laws and transaction costs affect incentives and economic behaviour. It is sensitive to organisational subject matter and tries to show that institutions count. Organisational structure affects incentives and behaviour, and institutions themselves are considered as legitimate objects of economic analysis. It generates a set of administrative reform doctrines built on the ideas of contestability, user choice, transparency and close concentration on incentive structures (Hood, 1991).

New economic institutionalism was built on the post-World War II development of transaction costs theory, public choice and principal-agent theory. The assumptions of these theories and their implications for public administration are discussed respectively.

Firstly, transaction cost theory is based on the assumption that individuals (both principals and agents) will act in their own self-interest and therefore may behave opportunistically. It also assumes that human beings have only bounded rationality. In terms of public administration, bureaucrats are assumed to be rational actors seeking to

maximize their personal benefits rather than to maximize the function of government. At the same time, they only have bounded rationality rather than “complete rationality”, in other words, they have a limited capacity to gather and analyse information. Therefore, some incomplete contracts will not be carried out because some public servants may not be honest and may deliberately attempt to distort or hide information in their favour.

The implication for public administration is that an analysis of the functioning of the government needs to be based on a methodological individualism, evaluating the situation and incentives of the persons that make up the government (Barragán and Roemer 2001). Government should only be in charge of those functions better suited to hierarchical or rule-driven organisations, and some government functions may be better suited to market-type arrangements, such as outsourcing to the private sector (Bale and Dale, 1998).

Second, public choice theory seeks to explain how voters, politicians, bureaucrats, and lobbyists will behave in different institutional settings with different incentive rules. The “rational actor” model lies at the heart of all public choice accounts (Dunleavy, 1991). It is assumed that people have a set of well-formed preferences to perceive, rank and compare, and the preference orderings are transitive or logically consistent. People can act rationally when they pursue their preferences in an efficient manner and maximise benefits net of costs. For their personal welfare, people are basically egoistic, self-regarding and instrumental in their behaviour, choosing how to act on the basis of the consequences. In government, it is assumed that the process of design, definition and implementation of public policy is in accordance with the efforts of interest groups and individuals to promote their own interests, which is usually known as “income hunting” (Barragán and Roemer, 2001). Public and private groups will undertake rent-seeking activities to the disadvantage of the broader society, and politicians may pursue their own objectives at the expense of those of their constituents (Bale and Dale, 1998).

Public choice theory has two implications for public administration. First, it is essential to understand the behaviour of the persons working in government. Second, it proposes a minimal role for the state, with the discretionary powers of politicians and agencies limited and with citizens having maximum freedom from state coercion. At the same time, it stresses the exchange based on the rule of consensus and compensation.

Finally, principal-agent theory addresses the “agent-principal” problem arising from the presence of asymmetric information in government environment. The presence of asymmetric information leads to the problem of the lack of accountability in traditional bureaucracy, because the expensive and difficult access to reliable and timely information in the public sector represents a source of power for the sectors of the bureaucracy interested in obtaining a percentage of the social income by promoting their own interests at the expense of the public interest. Therefore, government needs to have clearly defined goals and functions in order to evaluate and motivate its members to provide good service to society. However, unlike the private organisations which can use market mechanisms, owing to the political nature (rather than technical or administrative) of the problem in the public sector, government will face difficulties in determining the extent and characteristics of the regulations for the economic activities of private individuals. This problem becomes more complicated if the government’s general objectives are different from the individual and group goals of the people who make up the bureaucratic structure.

In the traditional public administration model, the “agent-principal” problem has generally been faced by introducing tighter regulations and controls, which, however, has failed to give satisfactory results in most countries. The idea of the principal-agent theory is that interchange between parties can be characterised as a series of contracts where one party, the principal, enters into agreement with another party, the agent, who agrees to perform certain tasks on behalf of the principal in return for compensation (Moe 1984, Pratt and Zeckhauser, 1985, Bendor, 1988). Similar to public choice theory,

it assumes that individuals are opportunistic and contracts must carefully protect the principal from the agent.

Therefore, principal-agent theory suggests that strategies in administrative reform programmes should change the system of incentives within which the bureaucracy operates, by introducing economic market principles into the government's functioning (Barragán and Roemer, 2001). It suggests evaluation mechanisms that concentrate on the production of goods and services (outputs) and the results (outcomes) rather than on controlling the resources received by the agents (inputs). Through competition, it hopes to reduce the levels of asymmetric information that make it possible to obtain monopolistic income and for corporate interests to develop within the bureaucracy. At the same time, this also involves establishing an objective, comprehensive, incentive human resource system to reward those who perform their tasks adequately and punish those who do not.

In addition to neo-institutionalism, business-style managerialism has also played a key role in NPM. Business-style managerialism in public administration can be traced back to the tradition of the international scientific management movement (Merkle, 1980; Hume, 1981; Pollitt, 1990). This approach (Aucion 1990, Caiden 1988) centres on the presumption that a distinctive activity called "management" can be applied to public and private sectors alike.

This approach calls for a new administrative culture in the public sector based on the ethic of professional responsibility and deep commitment to public service. Since all governments possess specific cultural models that are the product of their formative processes, the project of administrative reform implicitly includes the cultural transformation of the bureaucracy. In other words, in order to achieve the objectives of being an effective, efficient, productive and honest government, it will be necessary to overcome behaviour patterns inherited from the past (Barragán and Roemer, 2001).

Accordingly, business-style managerialism has generated a new set of administrative reform doctrines (Hood, 1991), based on the ideas of “professional management” expertise as portable (Rein, 1983), paramount over technical expertise, requiring high discretionary power to achieve results (“free to manage”) and central and indispensable to better organisational performance, through the development of appropriate cultures (Peters and Waterman, 1982) and the active measurement and adjustment of organisational outputs.

The characteristics and key assumptions of NPM can be summarised from three perspectives using the framework developed by Heady (1995) that identifies three main concerns. The first element is the characteristics and behaviour of public administrators; i.e. the motivations and conduct of the participants in the administrative process, particularly career officials. The second element is the institutional arrangements for the conduct of large-scale administration in government. The final element is the environment or ecology of administration, that is, the relationship of the administrative subsystem to the political system of which it is a part and to society in general.

Regarding the characteristics and behaviour of public administrators, advocates of NPM assume that individuals act on their own interests with bounded rationality. The interests of bureaucrats can be quantified. With appropriate incentives, public services can be delivered efficiently and effectively. Through the development of quantitative methods of performance and efficiency management, it shifts the control of accountability mechanism from process to output.

In terms of institutional arrangements, NPM separates provision from delivery of public policy associated with a shift from permanent public bureau production to term contracts and private sector delivery. It emphasises cost cutting by matching resources to defined tasks, in other words, it shifts from policy making based on planning to private sector style management with an emphasis on cost cutting and labour discipline. NPM promotes management decentralisation, changing from the “U-form” monopoly systems

in the Weberian model to disaggregated budgets, internal markets and rivalry. It argues for the involvement of the private sector in certain government functions.

Finally, regarding the environment of public administration, NPM advocates believe that an administrative culture based on professional management can be developed, which is universally suitable for administrative environments in different countries.

### **2.3.3 Administrative Reform in Developing Countries**

The ideas of NPM were first promoted and implemented in reforms in developed countries, such as Australia and Great Britain. There has been much criticism of the components: of what they seek to achieve in theory, and of what they do and do not achieve in practice (Heeks, 1998). This section is devoted to discussing the debate on NPM, in particular in the case of administrative reform in developing countries.

This debate can be discussed based on Heady's (1995) framework regarding administrative studies, the characteristics and behaviour of public administrators, the institutional arrangements for administrative functions, and the administrative environment.

In terms of the characteristics and behaviour of public administrators, NPM's assumptions of self-interest and political neutrality have been debated. Accepting different administrative values have different implications for fundamental aspects of administrative design, Hood (1991) has identified three clusters of administrative values, including sigma, theta and lambda. The sigma type emphasises economy and parsimony, theta relates to honesty and fairness, and lambda focuses on security and resilience. It is argued that NPM is a design for sigma administrative values, that is, for putting frugality at centre stage rather than honesty and resilience. Critics argue that NPM does not and perhaps cannot reconcile the tension that models of government based on the assumption that self-interest motivates citizens and their representatives and models

based on the premise that people manifest their preference through trust and cooperation (Lynn, 1998). Therefore, critics query the extent to which NPM has sufficient conceptual coherence to provide an alternative to public administration as either a theoretical construct for academic research or as an approach to the management of public services (Osborne and McLaughlin, 2002).

Second, NPM was claimed to be an apolitical framework within which many different values could be pursued effectively. Different political priorities and circumstances could be accommodated by altering the “settings” of the management system with no need to rewrite the basic programme of NPM (Lane, 2000). NPM is claimed to promote public good (cheaper and better public services for all). Critics (e.g. Wright, 1997) argue that since the reforms bring about organisational changes, it will generate new interests and strengthen some actors while weakening others. They argue that NPM is actually a vehicle designed to promote the career interest of an elite group of “new managerialists” rather than the mass of public service customers or lower-level staff (see Hood, 1991). Without centrally controlled anti-corruption units in place, policy-makers and senior civil servants will opt for privatisation and marketisation because of the increased opportunities for malfeasance (Turner and Hulme, 1997). In developing countries, administrative decentralisation in NPM may turn out to be political decentralisation.

Regarding the institutional arrangements, critics have questioned NPM’s universality by focusing on the equity costs of a preoccupation with cost-cutting and a focus on “bottom line ethics” (Jasay, 1989: 173). However, rejecting this simple dichotomy between efficiency and equity, NPM’s advocates argue that efficiency can be conceived in ways which do not fundamentally conflict with equity (Wilenski, 1986), and equity values could perfectly well be programmed into the target-setting and performance indication process, if there were strong enough political pressure to do so.

Critics of NPM further argue that, since NPM still entails quasi-markets and quasi-contracts, there may be the potential destabilising effects because NPM may



encourage the pursuit of efficiency through flawed policies, a short-term focus on cost reduction and an erosion of state capacity to take a long-term perspective about technology, research capacity, education and the environment. Welfare-reducing “hiving off” of functions and agencies will occur as civil servants pursue both cost reductions and narrowly defined performance indicators. The transaction costs of switching to contracts and quasi-contracts may be very high, which forms much of the concern about NPM especially in developing countries (Turner and Humle, 1997).

Regarding the administrative environment, the portability and diffusion of NPM claims that the same set of received doctrines has been advanced as the means to solve “management ills” in many different contexts. NPM advocates consider it to be essential to generate a new culture in the public sector based on the ethic of professional responsibility and deep commitment to public services. Since all governments possess specific cultural models that are the product of their formative process, administrative reforms implicitly include the cultural transformation of the bureaucracy (Barragán and Roemer, 2001). In other words, it is necessary to overcome the behaviour patterns inherited from the past. It is predicted that the convergence in styles of public sector management around the world will occur despite cultural and religious differences that set countries apart (Lane, 2000). NPM is a recipe book, where the policies can be readily transferred from one culture and one political system to another one. It is only necessary to identify best practices.

Critics have questioned the extent to which there is a single model of NPM that can be deployed as a tool for comparative analysis, let alone global reform prescriptions (Osborne and McLaughlin, 2002). They argue that there are substantial differences in the political and cultural traditions even within OECD countries where the applicability and effectiveness of NPM concepts will vary considerably from one country to another (Mathiasen, 1999). Dunleavy and Hood (1994:13-14) describe alternative, multiple futures for public management based on constitutional issues arrayed on two dimensions: the degree to which there are general, system-wide rules of procedure, and the degree to

which the public sector is separated from the private sector. However, given the diversity in administrative systems in developing countries, Polidano (1996) argues that the tendency to draw generalised, once-and-for-all conclusions about the applicability of NPM reform is simply misplaced.

From the above three perspectives, it is clear that the line of argument represents a conflict between the objectivity of management principles and the subjectivity of complex social realities. Lynn (1998) regards this as a tension between universalistic principles of management and existing legal and political traditions.

Proponents and critics tend to discuss the conceptual merits and demerits of NPM without considering whether or to what extent reform programmes, particularly in developing countries, fit the mould (Polidano et al., 1998). NPM advocates argue that NPM concerns real phenomena (Lane, 2000) that have developed through learning from real experiments and reforms within the public sector. NPM opponents argue that the assumptions made by NPM are far away from reality. Therefore, one constructive perspective to this debate may be to empirically study administrative reform programmes. Turner and Hulme (1997) also suggest that concerns about NPM should adopt the contingency approach that dominates contemporary thinking in organisation theory and ask in what context is NPM likely to achieve performance improvements. An empirical study may be particularly fruitful in the context of developing countries because of the complexity and diversity in development administration.

A review of the literature on NPM in developing countries has revealed that the key argument is whether NPM is appropriate to be implemented in developing countries. Empirical studies have found success stories and failures in developing countries.

The argument that NPM is inappropriate to developing countries has taken account of problems such as corruption and low administrative capability. Their lines of argument can be summarised as follows. First, according to the “stages of development” thesis,

the lack of expertise and the unreliability of information systems in developing countries mean that it is not currently viable to develop complex structures such as internal markets or sophisticated performance monitoring systems.

Second, in NPM, an essential step to the development of results-based accountability is to remove or at least release procedural controls over line management. As mentioned above, this aims to move from accountability for inputs (obeying the rules on spending and staffing) to accountability for outputs and outcomes (that is, actual performance). However, it is argued that the management of government in developing countries is afflicted by corruption and nepotism. Therefore, central controls and procedures are the only safeguard against further proliferation of such practices, and cannot be removed as NPM suggests.

Third, it is argued that NPM is inappropriate because many developing countries suffer from severe capacity limitations. Low pay contributes to low administrative capacity, that is, poor organisational discipline and an inability to enforce rules. Besides low pay, administrative structures are weakly institutionalised, making the public sector prone to “penetration” by party politics and leading to politicisation at all levels in the organisational hierarchy.

Finally, it is argued that the meaning of decentralisation in developing countries differs from the terms used in NPM in the developed world. In NPM, decentralisation means giving line managers in government departments and agencies greater managerial authority and responsibility. Instead, in many developing countries, decentralisation usually means the devolution of political power to lower levels of government. In other words, decentralisation means “management decentralisation” in NPM and “political decentralisation” in developing countries respectively.

Though it seems that these arguments are appealing, it can be argued that the outcome of individual NPM initiatives will depend on localised contingency factors (Polidano,

1996). For example, in contrast to the stages of development thesis, it is argued that the problem in many developing countries is not an absence of centralised rules and procedures. Instead, the problem is that those who want to get around the rules for the wrong reasons are able to do so somehow, while well-intentioned managers can find themselves bound by centralised red tape. In fact, adding new rules might even contribute to the proliferation of corruption and abuse of power, what Sardan (1999:33) calls the “driving licence formula”. Furthermore, although one may believe in central controls as a check on abuse of power by government officials, NPM-style reforms have been used not only to make efficiency gains or to escape management constraints, but also precisely to combat corruption. Pope (1995) argues that it is too simple to equate management decentralisation with corruption, and centralisation could also generate its own pressures for corruption as people seek to get around delays and bottlenecks.

Therefore, as Polidano (1996) argues, the tendency to draw generalised, once-and-for-all conclusions about the applicability of NPM reforms in developing countries is simply misplaced. Reform initiatives have to be adapted to prevailing local circumstances. Localised contingency factors, varying from sector to sector and situation to situation even within the same country, play a predominant role in determining the outcome of individual reform initiatives.

## **2.4 IS Implementation in Local Government in Developing Countries**

Studies of local government are important because local government is close to people and the issues that concern them (ODPM, 2004). Local government can involve local communities in tailoring national services to local needs and priorities. More importantly, they can find innovative and joined-up solutions to specific local problems and co-ordinate the delivery of other locally provided services.

Moreover, since the leading strategies at the local level often have to meet multiple and often competing objectives of local government organisations, research on IS implementation at the local level can provide a rich vein for studying the impact of informatics planning, management and development strategies on organisational change (Beynon-Davies and Williams, 2003).

This section consists of three parts: a general literature review of IS implementation in local government, a discussion of IS implementation in developing countries, and, finally the identification of a gap in the literature where our research question can be located.

### **2.4.1 IS Implementation in Local Government**

IS implementation at the local government level has been an interesting topic of study for a couple of decades. However, the research themes and IS implementation issues under discussion have been changing over the years.

Central governments increasingly use the development of information systems at the local level as a way to achieve administrative reform objectives. In the UK, for example, the use of IT is rooted in the four principles of administrative reform set out in 2002 (ODPM, 2004). First, the use of IT should ensure that citizens have the right to high quality services wherever they live; second, the design of IT should enable devolution and delegation to the front line, giving local leaders responsibility and accountability and the opportunity to design services around the needs of local people; third, IT should give flexibility to government organisations and staff to meet the aspirations of users; finally, the use of IT should give more choice for service users.

An understanding of the background of technology development and paradigmatic changes in public administration theories can help to explain the IS implementation

issues in local government. The development of IT has made information sharing and exchange among organisations possible. Accordingly, the IS implementation research focus has changed from intra-organisational office automation (e.g. Danziger and Dutton, 1977, Kraemer and Perry, 1979) to inter-organisational e-government projects (e.g. Ventura, 1995).

As discussed in Section 2.3, in terms of public administration, the leading public administration model has changed from the Weberian model emphasising internal management to more of a service model. Thus, the objectives of using IT have also changed from department-based internal management to customer-oriented public service delivery. In the Weberian model, IT is only viewed as a tool to improve existing paper-based systems, helping government organisations to achieve their departmental goals. The primary mechanisation target of using computers in the organisational area was routine record-keeping (Price and Mulvihill, 1979). In the NPM-style reforms, IT is viewed as an essential tool to establish an ideal administrative system and improve the quality of public services (Bellamy and Taylor, 1994:47). IT enables information sharing, providing new ways of integrating or matching data that will yield much more information about its external environment and internal processes. Also, it has flexibility in arranging who may access and exploit information resources, at the same time as allowing new kinds of interactive communication within and between organisations. Therefore, with the availability of new technologies, such as ICT and Internet, the way governments pursue their goals may change. At the organisational level, since IT affects the chief characteristics of the Weberian bureaucracy, it reshapes the production, coordination, control and direction processes that take place within the public sector (Fountain, 2001).

In the literature of implementing IS at the local level, it is found that social impediments are often more difficult to overcome than technical impediments. For example, the study by Ventura (1995) has revealed that applications involving spatial analysis, modelling and prediction are constrained not so much by technical limitations as by organisational

and institutional impediments. However, the focus is often placed on part of the change programme (e.g. bringing in new technology) and does not integrate this with other elements (such as cultural change) or take an overall view of the whole change process (Cabinet Office, 2000).

In Section 2.1.1, we have argued that IS implementation in public administration is an evolutionary process, involving the interaction between social and technical elements. From the literature review of IS implementation in local government, it is found that understanding the specific local social contexts is more important and yet more difficult than before. Generally speaking, with the development of technologies and the paradigmatic changes of public administration, the changes of institutional environment at the local level can be understood from the following three perspectives.

First, the expectations of the use of IT in local government are higher and understandably more diverse than before. When technologies are being used in the private sector to meet customer needs in more convenient and cost-effective ways, the expectations for the use of IT in public administration have increased significantly (Audit Commission, 2002). For local government in particular, they have a central role to play in meeting local needs and in delivering the central government's broader ambition to modernise public services. However, rising expectations of service users are not always matched by improvements and innovations in services (ODPM, 2004).

Moreover, the perceptions of government organisations and the public may vary regarding IS development projects at the local level. For example, Otenyo and Lind (2004) study the concept of transparency in local government and reach the conclusion that there are identifiable differences between perceptions of transparency in different parts of the world. They argue that perceptions may mirror the different degrees of reform and technology being pursued. Relatively speaking, in the more advanced countries, the current usage of the concept is closely related to expanding democracy in decision-making. On the other hand, in developing countries, attitudes towards

transparency reforms in local government are likely to be associated with combating corruption. Additionally, local government organisations may have different expectations because of their experiences of using IT, which was not a problem when IT was first used in government.

Ramsay et al. (1992) have distinguished three types of departments at the local government level for which the introduction of IT could be expected to have different meanings. A “social department”, which concentrates on providing face-to-face services to the public, had little prior experience of IT and so the unfamiliarity might cause some uncertainty, reluctance and even negative reactions. A “central support” department, such as Finance and Manpower Services, would be expected to have longer experience of work with mainframes, hence they wanted to use IT to make work tasks more flexible and controllable. A “technical department”, such as Architects and Surveyors, had still more familiarity with the use of mainframe, and to an increasing extent specialised stand-alone equipment. They were seen simply as sophisticated aids to their work, and ones enjoyable to use. The research of Ciborra (2002) on the Jordan public administration is an example of the uneven IT readiness among different government organisations.

Second, the relationship between central government and local government has changed. There is a need for a co-operative and sustainable central-local government relationship. In the past, central government only played a leader’s role, and the central and local government relationship was not essential to IS development. Research found that the presence of an administrative reform orientation proved to be positively associated with technological innovation at the local level (Danziger and Dutton, 1977). Therefore, central government’s policies towards computer applications among local government focused on setting objectives, design approaches and transfer mechanisms (Kraemer and Perry, 1979). With the development of new technologies, central government can use IS development at the local level to achieve administrative reform objectives, as discussed earlier.



Central government needs to develop a coherent and stable relationship with local government, which also means the need for national standards in key areas (ODPM, 2004). Accountabilities and responsibilities at each level for the delivery of public services should be clarified. Clear principles are needed about where the primary responsibility for setting priorities, standards and targets should lie on a service by service basis. Moreover, for central government agencies to foster system development at local levels, they have to work on building the system development capacities in local government rather than simply providing tools or data (Ventura, 1995). A strategic plan with a citywide perspective needs the support of top officials and senior staff (Smith et al., 2000). At the same time, local government needs to promote horizontal (inter-agency relations at the local level) as well as vertical (inter-governmental relations with central government) collaboration to achieve its administrative reform objectives (Moon, 2002). Local government needs to establish local community leadership and earn the trust and confidence of its citizens and national partners (ODPM, 2004). As community leaders, local government has a central role in meeting local people's needs and in delivering the central government's broader ambition to modernise public services (Audit Commission, 2002).

The challenge is to establish a new relationship between local and central government based on dialogue, strong performance management within all local governments, clarity about where national standards and local differences are appropriate, and effective use of the range of providers and technologies available (ODPM, 2004). As different services need different approaches, there is a risk of over-burdensome controls, conflicting priorities and un-joined up initiatives. Moreover, the current arrangements of targets, standards, funding and evaluation systems, which are highly complex and often confusing, create a risk that fragmentary and contrasting approaches can hinder improvements. Therefore, both local and central government need to build up trust and confidence in the other as a partner. This trust must be built on evidence of change on both sides and demonstrable improvements in the outcomes that matter.

Third, with the involvement of the private sector in government projects, as advocated in NPM, there are more ways to fund local government IS projects than before. At the same time, it has created new problems. In the past, central government often provided funding to IS development projects at the local level, and the problem was whether the funding was enough and put to good use. However, as advocated in NPM, nowadays quite a few government IS projects have used outsourcing with the direct involvement of the private sector. For outsourcing projects, local government needs to develop successful vendor relationships and create innovative partnerships (Cook et al, 2002). Moreover, there is a need for a finance system that is fair and fit for the needs of local government to earn the confidence of citizens and the trust of local and national partners, supporting what we expect local government to deliver in the years ahead and supporting local flexibility and local accountability (ODPM, 2004). Also, there are budgetary constraints that would limit the adoption of new computer technologies (Smith et al., 2000).

To summarise, with technological development and paradigmatic changes in public administration, the institutional environment for local government to develop IS has changed considerably. It is important to take these specific institutional environments into consideration when studying IS implementation at the local level.

## **2.4.2 IS Implementation in Developing Countries**

Poor governance in developing countries is often claimed to be the root of state failure and underdevelopment, hence IT is often used to enable state organisations to become more successful, which is also considered as an attractive strategy by international donor organisations (Ciborra and Navarra, 2005).

However, the objective of introducing administrative change solely by means of computerised information systems is unrealistic (Avgerou, 1990), as evident in many empirical studies (e.g. Cain, 1996; Madon, 1993, Qureshi, 1998). There is a danger that

computerised information systems that reinforce the bureaucratic rationality of law and order can increase the endemic inefficiencies of bureaucracies, particularly in developing countries where such inefficiencies can be even more endemic. To apply advanced ICT to obsolete or inefficient rules and processes means in effect to computerise inefficiency.

IT is not a substitute for failure in public management and internal controls in government (Bhatnagar, 1992) and gains from information technologies will be greater when the organisation using it is already performing well. More importantly, as Westcott (2001) argues, the use of IT is not just about the automation of existing processes, rather, it is about the creation of new processes and new relationships between the governed and governor. Nevertheless, ICT can contribute to structural reform, but is only part of the process (Westcott, 2001). The strategic use of IT should fit into the long-term programme of far-reaching reform (Avgerou, 1990).

The clear and consistent strategic focus and long-term vision shared across the organisation is very important to the implementation success (Qureshi, 1998). When informatisation is not treated as initiatives or events, it can be seen as an evolutionary process that grows along with the organisation and thus promotes organisational learning in IT (Willcocks and Mark, 1989). It is also clear that change is not easy and cultural change for the public sector is often greater than that required in the private sector (Hutton, 1996) because the public sector is typically more resistant to change, being highly bureaucratic in terms of an over-commitment to regulation and reinforcement of precedent and rules (Saxena, 1996). Risan (2005), therefore, argues that IT-related institutional change in public administration must be incremental. In other words, it should be a long process characterized by several years of knowledge, effective executive leadership and investments in human resources.

As discussed earlier, the implementation of IS at the local level is viewed as an evolutionary process, involving the interaction between IT and local social contexts in

developing countries. As Fountain (2001) believes, the outcomes of e-government initiatives are unpredictable and variable depending on their rational, political and social features.

Unlike developed countries however, the use of IT in public administration in the developing world must accommodate certain unique conditions, needs and obstacles. Public administration in developing countries possesses significant diversities that make it difficult to generalise across all developing countries (Avgerou, 1990; Odedra-Straub, 1993).

The obstacles of implementing IS in developing countries may include a continuing oral tradition, lack of infrastructure, corruption, weak educational systems and unequal access to technology. Too often, the lack of resources and technology is compounded by a lack of access to expertise and information (World Bank, 2002). Additionally, in developing countries where job security is scarce and government jobs are regarded as secure, serious opposition would arise when the use of technology threatens jobs (Krishna and Walsham, 2005).

Moreover, as corruption is often entrenched in the existing administrative process, the existing system is very difficult to change without high political involvement and commitment (Krishna and Walsham, 2005). The development of information systems represents costs and risks financially and politically, therefore in developing countries where resources are scarce, the failure of e-government projects can waste valuable resources and increase public frustration with government (World Bank, 2002). Therefore, the gap between the existing and planned systems is much higher in developing countries than developed countries and more efforts at reorganisation are needed in organisational systems and processes to achieve IS objectives (Milner, 2002; Krishna and Walsham, 2005). It is difficult to reorganise existing systems and processes and localize processes and practices with the use of technologies in a complementary way (Suchman, 2002).

In the literature, there are quite a few studies of information systems implementation in the public sector in developing countries. Some have identified the critical success factors. For example, Hutton (1996) identified top management commitment, a consistent and clear strategic focus with a long-term vision, good planning and management, effective communications and benchmarking. At the local level, through studying a series of successful implementations in the state of Andhra Pradesh in India, Krishna and Walsham (2005) find that successful implementation at the local level requires effort and detailed attention to the involvement of multiple groups, innovative organisational structures, a people-orientation in project selection, and persistence over time, backed by committed and knowledgeable leadership.

Some writers have developed models to explain the IS implementation process in developing countries, for example, Jain's (1997) diffusion model. Saxena (1996) also develops a model to study public administration re-engineering in developing countries from four perspectives: strategy, organisational structure, IT and organisational culture. Heeks and Bhatnagar's (1999) ITPOSMO model suggests that IS success and failure is determined by the gap between the conceptions held by key stakeholders or implicit within the system design and public sector realities. This model examines this gap in terms of seven key dimensions: information, technology, implementation process, objectives and values of people, available staffing and skills, management and structure as well as other resources (such as time and money). Peled's "political first" theoretical framework (2001) explains why, how and when innovative information technologies projects are implemented successfully in public organisations. Using examples, it shows how individuals who share a technological interest find each other in issue-networks and form a coalition, and how different coalitions compete against each other.

Ciborra (2002) argues that studies of IS implementation at the local government level in developing countries cannot look at the technological features only, or the dynamics of the local public administration in isolation, or development as a separate issue. There is a need to observe the interplay between the various actors involved in the automation

initiative. Furthermore, he argues that e-government may be a means for the rich metropolitan states to govern “at a distance” the potentially dangerous, weak borderland states through complex methodologies and advanced technologies. However, as Tuner and Higgs (2003) point out, there has been a lack of published research into the relationship between national e-government programmes and the management and use of IS in local governments, particularly in developing countries.

Therefore, there is a need to study the interaction between information systems implementation at the local level in developing countries and national administrative reform policies. The next section identifies and discusses our research question in more detail.

## **2.5 Identifying the Gap**

Our research question is how the development of information systems to improve back-office operations at the local government level can achieve administrative reform objectives desired by the central government. This research fills the gap in the literature from the following three perspectives.

First, many existing studies focus on the development of front-office applications such as website development (e.g. Allen et al. 2001, McNeal et al. 2003, Thomas and Streib 2003, Ke and Wei 2004), ignoring the development of important back-office operations. Previous research (Audit Commission, 2002, Beynon-Davies and Williams, 2003) in England and Wales found too much emphasis on the implementation of front-end systems and not enough emphasis on re-engineering local government in terms of processes and systems. The focus on improving access to public services is understandable as these projects are more outwardly visible to the public (Audit Commission, 2002). However, if the back-office has not been improved, the front-end will have problems in maintaining and improving service levels. Therefore, Kampen et

al. (2005) argue that governments should resist the temptation of investing resources in the supposed quick wins of the front office. They point out the need to redirect political efforts from superficial front-office initiatives toward the realisation of efficacy and efficiency improving reconstruction of the back-office operations. Therefore, from a researcher's perspective, there is a need to help to fill the gap of studying back-office operations, contributing to the improvement of efficiency and effectiveness of government operations in the long run, especially in developing countries.

Second, this research recognizes the need to study the impacts of national policies on IS implementation at the local government level, contributing to the national government's policy making and local government IS development. Since the social contexts in developing countries vary a lot from developed countries and the popularity of using IS as a tool to facilitate administrative reform in developing countries by international donor agencies, it is important to study the interaction between administrative reform policies and IS implementation at the local level in the context of developing countries.

Moreover, research in this area can inform central government of the needed strategies for successfully implementing IS at the local level to achieve administrative reform. There are two contrasting ideal-type strategic approaches to develop IS at the local government level. First, the central government can encourage local departmental expenditure and experimentation, allowing constant updating and maximum use of the equipment before it becomes obsolete. The problem with this approach is the lack of an industry standard to make systems in the organisation compatible and facilitate networking once that becomes possible. The second approach is to place more emphasis on evaluating options and reaching a single, considered, and co-ordinated decision on system adoption for the entire organisation from the outset rather than retrospectively (Ramsay et al., 1992). This research is concerned with this second situation.

As Roy (2003) points out, there is a lack of research regarding the specific institutional constraints government agencies face when implementing e-government initiatives and the needed strategies to facilitate a positive and sustainable e-government implementation. Although advocates of incrementalism might offer a nice explanation to avoid errors when making technology-driven decisions (Risan, 2005), it does not prevent government actors from moving incrementally in the wrong direction (Fountain, 2001).

Unlike most existing IS implementation research in local government, this research makes no assumptions regarding the rationality of national policy. It only investigates how stakeholders in local government view the project initiated by central government, which permits different interpretations among stakeholder groups. It also allows reflections on national policies from analysing the implementation experiences in local government.

In the existing literature, national policy is often not considered as an indigenous social factor in IS implementation research. This research questions the assumption that the government behaves rationally and makes policy decisions with a good cause. The limited rationality arguments in the policy process have been well established in studies (Perri, 2001:13). E-governance technologies are not “neutral”, and design responds to social pressures in order to make social organisation embodied and implicit in the technologies (Akrich, 1994). In particular, there are well-established studies on limited rationality in the policy process. Some even argue that e-governance will actually erode rationality generally (Perri, 2001). It points to the pathologies of excessive demand for policy analysis thus delaying action (paralysis by analysis) the bloating of policy advice industries among think-tanks and consultancy firms, the problems of sheer information overload, the allegedly lesser ability of the public sector to manage information than private citizens or businesses, and the obsession with the already measured that distracts policy makers’ attention away from tacit, implicit, qualitative, unstructured factors and toward formal, explicit, quantitatively measured, structured factors and information.



A review of empirical studies has found that the biggest management challenge emerging from the process of systems implementation-related transformation in the public sector lies in the effective management of functional and thereby policy integration (Taylor and Williams 1991, Kraemer and Perry 1979). For example, the case study of an EDI project in the Scottish Health Service demonstrated that the UK government's policy of introducing market forces into the public sector conflicts with implementing a national policy for IT usage in public administration (Spinardi et al., 1997). A similar story was also told by the regeneration of the French public sector (Baquiast and van de Donk, 1989) and an IS development project in the Philippines health service (Jayasuriya, 1999).

Moreover, most IS implementation studies in developing countries have focused on whether the implementation of IS can achieve administrative reform objectives (e.g. Avgerou, 1990, Madon, 1993). However, little has been done regarding how IS implementation at the local government level can inform the central government of future policy making. The only exception is the recent study by Ciborra and Navarra (2005) in Jordan. They argue that implementing a general standardised ICT portfolio to support good governance is a difficult task and the e-government view of the minimal state put forward by international development agencies might not be conducive to rapid development.

Third, with the continuing development of technologies and public administration, the development of IS in public administration is an evolutionary process as discussed earlier, which needs continuous attention from researchers. Moreover, as Avgerou (2002) argues, the techniques of NPM, project management and so on may clash with the local, idiosyncratic knowledge. These knowledge gaps create new uncertainties and risks, which keep disorder alive and thriving and create new knowledge (Ciborra, 2002). Therefore, governments and researchers need a constant process of learning and evaluation, otherwise an improvement over the long term will be impossible to achieve (Cabinet Office, 2000).

## ***Chapter 3     Administrative Reform and IS Implementation in China***

### **3.1 Introduction**

With the aim to study IS implementation at the local government level in the People's Republic of China, the focus of this chapter is on the Chinese administrative reform policies and the development of IS in Chinese public administration.

The next part describes the background of Chinese administrative reform. It starts by discussing economic and political reform in China, which have made administrative reform essential. Then, it discusses the administrative reform policies in detail, focusing on the aspects relevant to our case study. This includes the establishment of the civil service system, fiscal reform, tax reform, the establishment of the social security system and housing reform. This is followed by a summary of the characteristics of Chinese administrative reform policies.

The second focus of this chapter is an overview of the development of IS in Chinese public administration. It discusses the incentives for the Chinese government to use IT in public administration, the stages of IS development within Chinese government and the challenges facing central and local government in using IT.

### **3.2 Administrative Reform in China**

#### **3.2.1 Background of Administrative Reform**

The meaning of “administration” in China refers to the management of government organs and personnel management systems (Wang, 1994); therefore administrative

reform is the reform of the administrative structure. This differs from the term used in administrative sciences, where it means the systematic reform of the way in which government manages society.

Since the introduction of the Open Door Policy in 1978, China has carried out a series of reforms. Economic reforms have made significant progress in the last two decades by changing the economic system from a planned to a market-oriented economy, demanding further reform of the administrative system. These reforms have experienced three main stages to transform the economic structure. The first stage was to change from a Soviet-style planned economy to an economy taking planning as the principle issue and the market as subordinate. The second stage combined planning and market regulations together to create a commodity economy under the guidance of planning. The third stage, as stated at the Fourteenth Chinese Communist Party (CCP) National Congress in October 1992, was to establish a socialist market economy.

Economic reforms have been extremely successful: according to official reports (Zheng, 2005), gross domestic product (GDP) reached 13651.5 billion RMB (about 910 billion pounds) in 2004. GDP has grown at an average rate of 9.4% since 1978. Indeed, economic development is seen as the main objective in the series of reforms in China. At the Thirteenth Plenary Session of the Central Committee of the CCP, this was formulated as the “one core, two fundamental points” policy (that is, taking economic development as the core, and holding fast to the reform policies and opening-up to the outside world on the one hand, and the four basic ideological principles on the other).

The rapid economic development called for reforming the old administrative system. Economic development has resulted in a ‘brain-drain’ (Aufrecht and Li, 1995), since the pay gap between the private and public sector is enormous. It is further exacerbated by China’s low education level, making it difficult to replace high quality workers. In fact, the lack of competent personnel constrained the government from effectively implementing market-oriented economic reform (Dong, 1994).

Moreover, it is increasingly recognised the biggest impact of China's recent entry into the World Trade Organisation (WTO), will be on government rather than on industry (Zhou, 2002). Only 2 of the 23 WTO agreements mention commercial companies and the rest aim to regulate government behaviour. China needs to establish new laws and regulations to comply with the rules of the WTO. Moreover, the entry into the WTO calls for the reform of public administration to increase the transparency of government operations.

Corruption has become a serious problem for the Chinese government, because the intensified corruption among civil servants produces not only economic losses but also a detrimental impact on the government and public confidence in the regime (Mok, 2000). As Aufrecht and Li (1995) argue, the low salaries and low education level make civil servants increasingly vulnerable to corruption from a growing entrepreneurial class. Administrative reform is considered as a way to prevent corruption. The scope of government competencies, the procedures of administrative operations, the quality and merits of administrative personnel, or otherwise of the administrative supervisory mechanisms, appropriately or not, are all matters that may limit or give rise to instances of corruption (Wang, 1994).

Therefore, administrative reform is necessary and important to achieve the goal of economic development.

### **3.2.2 Perspectives of Administrative Reform**

#### **3.2.2.1 General Objectives**

The ultimate objective of administrative reform is to establish a clean, hard-working, effective and efficient government for the public (Guo and Liu, 2003), in accordance with the transformation from a centrally planned economy to a market economy. In

terms of government administration, the objectives of administrative reform can be understood from the following three perspectives.

First, it aims to change the Soviet-style all-round government to a service government, matching the change from a centrally planned economy to a market-oriented economy. Before the reforms, the Chinese government was involved in every aspect of managing social and economic affairs, in compliance with the Chinese traditional administrative models and the planned economy. China had been a feudal society for over 2000 years, from the beginning to the end of the Qin Dynasty. Emperors were the sole commanders for the whole society. Similarly, in the planned economy, the government was in charge of the whole society. However, this type of government was unfit for the development of a market economy as it tended to restrict the functioning of market mechanisms.

Moreover, the development of a service government matches the requirements of the WTO (Liu, 2004). There are three fundamental principles of the WTO. The fair trade principle requires each member state to establish an open, fair and equal domestic market, offering equal treatments to other member states. The free trade principle requires member state governments to have minimal involvement in the market, promoting fair competition and market development. The transparency principle requires the openness of member state governments, where only those government policies announced publicly can be operational. Therefore, these principles require the government to have minimal involvement in economic activities, allowing Chinese companies to compete independently in both domestic and international markets. In other words, the Chinese government had to change its role from a commander to a public service provider.

Second, it aims to change the authority-based operational system to a law-based system. This objective is critical to ensure internal security and meet the needs of social and economic development. However, authority-based decision making has long been a feature of Chinese administrative culture. As a feudal society, for over 2000 years China

was ruled by an emperor. Even after the establishment of the People's Republic of China in 1949, an authority-based rather than a law-based decision making mechanism still dominated the administrative structure (Li, 2004a). The problems of authority-based decision making include the lack of transparency in government operations, the inconsistencies and unpredictability in government policies and the lack of effective supervision in government policy making. In an authority-based decision making system, the decision-maker can make new policies or change existing policies at will. Changes of decision makers often lead to sudden and unexpected changes of government policies.

The establishment of a law-based administrative system also meets the requirements of the WTO. Here the Chinese government needs to make its policy making procedures clear and to unambiguously specify its laws, regulations and government policies, all of which need the backing of a law-based administrative system. Additionally, research has found that from an economics viewpoint, more-developed countries tend to be rule-based and less-developed countries tend to be relation-based (Li, 2005). Moreover, as Li (2005) argues, in the long run, ICT will make rule-based countries more competitive.

Third, it aims to change the personnel management system from an extreme egalitarianism to a performance-based evaluation system. The reform leaders, especially Xiaoping Deng, recognized the importance of reforming the existing personnel management system in the public sector in China. The existing system was developed to meet the needs of the People's Republic of China when it was established over fifty years ago. However, this system no longer suits the current circumstances. The problems of over-staffing, low morale and inefficiency have produced a significant financial burden for the government (Li, 2004b), as well as fuelling the brain-drain and corruption, as to be discussed further in Section 3.2.2.2.

The actual reform policies reflect the three objectives summarised above. In the following sections, we move on to discuss individual reform policies that are relevant to our case study, including the establishment of the civil service system, fiscal reform, tax reform, social welfare reforms (the establishment of the social security system and housing reform).

### **3.2.2.2 Civil Service System**

The reform of the personnel management system is considered to be an important part of administrative reform by the Chinese government, and it is firmly believed that the new civil service system is critical to the performance and efficiency of the government.

The original personnel management system was influenced by the cadre system of the revolutionary war and, after the establishment of the P.R. of China, the Soviet cadre system. The establishment of the new civil service system was first announced at the Thirteenth Plenary Session of the CCP in December 1987 and the commitment was reconfirmed at its Fourteenth Plenary Session in October 1992. In 1998, the Ministry of Personnel was established, based on the State Council's Institutional Reform Planning, as approved by the First Session of the Ninth National People's Congress.

The new civil service system aims to complete the following five tasks (Wang and Lu, 2000): first, it needs to set up a system of recruiting and promoting civil servants through competition, an appointment system combining job-allocation and contracts; second, it aims to build up a complete evaluation system with appropriate punishment and reward mechanisms; third, it needs to improve the quality of civil servants; fourth, it aims to improve accountability and transparency in public administration by making work procedures and regulations public; finally, it needs to contribute to the establishment of e-government.

To accompany personnel management reform, the Chinese government has initiated institutional reform which aims to control the swelling of administrative organisations, especially overstaffing and the overlapping of agencies, through the principles of streamlining, unification, and efficiency (Liu, 1993). The problem of institutional overswelling was rooted in the highly centralised administrative system and the “bureaucracy standard” culture. Through institutional reforms, administrative efficiency has improved (Liu, 1993). The reform implemented in 1988, for example, emphasised transforming the functions of administration. Although the number of institutions was not reduced significantly, government institutions were restructured. At the same time, departments for macro-regulation were strengthened.

Compared with the original personnel management system, the new civil service system aims to make changes from the following three perspectives:

First, it aims to change the old, over-centralised and “one-size-fits-all” personnel management system, giving local governments greater autonomy and control in personnel management. In the old system, central government managed personnel issues in both public organisations and economic enterprises, most of which were state-owned. After the initiation of economic reforms in 1978, the shift of emphasis from political movements and mass mobilisation to economic modernisation based on expertise has caused the shortcomings of the old cadre system to become apparent. Over-centralisation led to a lack of control over personnel management and over-staffing in government organisations (Dong 1994, Li 2001). This also prevented the government from effectively implementing market-oriented reforms (Dong, 1994). Hence, the separation of government organisations from economic enterprises and the categorisation of public servants in the new civil service system aim to give government organisations greater autonomy in personnel management.

Second, the new civil service system has introduced competition in recruiting, promoting, appointing and dismissing government officials, changing the extreme



egalitarianism of the old system. Before the reform, cadres had little freedom in selecting and changing jobs because their jobs were assigned. “Iron bowl” (permanent job security) and “sitting iron chair” (official ranking will never go down) led to the problems of losing creativity and flexibility. As a result, talented people could not fully display their capabilities and receive regular promotion, while incompetent workers could not be removed. Moreover, this resulted in malpractice and corruption such as nepotism and “backdoorism” in employment and promotion (Dong, 1994). The new system allows dismissal, uses fixed-term appointments for high ranking government officials and strengthens personnel quota management.

In the old system, the lack of competition tended to produce lazy, corrupt and unmotivated government officials. In the new civil service system, competition has been introduced for recruitment and promotion of the civil servants, following the principles of “open, equal, compete and select the best qualified” (Li, 2001).

Third, the new civil service system aims to develop a law-based personnel management system to replace the old authority-based management system. The old system facilitated the “bureaucracy standard (*Guan Ben Wei*)” concept, which means that the public services are developed based on the officials’ needs rather than the needs of the public, which brought problems of personnel management and facilitated corruption (Li, 2001). The new civil service system has a general law “National Civil Servants Provisional Regulations” with more than forty individual items. In the future, there will be a Civil Servant Law and other laws and regulations (Li, 2001).

It should be noted that China’s new civil service system is not the same as those in the West. Before 1989, the new system incorporated many features of Western systems, based on the assumption that China could and should learn from the advanced techniques of public administration in the West. The Ministry of Personnel was created to manage civil servants up to the grade of vice-minister. Open competitive examinations that put everyone on an equal footing have been proposed as the guiding

principle in the selection of civil servants, and the new system should be managed by law. However, given the dominant role of the Communist Party, where in reality law is subordinate to Party policy, the Western concept of the separation of politics and administration does not fit China's political structure. In the 1990s, compromises were made in the design of the new civil service system and promoted as innovations with Chinese characteristics.

In August 1993, the Provisional Regulations for State Civil Servants were promulgated. These can be summarised as follows (Wang, 1994). First, the principle of "the Party manages the cadres" must be adhered to in managing state civil servants. Second, there is no distinction between political and professional civil servants. Third, state civil servant only refers to the original cadres employed at administrative organs who carry out administrative work. The working personnel of the Party organisations and other democratic parties, the organisations of the People's Congresses at all levels, the organisations of the People's Political Consultative Conferences, the judicial organs, and other related institutions all have a ranking system similar to the state civil servant system.

In other words, the Chinese civil service is not politically neutral but will obediently follow the Party's leadership (Dong, 1994). For example, career civil servants can become political officials through the Party's nomination and election of the People's Congress, while political officials can become professional civil servants after leaving office. As the Party is the ultimate authority, there is no distinction between political and professional categories of civil servants. As an administrative reform programme, as Dong argues (1994), the civil service system will result in improvements in routine management only. Its implementation at this stage focuses on the introduction of a new salary scheme.

### **3.2.2.3 Welfare Reform**

In the centrally planned economy, the government held the decisive power in almost all socioeconomic activities including housing investment and construction. The enterprise units had to submit all their profits and even depreciation funds to their owner, that is, the central government. Then, it was up to the central government to make the unified plan for resource allocation. In all work units both “capital construction funds” and “employee” welfare funds came from governmental fiscal appropriations. All government employees relied on their organisations (known as *danwei*) to meet all their needs, including salary payment, housing, pension, medical care, children’s education and other social welfare.

Since China started its transition to the market, the government has experienced increasing pressure to transform this *danwei*-based welfare system. Through institutional change imposed by the state, the system is transforming itself into an earnings-related, contributory social security system, shifting the responsibilities of welfare provision from individual work units to government bodies. As the market transition gathered speed from 1979 to 1999, the *danwei*-based welfare system was clearly not working (Gu, 2001). The model of “work units running society” embedded in this system impeded the development of the service sector as the majority of organised social services were taken care of by the work units. Second, the welfare system hindered labour mobility, especially between different work units with different levels of welfare provision. Finally, the system was a heavy financial burden on both the state and work units. The system constrained the formation of an institutional configuration for a market economy, because different enterprises with different levels of welfare burdens could not compete effectively. After a series of reforms over the years, a new tax system, housing system and social security system have come into being.

### **3.2.2.4 Tax Reform**

The fiscal system in China is characterised by the sharing of tax revenues, and the scope of expenditure of different levels of governments are determined by their respective responsibilities. Local governments are mainly responsible for expenses for the

operation of government agencies under their jurisdiction, as well as expenditure for economic and social development within their region.

Accordingly, taxes are divided into central government taxes, local government taxes and taxes shared between central and local government. Central taxes are those needed for protecting national interests and undertaking macro-economic regulation. Shared taxes are those directly related to economic development. Local taxes are those that are suitable for collection for local governments.

State and local tax agencies are established separately. State taxes and shared taxes are collected by the state tax agencies. Local taxes are collected by the local tax agencies. In addition, the central government returns part of the tax revenues to local government based on the growth of local government value added tax (VAT) and consumption tax. The central government also provides assistance in the form of fiscal transfers to the least developed regions.

At the same time, budgets are managed separately by the five different levels of government. The national budget includes the central government budget and local government budgets. As stipulated by the “Budget Law of the People’s Republic of China”, draft central and local budgets and draft final accounts must be reviewed and approved by the National People’s Congress and local congresses. The central and local budget adjustment plans and final accounts must be reviewed and approved by the standing committees of the National People’s Congress and local congresses. The Ministry of Finance and local government finance bureaux prepare central budget and local budgets as well as final accounts respectively. They are also responsible for the implementation and preparation of budget adjustment plans.

### **3.2.2.5 Social Security System**

The Chinese government has carried out a sequence of reforms with the goal of establishing a standardised social security system independent of enterprises and institutions, funded from various channels, and with socialised management and services. Corresponding with the socialist market economy, this new social security system aims

to promote economic development and social stability by raising the living standards and social security benefits of the general public.

The basic structure of a social security system has been established, consisting mainly of social insurance, social relief, social welfare, social mutual help and special care for disabled ex-servicemen and family members of revolutionary martyrs. Consistent with the World Bank's proposal, China has established and improved a practical social security system bolstered by three pillars: public funding, individual compulsory saving and individual voluntary saving. The system is characterised by basic security, wide coverage, multiple levels and steady unification, with the improvement of people's basic living standards corresponding to China's economic development. It aims to set up a nationally unified security system through step-by-step reform and development.

Since the mid-1990s, the government has undertaken reforms to the social security management system in order to bring all social security systems under unified planning and to improve the management and supervision of social security funds. Social insurance, which was previously managed by various administrative departments, is now centralised within the Labour and Social Security Administration Department, which has established offices at all levels of government for everyday social insurance issues. It has established supervisory mechanisms for the collection of social security funds and for raising the ratio of such funds in the overall budget. In 2001, 98.2 billion yuan was allocated for social security payments, more than five times the figure for 1998.

Since 1998, the government has adopted a "two guarantees" policy in relation to social insurance. The first is a guarantee of a basic livelihood of laid-off personnel from state-owned enterprises and the second guarantees a basic livelihood for all retirees; this pension to be paid in full and on time.

#### **3.2.2.6 Housing Reform**

The central government unveiled a new housing reform policy in mid-1998, comprising four major components: (1) stopping the welfare public housing allocation system by the end of 1998; (2) establishing a supply system of affordable housing for low-income

families; (3) simplifying regulations concerning mortgages; and (4) developing a market for second-hand housing exchanges.

With the introduction of the new housing system, work units will no longer build, purchase or allot residential houses to their employees. Instead, they will turn a proportion of their original funds for housing construction and purchase into various forms of housing allowances, which are to be paid directly to employees either on a monthly basis or in a lump sum. Employees will then resolve their own housing problems through either purchase or rental of housing from the market (Gu, 2001).

In a housing market, on the demand side, consumers choose buying or renting, depending on their income, preference, and other factors. On the supply side, the real estate companies provide housing and services at a commercial price or rent, instead of at the low rent or 'preferential price' for housing from work units. Because of different administrative institutions set up in different cities or provinces, the housing management companies and housing development companies may be two entities. The former manages and maintains existing housing stocks while the latter builds new housing and sells (or transfers) it to the management companies and they all pay taxes to the government. The land management company represents the municipal government in leasing urban land and passes the revenue from real estate companies and private owners to the government.

Establishing a new housing management system needs wage system reform and other relevant adjustments in the national economy. Otherwise, it is impossible to set the price for housing at a proper level to cover costs. Establishing a market-oriented housing management system is an urgent task in order to solve the inequality of housing distribution among work units, to relieve the burden on work units and improve their efficiency, and to create a good market environment through correcting irrational housing prices and low rents (Yuan, 1998).

### **3.2.3 Summary: Administrative Reform in China**

The objectives of administrative reform in China include the following three perspectives: the change from the Soviet-style all-around government to a service government, the change from extreme egalitarianism in personnel management to a performance-based system, and the development of a law-based administrative system.

These objectives are reflected in the series of administrative reform policies, as discussed above. However, administrative reform in China also has special features. With 13 billion inhabitants, the size of the population plays a decisive role in determining the quality and difficulty of public administration (Liu, 1993). Therefore, there is a need to understand the specifically Chinese characteristics of administrative reform.

China is deeply influenced by its past, from ancient times to the modern revolutionary period (Liu, 1993). He (1993) argues that China currently lies amid several administrative cultures. Since the founding of the People's Republic, it has accepted the Soviet type of management system. After adopting the "Open-Door" policy in 1978, new theories and practices from many countries, especially from the West, have been incorporated into its public administration. However, they are often hindered by the ideologies and habits rooted in traditional Chinese culture.

Therefore, in Chinese administrative reform, the government has adopted the strategy of a combination of individual experiments with general implementation and step by step progress (Duan, 1994). At first, a few central and local departments were selected as experimental sites to gain experience. Other departments could explore according to their own conditions in order to lay a basis for comprehensive implementation. The government is then able to link individual projects with overall implementation and make the individual take the lead. In this way, the new systems can be implemented relatively quickly; at the same time, the stability and continuity of government administration are ensured.

Moreover, the Chinese government has followed the strategy of fostering the national conditions while drawing on the extensive experience of other countries. For instance, in the new civil service system, as discussed before, the government sticks to the administrative principles of openness, equality, competition and rule by law while avoiding the concept of political neutrality.

### **3.3 IS Development in Chinese Public Administration**

The promotion of IT in Chinese public administration has experienced three important stages. The government's first efforts go back to the 863 Plan introduced in 1986, a technology development scheme that included promotion of IT production and use. This was the initial preparation stage of using IT in Chinese government.

In the West, a belief is gaining widespread acceptance that the strategy for survival lies in promoting science and technology and bringing the market mechanism into fullest possible play (by way of privatisation and deregulation). During the 1980s much the same view held sway in China where it was said that the country would have no chance of surviving unless it accelerated the development of microelectronic technology and allowed the market mechanism fuller play (through economic reform).

China was particularly afraid that, should it fail to catch the wave of high technology, it would either be condemned to a state of deeper dependence on the advanced industrialised countries or be forced back into a policy of self-reliance and the severance of ties with the world economic community (Maruyama, 1990). Again, in the late 1990s and earlier this century, the development of IT use in public administration has been emphasised. The development of e-government is regarded as an important national strategy by the government, driven by social, economic and political reasons.



Economic development is a crucial driving force. The government believes that, in the digital era, China needs to develop e-government quickly to maintain its attraction to foreign investors. E-government development is regarded as both a response and a facilitator for the development of e-commerce. Moreover, it is hoped that e-government development can boost the development of the national economy, particularly the information industry (Liu, 2002).

China's entry into the WTO makes the development of e-government necessary (Yang, 2002). It has been increasingly accepted by the government that the biggest impacts of the WTO will be on the government rather than on industry. This calls for the reform of public administration to increase the transparency of government operations, and the development of e-government is considered to be the appropriate way to serve this end. Using advanced technologies, the government can be protected from corruption and establish a law-based administrative system to improve the delivery of public services.

Last, but not least, e-government is believed to be a good form of public administration with the possibility of performing government functions via Internet. The move to e-governance is officially justified by the theory of "three representatives" (see Li, 2002a), put forward by Jiang Zemin, the former General Secretary of the Chinese Communist Party. According to Jiang, the Party's policies and government policies should represent the most progressive culture in China, the most progressive productivity, as well as the interests of the vast majority of the people.

During this second stage, the National Economy and Informatisation Committee was established on 10 December, 1993. Then, the government began the Golden Card, Golden Bridge and Golden Custom projects. In March 1998, the Ministry of Information Industry was formally established to supervise telecommunication regulations and promote e-commerce.

One of the milestones of this second stage is that IT moved further to the frontline in the tenth Five-Year Plan, 2001-2005. The plan states that, "Information technology should be used extensively in all circles of society and the use of computers and the Internet should be widespread." In addition, the plan calls for the development of e-commerce and the use of IT in commercial sectors such as banking and finance, and in government departments such as taxation and trade.

The central government has invested more than 100 million RMB in the development of electronic governance in central government. In the first half of 2002, the government spent 10.73 billion RMB on purchasing hardware, 2.11 billion RMB on software and 2.65 billion RMB on information services investment. It is predicted that, if the country proceeds with this development, in the next five years, the electronic governance market will reach 200 billion RMB, of which the software market will be above 20 billion RMB (Li and Xiang, 2002).

The aim of e-government development in China is to develop a "one stop, two nets, four databases and twelve gold" system. One stop refers to government websites providing a "one-stop" service to the public, while two nets mean government intranet and internet. The four databases comprise population, business organisations, natural resource-based GIS (geographical information systems) and macroeconomics. Twelve gold means the twelve golden projects: the Golden Office Operation System and Golden Macroeconomic Management System aim to improve supervision, efficiency and the delivery of public services; Golden Tax, Golden Custom, Golden Finance, Golden Financial Supervision and Golden Audit projects aim to ensure the proper management of government revenue and spending; and finally, Golden Shield, Golden Social Insurance, Golden Agriculture, Golden Water and Golden Quality projects aim to ensure proper resource management and allocation.

The government aims to use IT to develop an open, efficient, hardworking and honest government. Six principles have been set out by the Chinese government to guide IT

development in the public sector: IT development should be guided by practical needs; the design of the system should meet the needs of the public; good IS planning is essential; the IT system should enable proper information sharing and integration among government organisations; the IT systems should be secure and reliable; finally, the use of IT should be able to improve efficiency.

Like other countries, China has faced several challenges in the use of IT in public administration. For example, it needs new laws and regulations to deal with the issues like information security and privacy. Among others, the following three problems of IT implementation are facing the Chinese government today.

The first is the lack of information sharing and integration across government organisations (Hu 2003, Qu 2002). In China, there is a problem of “strong vertical links and weak horizontal links”. For example, information integration and sharing is good between the Finance bureaux at city, provincial and ministerial levels but very weak among different bureaux at the same level, for example, within the same city. Furthermore, IT readiness in different government organisations may vary a lot. Some have used IT for more than ten years, while others have never used computers. In addition, information is historically viewed as a symbol of power in the hands of individuals or departments. Hence islands of information formed, within and between organisations. In addition, integration and information sharing implies setting common standards, independently of particular departments, which then need to change their traditional information processes.

The second problem is the digital divide, which is also closely related to the shortage of resources. In 2003, 90% of all Chinese websites were in Eastern China, with just four provinces (Beijing, Guangdong, Zhejiang and Shanghai) accounting for 56.8% Owing to uneven economic development, there is a considerable digital divide obvious between Eastern China and Western China.

Finally, there is a need to change the perceptions of government officials regarding the use of IT in public administration. In 2003, the investment in e-government was 33.21 billion RMB. While the total spent on buying hardware was 22.26 billion RMB, the spending on buying software and other information provision services was only 5.42 billion RMB and 5.53 billion RMB respectively. The use of IT in public administration should not just be about buying hardware, rather it should be about how to use IT to improve public administration. As the former Prime Minister Zhu emphasised, the Chinese government's transformation from traditional governance to electronic governance is a very complicated project. E-government does not simply move public administration to the web, it is a challenge involving the transformation, re-organisation and optimising of government functioning.

### **3.4 Summary**

This chapter focuses on two issues. Firstly, it discusses Chinese administrative reform, its social background, objectives, policies and the Chinese characteristics of reform policies. It shows that administrative reform in China aims to achieve three objectives: the change from a Soviet-style all-around government to a service government, from a relation-based administrative system to a law-based administrative system, and from an extreme egalitarianism personnel management system to a performance-based system.

The second focus of this chapter is on the use of IS in Chinese government, including the stages of IT usage and their incentives, the objectives and principles of IT development and the problems facing the government today.

## ***Chapter 4 Conceptual Framework: Structuration Theory***

This chapter focuses on structuration theory. It is consisted of three parts. The first part outlines the key concepts of structuration theory. The second part discusses the different ways that structuration theory has been used in the IS implementation literature. The third part critically analyses structuration theory. It justifies why structuration theory, rather than actor network theory, is chosen for this research and how structuration theory is used to analyse the empirical data. The final part summarises the chapter.

### **4.1 A Summary of Structuration Theory**

Structuration theory is a general theory of social systems. According to Jones (1998), its origins can be traced back to Berger and Luckman's (1967) concept of the mutual constitution of society and individuals. Urry (1982) has identified several strands of structural analysis including Bourdieu (1977), Bhaskar (1979) and Giddens. Among these, it is only Giddens that has received significant attention in IS research (Jones, 1998).

Structuration theory represents a reaction to the perceived deficiencies of the two major schools of sociological thought and establishes an ontology of human society. On the one hand, Giddens is critical of "naturalist" approaches (such as functionalism, structuralism and post structuralism) for underplaying the importance of human agency and imputing purposes, reasons and needs to society rather than to individuals. These approaches are "strong on structure, but weak on action" (Giddens, 1993). On the other hand, Giddens criticises interpretative sociology, such as Schutz's phenomenology (1962, 1970, 1972), Garfinkel's ethnomethodology (1967, 1972) and Winch's post-Wittgensteinian philosophy (1958, 1964), for being "strong on action, but weak on structure" (Giddens, 1993).

Structuration theory assumes that social reality is constituted by both subjective human actors and by institutional properties. The duality of structure, as suggested by Giddens (1984), refers to the notion that the structure or institutional properties of social systems is created by human action, and then serves to shape further human action. In other words, structure and agency are considered not as being independent and conflicting entities, but as a continuously interacting duality.

Structure is fundamental to structuration theory (Giddens, 1984:185). Giddens (1984: 17) defines structure as follows:

*“Structure thus refers, in social analysis, to the structuring properties allowing the ‘binding’ of time-space in social systems, the properties which make it possible for discernibly similar social practices to exist across varying spans of time and space and which lend them ‘systemic’ form. To say that structure is a ‘virtue order’ of transformative relations means that social systems, as time-space presence, only in its instantiations in such practices and as memory traces orienting the conduct of knowledgeable human agents.”*

As shown in Figure 4.1, Giddens identifies three dimensions of structure, namely, significance, domination and legitimation, derived from the earlier work of Durkheim, Marx and Weber on coding, resource authorisation and allocation, and normative regulation. Giddens points out that the splitting of the duality of structure into these three dimensions is simply an analytical device; in practice, they are inextricably interlinked. Similarly, human interaction is broken down into communication, power, and sanction, interlinked by three modalities: interpretative schemes, facilities and norms.

Modalities are the locus of interaction between the knowledgeable capabilities of actors and the structural features of social systems. Modalities of structuration serve to clarify

the main dimensions of the duality of structure in interaction, relating the knowledgeable capacities of agents to structural features. Actors draw on the modalities of structuration in the reproduction of systems of interaction, by the same token reconstituting their structural properties.

Interpretive schemes are standardised, shared stocks of knowledge that humans draw on to interpret behaviour and events in order to achieve meaningful interaction. Resources are the means through which intentions are realised, goals are accomplished, and power is exercised. Norms are the rules governing sanctioned and appropriate conduct, and they define the legitimacy of interaction with a setting's moral order.

The main principle of structuration theory is the duality of structure and action. Actions are enabled and constrained by the structures. Structures do not exist independent of human agency, but as instantiations in human action and as memory traces in the minds. They are reproduced, modified and created in action. This leads to a view of human beings as being in a constant state of reflexive monitoring of their situation.

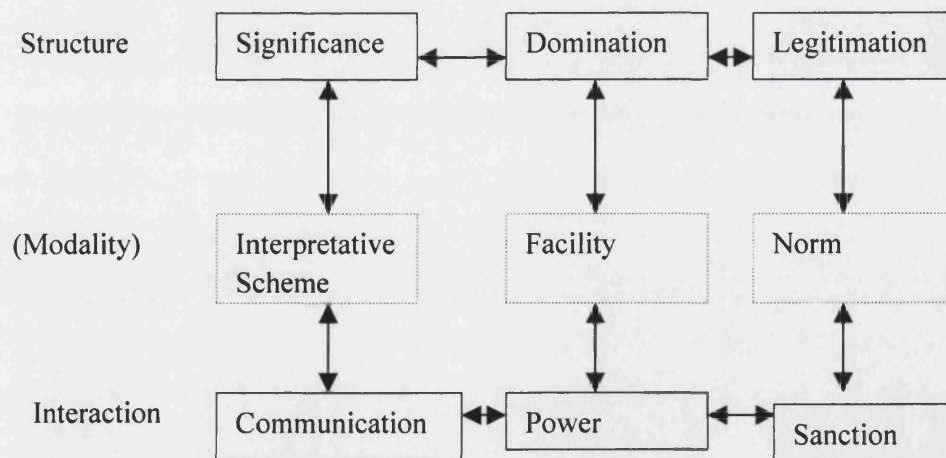


Figure 4.1 The dimensions of the duality of structure (Giddens, 1984:29)

Regarding norms, Giddens (1984) distinguishes two types of rules: “the rules of social life (which are) techniques or generalisable procedures applied in

enactment/reproduction of social practices” and “formulated rules... (which are) codified interpretations of rules rather than rules as such” (1984:21).

Regarding facilities, Giddens also distinguishes two types of resources, allocative resources involving “transformative capacity generating command over objects, goods or material phenomena”, and authoritative resources referring to “transformative capacity generating commands over people or actors” (1984:33).

Regarding interpretive schemes, as Giddens argues, we may not be aware of the continuous change, because of the existence of practical consciousness and discursive consciousness. The former refers to our ability to act in a knowledgeable way and the latter to our inability to completely explain our actions. In other words, we know more than we can say.

Giddens uses the term “discursive penetration” to describe the awareness of human actors of their engagement in social reproduction and production. This leads, as Giddens argues, to a “double hermeneutic” whereby the concepts that sociological observers describe are already constituted as meaningful by social actors and can themselves become elements of the actors’ understanding of their own condition.

“The production or constitution of society is a skilled accomplishment of its members, but one that does not take place under conditions that are either wholly intended or wholly comprehended by them. (Giddens, 1993:108)” This is a reformulation, as Giddens acknowledges, of Marx’s famous dictum that men make history, but not in the circumstances of their own choosing. In other words, humans cannot determine exactly the way in which structure is produced and reproduced. Therefore, Giddens draws attention to the unacknowledged conditions and unintended consequences of intentional action. Furthermore, this implies that universal laws in the social sciences are “markedly implausible” (Giddens, 1984) if not impossible.



The idea of structure being continuously produced and reproduced through action leads to another significant aspect of structuration, that of routinisation. Individuals acquire ontological security through their engagement in predictable routines and encounters. Because these encounters are also constitutive of social institutions they enable the continuity of social life, the classical sociological “problem of order”.

Social actions are situated temporally and contextually, and they always involve interaction between humans. Social structure conditions these social practices by providing the contextual rules and structures that allow human actors to make sense of their own acts and those of other people. The structural properties established by prior human action come to define and shape individuals’ interaction, which in turn recreates the structural aspects.

## **4.2 Structuration Theory and Information Systems Research**

Structuration theory is a general social theory, and Giddens has never directly discussed IS issues in his writings. As information systems are seen as social systems being influenced and influencing the social and organisational contexts in which they exist, structuration theory is believed to offer potentially significant insights for IS research. In the next section, we elaborate on this point to justify why we are using structuration theory in this research.

“As I have already stressed, we should beware of all types of determinism when applied to human affairs. No technology can be adequately studied in isolation from the social frameworks within which it is implicated.” (Giddens, 1984:75) He argues that the social and economic changes linked to new technologies have to be understood in a world context.

Three main ways of applying structuration theory to IS research can be identified in the literature. The most ambitious approach is the attempt to reconstruct the theory to accommodate technology, notably adaptive structuration theory and the structurational model of technology. Less ambitious, but similarly comprehensive in their approach to structuration theory, have been some of the attempts to “apply” the theory to the analysis of information systems cases. The third type is to use it as a meta-theory. Barley’s model of the introduction of technology, Orlikowski’s structurational model of technology, and adaptive structuration theory are discussed in sections 4.2.1, 4.2.2 and 4.2.3 respectively. The other two types of using structuration theory, using its key concepts and using as a meta-theory, will be discussed in 4.2.4.

#### **4.2.1 The Introduction of Technology**

Barley (1986) is generally recognised as one of the first to address information technology issues from a structurational perspective. This paper saw the introduction of CT scanners into the radiology departments of two hospitals as an “occasion for structure”, describing how the same equipment led to quite different social organisations.

Structuration theory was used as an analytical device for the exploration of how the actions of the technicians and radiologists and the institutionalised traditions or forms within the organisations influenced each other over time or “how the institutional realm and the realm of action configure each other (Barley, 1986:80)”. The article traces the relationship between action and structure over time and how the new technology, when introduced, disturbed the process of routinisation at the level of action which led to changed structure.

Walsham (1993) is critical of its lack of explicit mention of some key aspects of the theory such as the three analytical dimensions. Also, Barley (1986:83) uses the concept of “scripts” from Schank and Abelson (1977), which are outlines of recurrent patterns of

interaction that define the essence of actors' roles in observable and behavioural terms. Scripts are viewed as behavioural grammars that shape instances of action and interaction, and formal organisation is viewed as the grammar of a set of scripts (Barley, 1986: 84). Walsham (1993) has criticised this use of the script concept rather than the modalities in structuration theory as the links between action and structure. In fact, Giddens (1991a) argues that broader contexts such as the positioning of individuals with respect to home, workplace, city, nation-state and world systems increasingly relate to the incidental details of daily life. Therefore, analysis of the linkages between action and structure in a focal system should not be restricted to the boundaries of that system.

#### 4.2.2 Structural Model of Technology

The structurational model of technology (Orlikowski 1992, Orlikowski and Robey 1991) draws on structuration theory to understand the relationship between organisations and information technology. The duality of IT is expressed in its constituted and constitutive role. IT is seen as the social product of subjective human action within specific structural and cultural contexts, and also as an objective set of rules and resources involved in mediating (facilitating and/or constraining) human action and hence contributing to the creation, recreation and transformation of these contexts.

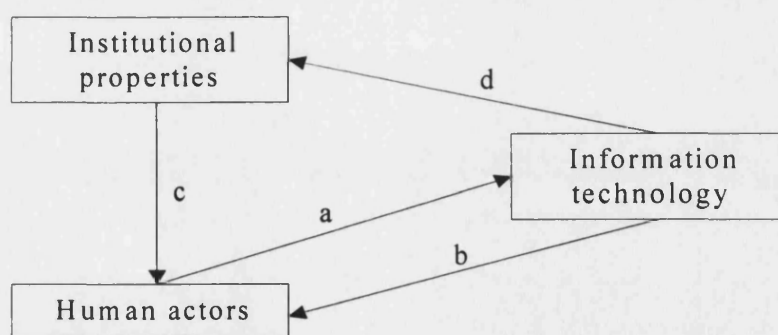


Figure 4.2 Structural model of information technology (Orlikowski, 1992:410)

The model is expressed in Figure 4.2. Arrow a illustrates IT as a product of human action such as design and development, appropriation and modification. Arrow b

illustrates that, as a medium of human action, IT facilitates and constrains human action through the provision of interpretive schemes, facilities and norms. Arrow c shows the conditions of interaction with IT, that is, institutional properties influencing humans in their interaction with IT. Arrow d shows that interaction with IT influences an organisation's institutional properties, through reinforcing or transforming the systems of signification, domination and legitimation.

Therefore, in terms of interpretive schemes, by providing a means of representing reality through its set of concepts and symbols, IT as a medium for the construction of social reality provides a set of interpretive schemes through which users come to structure and understand their world. In terms of resources, IT reinforces systems of domination by institutionalising the premises for making decisions in organisations. In terms of norms, with conflicting goals and ideologies existing in an organisation, IT can be seen to convey a set of norms that indicate the accepted actions, interests and practices in the workplace.

There have been several IS studies based on this model. For instance, Brooks (1997) adopts this theoretical framework to analyse a case study of computer-aided design. Rose and Hackney (2003) use the concepts from this model along with Giddens's conceptualisation of social change to describe how information systems are embedded in a Regional Train Operating Company.

The critics of this model focus on the way that it treats technology as a structural property without emphasising the difference between such physical structures and Giddens's social structures as the memory traces in people's minds (e.g. Garnsey, 1992).

### 4.2.3 Adaptive Structuration Theory

Adaptive structuration theory (AST) is proposed as an approach for studying the role of advanced information technology in organisational change. It examines the change process from two vantage points, including the types of structure provided by advanced technologies, and the structures emerging in human action as people interact with these technologies (DeSanctis and Poole, 1994). Groups or organisations are viewed as systems, and systems are produced by human actions creating structures.

The structuration process refers to the ongoing cycle where systems and structures, existing in a dual relationship with each other, tend to produce and reproduce each other. This structuration process can be very stable but can change substantially over time. It is argued that through the use of AST, it is possible to develop propositions of the form: “Given advanced information technology and other sources of social structure  $n_1$  and  $n_k$  and ideal appropriation processes, and decision processes that fit the tasks at hand, then desired outcomes of advanced information technology will result. (DeSanctis and Poole, 1994:131)”

AST has been applied in some empirical studies. Olesen and Myers (1999) used some of its concepts in an action research project to implement Lotus Notes, a groupware product to facilitate communication and collaboration amongst the senior management team. Gopal et al. (1992-93) have used adaptive structuration theory to study the attitudes of group members towards a group support system. Nyerges et al. (2002) develop data-gathering strategies for geographical information systems based on AST.

As Jones (1998) argues, AST bears very little resemblance to Giddens’s ideas. Its view of “structure within technology”, its identification of other independent “sources of structure”, and its concepts of a dialectic of control between “the group and the technology” are all contrary to Giddens’s principles. Furthermore, it is argued that the

use of AST as a framework for the positivist experimental studies of GDSS (e.g. Gopal et al., 1992-93) is also an example of AST's misreading of structuration.

#### **4.2.4 Other IS Research Using Structuration Theory**

Besides the above three most cited papers on the use of structuration theory in information systems, there are other attempts to use structuration theory to analyse case studies.

Some IS studies have applied concepts extracted from structuration theory to specific research areas. For example, Barrett and Scott (2004) used three intersecting planes of temporality implicit in structuration theory (including reversibility, irreversibility and institutionalisation) to develop a temporal perspective to examine the emergence of electronic trading and the process of globalisation across the London and Chicago futures exchanges. Karsten (2003) use the four interrelated aspects of interdependence construction drawn from structuration theory to study the dynamics of the intertwined processes of interdependence construction and collaborative technology appreciation and use in long-term projects. Studying the health information system in Mongolia, Braa and Nermunkh (2000) revealed that the health information system is not only a reflection of the health system, but also is instrumental in "structuring" the health system by reproducing daily the social structure of the previous centralist planned economy. This study demonstrated the potential of IS development tools based on structuration theory.

Most relevant to our research is Montealegre's research (1997) using structuration theory to analyse IT implementation in Azucar. He highlights how the interaction between the technology and the wider social settings have often been neglected and suggests that Giddens's concept of plural structural rules and resources can provide a foundation for analysing this interaction.

Structuration theory has also been used as a meta theory. For example, Walsham and Sahay (1999) use structuration theory with actor-network theory to study the implementation problems of a geographical information system in an Indian government department, with structuration theory as a meta-theory and actor-network theory as a detailed methodological and analytical device. Drawing on some aspects of structuration theory regarding the relationship between human action and social structure combined with complementary aspects of soft system methodology, Barrett, et al. (1996) used action research to study how Indian expatriate IS personnel led a software development project along with their counterparts in Jamaica with particular implications for cross-cultural research. They argue that although soft system methodology (SSM) has been extensively used in IS research for action research problem solving and is valued for its ability to deal with soft problem messes and its social alertness, it offers no developed theory of IS development. Structuration theory is a well-developed theory of the social world, which however, does not explicitly theorise IT or lend itself to action research in an obvious way. Therefore, a combination of SSM and structuration theory in an action research approach to system development will focus not only on the social, political and cultural issues and the social construction of organisational problems and IS solutions.

Similarly, in Rose and Lewis's (2001) action research project, structuration analysis was woven into the action research framework. It argues that structuration theory used in this way can enable social insight and reflections, which would not have been the primary focus of an analyst using a conventional systems development methodology. Kouroubali (2002) uses structuration theory and Heeks's theory of conception-reality gaps to illustrate a case study of implementing health information systems in primary care clinics in Greece. In this case, structuration theory is used to address the way in which the introduction of technology affects human actions and organisational structures. Structuration theory is considered as a theory with a rather static view of structures (Barley and Tolbert, 1997) and does not account for the diversity of professional groups within the boundaries of health care, Heeks's theory of conception-reality gaps is used

to account for the sudden change upon the introduction of an external structuring force such as health care information systems.

However, there are difficulties with using structuration theory with other theories. Structuration theory views the technology as “traces in the mind”, which is one of the features making it difficult to use with other theories. In actor network theory, technology is viewed as an actant, while an actant can be a human or nonhuman. In Heeks’s theory, technology is viewed as a factor, existing independent of people. In SSM, as Rose (2000) argues, the social and technical factors are not given equal treatment as the technical factors are seen as trivial.

Therefore, owing to the problems of the three reconstructed structuration theories discussed above and the problems of using structuration theory with other theories, this research will use some key concepts of structuration theory.

### **4.3 Structuration Theory in This Research**

This section consists of three parts. The first part discusses why structuration theory rather than actor network theory is more suitable for this research. The second part focuses on discussing the key concerns of using structuration theory in IS research, namely the physical existence of technology and the usefulness of structuration theory in empirical studies.

#### **4.3.1 Why Use Structuration Theory Rather Than Actor Network Theory?**

Actor network theory (ANT) is not as suitable as structuration theory for this research. The main reason is that this research aims to study how IS implementation at the local government level is influenced by administrative reform policies at the national level,



and arguably ANT has limitations in studying social structures between levels of analysis. ANT focuses on actors and their actions as they performed in a particular time and place and has been criticised for ignoring the broader social structures (Reed, 1995, Habers, 1995, Walsham, 1997, Klecun 2004).

However, Latour (1991) argues that it is possible to use the actor-network methodology to move between levels of analysis. As the macro-structure of society is made of the same stuff as the micro-structure, macro-structure can be investigated with the same methodological tools as micro-structures. Despite Latour's argument, we still have doubts on the feasibility of incorporating broader social structures in an analysis of local phenomena. For example, in our research, there are numerous rules and regulations governing individual government organisations at all levels of governments from the central government to the city government. If as Law (1991) argues in defence of ANT, social structures exist in a network of heterogeneous material arrangements, then all the relevant rules and regulations in the history affecting each stakeholder should be considered. However, not all government officials read and memorise all historic documents. Hence, in this case, we tend to agree with Giddens's (1984) view that social structures reside in the actions of people and as "memory traces".

Therefore, while ANT may be very useful in the exploration of why technologies succeed or fail, as the direct result of changes in their network integrity, it has its limitations for this research that studies the changes of social structures between levels of analysis. Structuration theory is more suitable than ANT for analysing social changes between different levels. This research is concerned with the implementation of national e-government policies at the local government level. Often, the study of national policy making and implementation is viewed as macro-sociology and the study of social life in local government as micro-sociology. In other words, micro-sociology is concerned with the activities of individual agents, an area which symbolic interactionism or ethnomethodology aim to elucidate. Macro-sociology is seen as analysing the structural

constraints that set limits to activities at the individual level. This separation of macro- and micro-sociology has posed a problem in studies of implementing national e-government policy in local authorities.

Giddens argues against the idea of separating macro- and micro-sociology for two reasons (Giddens, 1984:139). First, the significance of the issues: macro- or micro-sociology has no priority over the other. Second, from the theoretical perspective, this division represents the conflict between functional/determinist and interpretive/voluntarist models of social action, both of which structuration theory is against. Giddens (1993:7) argues “What is important is to consider the ties, as well as the disjunctions, between situations of co-presence and ‘mediated connections’ between individuals and collectivities of various types.” Giddens (1984: xxvi) suggests that the opposition between “micro” and “macro” should be viewed as a problem of the connection of social with system integration. Social integration refers to “systemness on the level of face-to-face interaction”, while system integration is defined as “connections with those who are physically absent in time and space” (Giddens, 1984: 28).

Structuration theory was not set up in opposition to functional/determinist and interpretative/voluntarist models of social action, but rather it is considered as a means to break out of this unsatisfactory dualism of action and structure and between individual and society. However, it should be noted that there are several alternatives that go beyond dualistic ways of thinking that avoid the historical division between determinist and voluntarist views and help to bridge micro and macro levels of analysis. According to Pozzebon and Pinsonneault (2005), other well-known alternatives are Bourdieu’s (1977) interplay between objectivism and subjectivism, Bernstein’s (1983) move beyond objectivism and relativism, Bhaskar’s (1989) account of positivism and postmodernism and Fay’s (1996) discussion of science versus hermeneutics. It is beyond the scope of this research to discuss these alternative ways of thinking in detail. Nevertheless, as Pozzebon (2004) argues, most of these different views are not

“competitors” but “alternatives” and the choice between them is usually a matter of “ontological affinity”.

Structuration theory is valuable for this research because it provides a way to understand how a national policy of developing information systems has an impact on achieving the objectives of administrative reform at the local government level. The process of IT implementation in local government to achieve administrative objectives is viewed as a duality of structure and action. System implementation at the local government level is seen as a social action which is situated temporally and contextually and which always involves interaction between human agents in local government departments. Actions of stakeholders are enabled and constrained by structures. As structures are reproduced, modified and created in actions taken by stakeholders, the implementation of IT is changing the social structure in local governments.

To be more specific, national government’s administrative reform policies, the policy of developing IS in local government and the social contexts of local government are all seen as structures, which are subject to the interpretations of stakeholders at the local government level. Therefore, different stakeholders may not have the same interpretation of the same policy.

At the same time, the implementation of e-government policy is also determined by the social structures existing in local government and between the local and national governments. The social structure in local government also conditions the implementation process by providing the contextual rules and structures that allow stakeholders to make sense of their acts and those of other stakeholders. Local governments do not have the same social structure, because they have different histories and their structural properties are established by prior human action.

It should be noted that stakeholders cannot determine exactly the way in which the social structure is produced and reproduced. In other words, though e-government

implementation is a process in which the social structure in local government is produced and reproduced by the interactions of stakeholders, stakeholders cannot determine exactly how the system is developed. “The production or constitution of society is a skilled accomplishment of its members, but one that does not take place under conditions that are either wholly intended or wholly comprehended by them (Giddens, 1993:108). This is a reformulation, as Giddens acknowledges, of Marx’s famous dictum that men make history, but not in the circumstances of their own choosing. Therefore, Giddens draws attention to the unacknowledged conditions and unintended consequences of intentional action. Furthermore, this implies that universal laws in the social sciences are “markedly implausible” (Giddens, 1984) if not impossible.

#### **4.3.2 Criticism of Structuration Theory**

In this section, we discuss two issues particularly relevant to the use of structuration theory in IS research.

First, in structuration theory, Giddens argues that structures do not exist independently of human agency, but as instantiations in human actions and as memory traces in the mind. Critics question the view that social order is produced and reproduced entirely through individual action. Barbalet (1987) criticises the assumption that material existents cannot be social structural resources in power relations. Similarly, Storper (1985) argues that “the duree of the material, although not imposing absolute constraints on system change, does mean that at any moment not everything is possible”. Moreover, as Herr (1983) argues, social rules may dominate social reproduction with the absence of individual agency in well-ordered institutions, such as monasteries. Others also argue that all aspects of structure may be a “differentiated (and thus limited) topography for the exercise of agency rather than an endlessly recursive plain” (Storper, 1985: 419), or that some structural constraints may be “relatively independent” (Layder, 1987).

This argument draws attention to the distinctive character of structuration and the need for structurational analysis of information systems to be sensitive to its particular perspective, that is, physical existence (Jones, 1998). The question is how the structural constraints of information technology can be taken into account when using structuration theory. Walsham (1993) suggests, in accordance with the principle of structuration theory, that the modalities of interpretive schemes, facilities and norms provide a means to link action and structure, information systems can be viewed as embodying interpretive schemes to provide co-ordination facilities and encapsulate norms. They are deeply implicated in the modalities that link social action and structure, and are drawn on interaction, thus reinforcing or changing social structures of signification, domination and legitimation.

In this research, we view the physical existence of information systems as a form of storing authoritative and allocative resources. This storage may be seen as “involving the retention and control of information or knowledge whereby social relations are perpetuated across time-space. Storage presumes media of information representation, modes of information retrieval or recall and, as with all power resources, modes of its dissemination.” (Giddens, 1984:261). In this way, as Giddens argues, the utilisation of information systems will also depend on the capacities of human memory and the skills of interpretation which may vary among individuals.

The second argument focuses on how to use structuration theory to guide empirical studies. Gregson (1989) argues that structuration theory operates at too high a level of generality to provide guidance in specific empirical settings. The theory provides a way of thinking about the world rather than an empirically testable explanation of social behaviour (Jones, 1998). As Craib (1992:108) puts it, “it tells us what sort of things are out there in the world, not what is happening to or between them; it does not give us anything to test or to find out”. Hence, structuration theory is “fundamentally non-propositional” (Archer, 1990).

Giddens (1992:310) himself states that structuration theory is not intended as a concrete research programme. Giddens (1990:311) distinguishes between theory as a generic category and theories as explanatory generalisation, arguing structuration theory belongs to the first type. He is also critical of those who “have attempted to import structuration theory into their given area of study” (Giddens, 1991b:213). He prefers either using structuration theory as “a sensitising device [rather] than as providing detailed guidelines for research procedure” (Giddens, 1989:294) or the way “in which concepts, either from the logical framework of structuration theory, or other aspects of my writings, are used in a sparing and critical fashion” (Giddens, 1991b: 213).

Giddens has also outlined how structuration theory can be used to guide empirical research. He (1984:281-284) first provides a ten-point summary of the key features of structuration theory as the “guidelines for the overall orientation of social research”. Then, Giddens (1991b:311) simplifies these ten principles to just three, including contextual sensitivity, the complexity of human intentionality and the subtlety of social constraints. He also identifies four aspects of structuration theory as most relevant to social research, including reproduction of practice, dialectic of control, discursive penetration and the double hermeneutic.

Pozzebon and Pinsonneault (2005) summarised three central elements of structuration theory as fundamental devices to help guide its empirical application: the duality of structure, time/space distantiation and actors’ knowledgeability.

In terms of action/structure relations, structuration theory suggests that structure is embedded in the practice in which it is recursively implicated (Giddens, 1984), and the real nature of the technology and its consequences emerge from the actions of human beings (Giddens and Pierson, 1998). IT is drawn on by human agents to provide meaning, exercise power and legitimate actions, and is consequently deeply involved in the “duality of structure” (Walsham, 2002). Technology exists in the form of a set of rules governing behaviour and the ability to deploy resources (Walsham, 2002) that

emerges from people's interactions with the available technology (Orlikowski, 2000). Human agents "shape the technology structure that shapes their use" (Orlikowski, 2000: 407). From the perspective of our research, the duality of structure and action in structuration theory allows us to study how each stakeholder at the local government level draws on national administrative reform policies and the new IT system to judge legitimate actions, provide meaning and use available resources to exercise power during the system development process.

The concept of time and space in structuration theory is also informative to empirical studies. As Jones (1998) argues, the emphasis on space and presence in social relations in structuration theory is particularly relevant to view the role of IT in the changing temporal and spatial character of modern organisations. Giddens (1989) has emphasised the study of the contextualities of institutionalised patterns of interactions across time and space, as an important part of the investigation of social reproduction. Giddens's view of time/space is very useful for the study of organisational change, especially considering the fact that organisational studies is still far from being mature in understanding the dynamics and effects of time, process, discontinuity and context (Pettigrew et al. 2001, Pozzebon and Pinsonneault, 2005). Giddens's argument is that time has become separated from space. Time is no longer measured by the movement of the sun as in pre-modern societies, and space is also dislocated from the common physical environment of interaction due to the availability of telecommunications.

Hence, Giddens (1990b) recognises the connections between the most "micro" aspects of society (such as individuals' internal sense of self and identity) and the "macro" picture of the state, multinational corporations and globalisation. He argues that these different levels, which have traditionally been treated quite separately by sociology, influence each other and cannot be understood in isolation. This is very useful in our research. It not only allows us to analyse between national and local levels, but also allows us to define time and space in a flexible way. For example, the administrative reform agenda for different government departments may vary. Structuration theory

allows us to have a flexible span, looking beyond the time scale of the IT development project. We can compare the old social structures before administrative reforms and the ideal social structures as the overall objectives of administrative reform, which allows different government departments to have different interpretations without specifying a specific time and space.

Finally, structuration theory states that social actors are knowledgeable and reflexive. The reflexive appropriation of knowledge describes the way in which knowledge about social practices comes to be drawn on by the stakeholders in their reproduction. Knowledge as structural properties enables and constrains human action, yet is knowledgeably reproduced by human agents. Knowledge is not uniformly appreciated by human agents, and knowledge does not necessarily have a fixed relationship to changes in the values of human agents. Reflexivity does not necessarily lead to favourable social action, which is further complicated by the fact that social knowledge re-enters and transforms its own subject. From the perspective of researchers, the difficulty is how to incorporate knowledgeability into research work because human agents know more than they can say (Giddens, 1984). Therefore, in our research, we have used techniques such as cross-referencing when carrying out the empirical work. The details of our data analysis approach using structuration theory are discussed in Section 5.3.4 in the following Research Design Chapter, and the analysis framework based on structuration theory is discussed further in Section 7.1.2.

## **4.5 Summary**

Structuration theory provides a way to analyse social changes between different levels, breaking out of the unsatisfactory dualism of action and structure and between individual and society. This chapter has examined structuration theory and its application in the IS research. The main critiques of using structuration theory in IS research regarding its treatment of IT and its application in empirical research are also



discussed. More importantly, it has justified why structuration theory is suitable for this research to achieve its objectives.

## ***Chapter 5 Research Design***

### **5.1 Introduction**

Academics in the IS field have repeatedly requested that the research methodology chosen should be explicitly stated and reflected upon (Orlikowski and Baroudi, 1991; Walsham, 1995). This is important to convince readers that the researcher is aware of the theoretical implications of the method of investigation and is able to justify the selections made (Conford and Smithson, 1996).

This chapter consists of four parts. The next part discusses the philosophical underpinning of this research. In this study interpretivism is used as the philosophical foundation to guide the research. This is followed by a detailed description of the research design. First, it justifies why the case study approach is suitable for this research and how the case was chosen. Then, it discusses the data collection techniques employed and the method used to carry out data analysis. The final part is a summary of the chapter.

### **5.2 Philosophical Underpinning**

As a whole, the philosophy of social science is a particularly complex field, encompassing not only traditional philosophies originating from natural science but also a variety of other ontological and epistemological positions.

Orlikowski and Baroudi (1992) considered three broad research paradigms in IS research - positivist, interpretivist, and critical, reflecting the growing debate on the paradigms. In part the diversity of IS approaches is because information systems, as a

discipline, draws on many diverse disciplines, such as technology, psychology, sociology, economics, mathematics, linguistics and semiotics, which encompass very different research traditions. This puts IS in a position similar to other management areas such as organisational studies, which are also characterised by a plurality of research paradigms, each associated with particular research methods (Mingers, 2001).

Generally speaking, there are three different ways of viewing IS paradigms. The first school views the IS paradigms as essentially based on mutually exclusive and contradictory assumptions, and individual researchers do, or should, following a single paradigm. For instance, Benbasat and Weber (1996) have argued for the need of uniformity within the IS disciplines as a whole. This principle is sometimes justified in terms of the superiority of the (usually positivist) paradigm.

Instead of searching for a single paradigm, the second school argues that a diversity of research methods and paradigms is a positive source of strength (Robey, 1996). As Robey argues, diversity provides a wider range of knowledge traditions upon which to base research and theory, which is important in a discipline like IS that deals with real-world complexities. In other words, different approaches may be more or less appropriate for particular situations or topics. No one paradigm is superior, and their individual rationalities should be respected. However, the choice should follow a certain approach with “disciplined methodological pluralism” (Landry and Banville, 1992) in order to avoid becoming totally unrigorous and anarchistic (Robey, 1996).

The third school argues that different research methods (especially from different paradigms) focus on different aspects of reality and therefore a richer understanding of a research topic will be gained by combining several methods together in a single piece of research or research programme (Galliers, 1991, Landry and Banville, 1992, Mingers, 2001). However, it can be argued that research methods are bound to particular paradigms and that the paradigms themselves are incommensurable. Moreover, it is logically incoherent to mix together methods from different paradigms.

It is beyond the scope of this research to discuss the arguments on IS paradigms in depth, but we tend to support the second school of thought. As information system research draws from many diverse research fields, the choice of research approach should depend on the research topic and particular situation.

Nevertheless, it is important to specify the assumptions or beliefs of all social science research. In the literature, there is no agreed way of defining different paradigms; for example, Kuhn's version of paradigms is different from, and less restrictive than, Burrell and Morgan's, and there are many examples of inter-translation between paradigms (Mingers, 2001). Generally speaking, there are two dimensions to understand the beliefs guiding social researchers in their work: ontology and epistemology.

Ontology is concerned with the perception of the nature of reality. The two contrasting positions are nominalist and realist. Realism believes that there is a real world of tangible structures and the social world has a reality of its own independently of human being. Advocates of nominalism reject the idea of the existence of social world as empirical entities and claim that the social world is made up of nothing more than labels, concepts, and names used to structure reality.

Epistemology is concerned with theories or forms of knowledge. Advocates of positivism believe that it is possible to identify causal relationships and regularities in the social world, while anti-positivism rejects this possibility and believes that the only way to understand the social world is by understanding the points of view of those being studied.

In the simplest form, research approaches in the IS field represent the positions as a dualism between traditional ontological and epistemological positions associated with natural science and approaches which share some form of social constructivism in their ontology (Rose, 2000). The former emphasises the search for generalisable causal laws in an objective, measurable world, while the latter consider social reality to be subjective, interpreted and constructed and theories about social issues provisional on

actors choosing to enact them. In the IS field, the tradition is to call the former “positivist” approach and the later constructivist one “interpretive” (e.g. Walsham, 1993). The positivist perspective proposes that the social world can be described in terms of law-like generalizations, of an identical form to those in the natural sciences, and that knowledge can therefore be acquired through the collection of value-free facts (Nandhakumar & Jones, 1997).

From an interpretive perspective, understanding social phenomena always involves interpretation (Nandhakumar & Jones, 1997). As Giddens (1993) puts it, social science is “irretrievably hermeneutic”. It is not just the researcher, however, who is engaged in interpretation, the human actors involved in the social phenomenon under study also interpret their situation. To complicate matters further, the concepts that are used to explain social actions can themselves become elements of the actors' understandings of their own situation. Giddens (1984) calls this the “double hermeneutic”.

The philosophical assumptions of this research are located within the interpretive tradition. More precisely, it draws on structuration theory to understand the social world.

Ontologically, it assumes that social reality is constituted by both subjective human actors and by institutional properties. The duality of structure means that the structure, or social properties, of social systems are created by human action, and then serve to shape further human action. Human interaction is broken down into communication, power and sanction, interlinked by three modalities, including interpretive schemes, facilities and norms.

Epistemologically, it is believed that structures do not exist independently of human agency, but as instantiations in human action and as memory traces in the minds. They are reproduced, modified and created in action. At the same time, actions are enabled and constraints by these structures. This leads to a view of human beings in a constant state of reflexive monitoring of their situations.

## **5.3 Research Design**

As each research method has its advantages and disadvantages, Yin (1994) argues that the choice should depend on the type of research question, the control of the investigator over actual behaviour events and the research focus. In this section, we discuss the pros and cons of the case study approach and explain why an in-depth study of our chosen case is suitable for pursuing our research objectives. Then we move on to discuss our data collection methods and data analysis approach.

### **5.3.1 The Case Study Approach**

Our research is an in-depth interpretive case study. A case study is defined by Yin (1994:13) as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident, i.e. it deals with phenomenon and context simultaneously.”

Our research aims to study the impacts of national government policy for IS development at the local government level in the context of the People’s Republic of China. The case study approach is well suited for our research. First, the method is well suited to study a phenomenon in its natural setting, which allows for the study of a large number of variables and different aspects of a phenomenon (Yin, 1993). In our research, the case study approach allows us to collect rich data from the local government stakeholders, before and after the system was developed, in the local government’s natural setting, with minimum involvement in the project and without manipulating variables. Second, research in this area is still very limited as discussed in Chapter Three, and the case study approach is valuable in developing and refining concepts for further study (Yin, 1993, Cavaye, 1996).

However, each research method has its advantages and disadvantages, and Yin (1994) suggests that the choice should depend on the type of research question, the control of investigator over actual behavioural events and the focus on contemporary or historical phenomena. We have discussed above why the case study approach is suitable for this research. In the following sections, we discuss the three main limitations of using this case study approach: representativeness, subjectivity and generalization.

#### **5.3.1.1 Representativeness**

Our research is based on a single case study. In terms of representativeness, critics may argue that the case(s) used in the study may not be representative. As selecting cases poses a sampling problem, they may argue that more cases would serve the purpose of generalization, and a single case fails to review the broader picture. Therefore, in their opinions, the cases should be selected to represent a population of cases; the phenomenon of interest observable in the case should represent the phenomenon in general.

An in-depth single case study is used in this research because it is a suitable vehicle for interpretive investigation (Walsham, 1995). Eisendardt (1989) argues that the choice of case should rely on theoretical sampling. Cases should be chosen for theoretical, not statistical reasons. The cases may be chosen to replicate previous cases or extend emergent theory, or to fill theoretical categories by providing examples of polar types.

Stake (1994) also argues that the case's potential for learning is a different and sometimes superior criterion to representativeness. Thus, the case study is a choice of what object is to be studied, rather than a choice of techniques or methods. In other words, Stake (1994) suggests that we should be optimistic that we can learn some important things from almost any case. Furthermore, Rolland and Herstad (2000) argues that the case study should be defined as an approach to the study of the particular, with a

focus on what is unique and what common in a particular case, where various research methods and data collection techniques can be used (Rolland and Herstad, 2000).

Therefore, it is important to specify what can be learned from a single case, rather than how many cases are to be studied. As Stake (1994) argues, a case study is defined by interest in individual cases, rather than the methods of inquiry used. Therefore, it is important to specify what can be learned from a single case, rather than how many cases are to be studied.

Three types of case studies have been identified by Stake (1994): intrinsic, instrumental and collective case studies. An intrinsic case study is intended to better understand this particular case. This type of study is undertaken, not primarily because the case can represent other cases or because it illustrates a particular trait or problem. It is only because, in all its particularity and ordinariness, the case itself is of interest (Stake, 1994). An instrumental case study is a particular case that is used to provide insight into an issue or to refine a theory. The case itself is of secondary interest, as it plays a supportive role in helping to understand something else. Finally, collective case studies are carried out where researchers may study a number of cases jointly in order to inquire into the phenomenon, population, or general condition. Therefore, in our research, the case study chosen is instrumental in nature, which helps us to understand what changes the implementation of information systems at the local government level can bring to achieve administrative reform objectives.

In our research, we take the case from which we feel we can learn the most. The case study undertaken in this research is the development of a computerised personnel and salary management system in the city government in Foshan, a middle-sized city in Guangdong Province. The selection of the case is based on the belief that it can offer potential opportunities for learning from the following two perspectives.



First, the case chosen matches our research interests. The research objective is to investigate the impact of IS implementation on the stakeholders at the local government level in China. The chosen case took place in a Chinese middle-sized city government, while this computerised personnel and salary management system is closely linked to administrative reform in a wider context. In June 2000, the Central Committee of the Chinese Communist Party and the State Council decided to computerise and standardise the salary payment procedure to government officials. This is considered as an attempt to implement a mechanism for anti-corruption by high salary payment, which ensures the income-expenditure two-line management of government institutions and the separation of government institutions and their involvement in business activities.

Second, the case offers great potential learning opportunities from both theoretical and practical perspectives. This case is one of the first to develop this kind of information system in China, and all city governments in China need to develop such a system. Due to the accessibility to the system development process, the research can have the opportunity to study the implementation process of this inter-organisational system involving varied government agents. From the theoretical perspective, China is in transition from a centrally planned economy to a market economy, an area in which research on using IT to achieve these reform objectives is still very limited. Furthermore, as Poole and DeSanctis (2002) suggest, a case study has particular advantages for research using structuration theory. First, the time horizon for a case study is longitudinal, which enables researchers to look at a phenomenon in depth. This is particularly necessary to unearth the multiple layers of actions involved in structuration. Second, the use of a case study allows researchers the luxury of looking at multiple perspectives of the structuration process, which is especially useful for tracing the effects of context on structuration in IS (and vice versa).

### **5.3.1.2 Subjectivism and Generalisation**

Case research is also criticised for its lack of rigour in the collection, construction and analysis of empirical materials, as they depend on the subjectivity of the researcher and the field informants on whom the researcher relies to understand the case.

However, as Lee (1999) argues, research is not an entity existing independently of knowing subjects, and research including social and natural sciences is a human creation and social activity (Giddens, 1993:9). In the research world, both the product of research and the process of research including research activities are socially constructed. Moreover, interpretive case study research, like ours, can help IS researchers to understand human thought and action in social and organisational contexts; it has the potential to produce deep insights into IS phenomena including the management of IS and IS development (Klein and Myers, 1999).

Case studies have also been criticised for basing their analysis on field materials, which would represent no more than “common sense”. The quantitative group argues that the means of data collection and analysis in case studies fails to validate theory.

Nevertheless, as Cavaye (1996) argues, case studies are very important to theory building because theories come from empirical studies. As a case study can be positivist or interpretive, this argument moves onto the discussion of philosophical grounding of the research approach. It is contended here that case studies can be positivist or interpretive, depending on the research question. Positivist case studies are more suitable than interpretive case studies to identify formal propositions, quantifiable measures of variables, hypothesis testing and the drawing of inferences about a phenomenon from a representative sample to a stated population (Klein and Myers, 1999). As argued above, an interpretive rather than positivist approach is more suitable for this research which is descriptive and exploratory in nature. The virtue of the

qualitative case study method is that it does not explicitly control or manipulate variables enabling the study of a phenomenon in its natural setting (Cavaye, 1996).

Admittedly, interpretative case studies may not be ideal for generalising results (Galliers, 1992). This is mainly because the social contexts of case studies vary. The interpretation of the situation depends on the researcher and therefore there can be many interpretations of the same situation. Second, owing to the difficulty in controlling individual variables during case research, while it may be possible to suggest relationships between variables, it may not be possible to indicate the direction of causation (Cavaye, 1996).

Also, the assumption that stakeholders' interpretations are subjective or inter-subjective suggests that these interpretations will be shaped by the stakeholder's experience in his or her particular context, rather than being the product of implacable external forces (Nandhakumar & Jones, 1997). Thus, Walsham (1995) argues that interpretative IS researchers should seek to develop rich understandings of the research context from which a "thick description" of its characteristics and complexities may be achieved.

As Rosen (1991) puts it, "to understand social process one must get inside the world of those generating it." The simplest way to do this would seem to be to get access to the stakeholders themselves and to elicit their interpretations directly (Nandhakumar & Jones, 1997). However, even if researchers are able to gain such direct access, their ability to obtain an understanding of the actors' interpretations may be limited (Nandhakumar & Jones, 1997). First, the researcher cannot assume that he or she understands the actors' descriptions of their behaviour and their interpretations in a particular social setting. Secondly, the stakeholders may provide a distorted account of their behaviour because their ideas as to what ought to happen in the situation may differ from what is actually going on (Taylor & Bogdan, 1984). Thirdly, as Mitchell (1991) notes, secrecy is present in all social actions. Actors may thus seek to deliberately mislead the researcher (Van Maanen, 1979) or may not talk to them about certain issues

and activities because they feel that discussing these might be impolite or too sensitive (Goffman, 1990). Van Maanen (1979) identifies three types of data that are often shielded by conscious deception: hidden failings, including disreputable interests or shameful errors; perceived character defects; and collective secrets, widely known but controversial practices engaged in by the actors. Finally, actors may be unable to give an account of their actions because they form part of social routines of which they are only tacitly aware. Giddens (1984) argues that actors know more than they can say.

Regarding these limitations, the value of interpretive case studies relies on the methodological qualities of the case. Smith (1990) points out that the validity of an extrapolation from individual interpretive cases depends on the plausibility and cogency of the logical reasoning used in describing results from the case, and in drawing inferences and conclusions from those results. In the specific context of information systems research, Orlikowski and Baroudi (1991) argue that every particular social relation is the product of generative forces; therefore, an interpretive analysis is an induction, guided and couched within a theoretical framework, from the concrete case situation to the social totality beyond.

Therefore, this research follows the seven principles proposed by Klein and Myers (1999), which were derived from anthropology, phenomenology and hermeneutics for the conduct and evaluation of interpretive field research in information systems. The first principle concerns the hermeneutic circle, in that all human understanding is achieved by iterating between considering the interdependent meaning of the parts and the whole they form. The iteration between individual local government stakeholders, as parts, and the national administrative reform policies, as the whole, is a feature of this research.

The second principle, contextualisation, requires critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation emerged. In our research, we show how the problems of the old centrally planned economy still impact the development of the computer system that was aimed at supporting reform.

The third principle, that of interaction between the researcher and the subjects, requires critical reflection on how the research materials (“data”) were socially constructed. In conducting this research, we took care with the interview settings, the way questions were posed to interviewees and how the interaction was maintained. For example, we found that one-to-one interviews were more revealing in a relaxed setting (e.g. a meeting room) than in an office.

The fourth principle concerns abstraction and generalisation, which requires relating the idiographic details revealed by the data interpretation through the application of principles 1 and 2 to theoretical, general concepts that describe the nature of human understanding and social action. In this research, we discuss the findings in relation to Giddens’s structuration theory to understand the interaction of national policies and the stakeholders at the local level during system development.

The fifth principle, dialogical reasoning, requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and the actual

findings with subsequent cycles of revision. Our findings are critically discussed in relation to Giddens's structuration theory. It is recognised that this is but one way of viewing system development and is not the only way.

The sixth principle is that of multiple interpretations. This requires sensitivity to possible differences in interpretations among the participants as typically expressed in multiple narratives and/or stories of the same sequence of events. Our research demonstrates that the personnel and finance staff in individual government organizations and the Personnel and Finance Bureaux held completely contrasting views of the best way to develop a performance-based evaluation system and hence how the bonus and allowances payments should be handled.

Finally, the principle of suspicion requires sensitivity to possible "bias" and systematic "distortions" in the narratives collected from the participants. Any bias of informants should be cross-examined by comparing the testimonies of different informants (Hamel et al., 1993). One such example in our study concerns the role of the city government. In the interviews with the Personnel and Finance Bureaux, the impression was that the city government played a leading role in the project as a powerful identity. However, in the interviews with the Local Tax Bureau, Social Insurance Bureau and Housing Reform Office, the Personnel and Finance Bureaux rather than the city government were seen as playing the leading role. Therefore, only through continuous interaction with different stakeholders, the role of the city government in the project became clearer to the

researchers, which was also increased our understanding of the dualist administrative structure within China as a result.

### **5.3.2 Stakeholder Perspective**

It is widely acknowledged in the literature that taking a stakeholder perspective is important to ensure the successful implementation and use of IT in public administration (Rustin, 1997, Scholl, 2001, Tan et al., 2005). Integration is a key theme on today's government, intergovernmental and NGO agendas; this is known as "joined-up government thinking" by the UK government. Many stakeholders are working together in developing new governance processes at local, national and international levels, as a result of the changing role of the nation state, globalisation, technology development and the increasing recognition that stakeholders play a crucial role in the implementation of policy (Dodds, 2002). Even at the international level, the reform packages that have had an impact on the UN and global governance during the 1990s have nearly all been accompanied by an increase in the roles and responsibilities of stakeholders. In administrative reform, stakeholders are the source of expectations about what constitute desirable and undesirable reform programmes. Stakeholders' interests and values determine to what extent they will see an organisation's purpose, activities, and outcomes as desired (Tschirhart, 1996:3). Stakeholders can evaluate how well the programmes have met expectations and/or how the programmes have affected the groups and organisations in their environment.

In particular, compared with profit-seeking business organisations, as summarised by Tschirhart (1996: 21), the non-profit public sector organisations have the following characteristics. Their mission is usually to serve multiple stakeholders with potentially conflicting needs and expectations (Hodgkin, 1993); they have a diversity of revenue streams that adds to the complexity of stakeholder mixes (Oster, 1995; Gronbjerg, 1993); their nature as institutions embodying public trust and service heightens moral accountability (Hodgkin, 1993); the relatively intangible outcomes, making financial

profit tests inappropriate and requiring consideration of multiple stakeholder interests to evaluate effectiveness (Drucker, 1990), which makes their leadership more often dependent on a coalition of actors than on a single administration.

A stakeholder perspective will be used in this research to guide stakeholder identification and data collection. In the following sections, we first critically discuss stakeholder theory and justify the way it is used in this research. Then, we discuss different ways of identifying stakeholders and how the stakeholders are identified in this research. Finally, we discuss how to identify the interests of the stakeholders.

### **5.3.2.1 Overview of the Stakeholder Approach**

The stakeholder theory of business corporations, as first developed by Freeman (1984), is characterised by the notion that managers have a duty to attend to all those who have a stake in, or claim on, the organisation. This contrasts with the classic view, which is sometimes called stakeholder value theory, that managers bear a special relationship to the owners (or shareholders) of the organisation.

Those who hold the belief about the primacy of shareholder value maintain that the interests of other parties in the corporation's activities and operations are protected adequately by some kind of contractual arrangements, either explicit or implicit (e.g. Rappaport, 1986). The corporation can be seen as a "nexus of contracts", each of which is assumed to satisfy fully and equitably the legitimate concerns of all interested parties. However, this protection was seen to be thin or non-existent during the 1980s (Clarkson, 1998).

Goodpaster (1991) distinguishes between a strategic interpretation of the stakeholder concept as a means to maximise shareholder value, and a normative concept in which



moral obligations are owed to stakeholders. Goodpaster unintentionally illustrates a hidden assumption of most business theory, which is called “The Separation Thesis” by Freeman (1995), that the languages of business and ethics must be separate. The separation thesis states that:

*‘The discourse of business and the discourse of ethics can be separated so that sentences like, “x is a business decision” have no moral content, and “x is a moral decision” have no business content.’ (Freeman, 1995:37)*

Freeman (1994) argues that managers have a fiduciary relationship with stakeholders. Facing the legal, economic, political and moral challenges, corporate management need to treat the right of each stakeholder group not as a means to some end, but rather as a voice to participate in determining the future direction of the firm in which they have a stake. The changes in the legal system can be viewed as giving some rights to those groups that have a claim on the firm and constrain management’s pursuit of stockholders’ interests at the expense of the local communities in which the firm operates. From the economic perspective, externalities, moral hazards, and monopoly power have led to more external control on managerial capitalism.

In stakeholder theory, it is believed that the key elements of corporate success are its relationships with those people, interests and groups that are essential for its survival. Without their continuing support and cooperation, a corporation cannot continue as a profitable concern. Therefore, stakeholder theory provides a logical and useful framework for analysing and describing the relationship between an organisation and its environment (Clarkson, 1998:8). From this perspective, the purpose of the business corporation, for example, as the converter into goods and services of the resources and stakes that are at risk, is to create wealth or value for all its stakeholders, without exposing them or others to involuntary harm or loss.

As discussed above, the stakeholder approach has received considerable attention by academics in the area of public administration. The stakeholder approach is a

supplementary and complementary process to improve the quality of issue-finding, decision-finding and where appropriate, decision-making and implementation in the public sector (Dodds, 2002:38). Dodds (2002:37) points out that in a highly complex, globalising and interdependent world, governments no longer have the power and ability to forge and fully implement all the various agreements that they conclude. Society is made up of interacting forces – some economic, some institutional, some stakeholder-based, some citizen-based. This recognition can be liberating but at the same time it can be very daunting. The multi-stakeholder processes can reduce uncertainties and also contribute to a higher likelihood that agreements will be implemented as the stakeholders themselves have been involved in the creation of the agreements. This approach also offers the opportunity to hold stakeholder groups accountable.

The usefulness of the stakeholder perspective is also confirmed by empirical studies (including Harrison and Freeman 1999, Abma 2000, Douthwaite, Keatinge and Park 2001), and in the area of information systems research (Lacity and Hirschheim 1995, Pouloudi, 1998; Pouloudi and Whiteley, 1997). For example, Jackson and Ganba (2002) studied the experience with decentralisation and community water management in northern Ghana, which highlights the complexities of coordinating stakeholders at the local level. This case shows that roles and responsibilities must be clarified between legislated sub-district structures on the one hand, and civic water groups on the other. This is especially important with regard to resolving which party should collect revenues and manage assets and expenditures in the water sector.

Stakeholder theory is based on the following assumptions (Brenner and Cochran, 1991, Brenner, 1995). First, organisations must fulfil some needs of various stakeholders in order to continue to exist. Second, to examine the values and interests of their stakeholders can help organisations understand the relevant needs of their stakeholders. Third, it is argued that the management of organisations involves structuring and implementing choice processes among different stakeholders and such processes are a

function of stakeholder influence relationships and their values. Fourth, the identification of an organisation's stakeholders, their various values and interests, the relative importance of each value for each stakeholder, the relative influence of each stakeholder's value position, and the nature of the value trade-off processes provide information useful for understanding the behaviour of and within the organisation. Fifth, the fulfilment of the necessary set of organisation stakeholders' needs requires a balancing of those needs using economic, legal and moral criteria. Sixth, organisational management consistent with the stakeholder theory of the firm produces superior long-term results due to its explicit recognition of a broad set of stakeholder values and to its required use of economic, legal and moral decision criteria.

Stakeholder theory leads to the following questions: who are the stakeholders (either individual or group)? What are their stakes? What is the relationship between these stakeholders? What are their perceptions of the project (the influence on themselves and other stakeholders)? What is the effect of the project on them and other stakeholders?

Donaldson and Preston (1995) regard the descriptive accuracy, instrumental power and normative validity as the three fundamental aspects of the stakeholder theory, which are both interrelated and quite distinct. Stakeholder theory is descriptive: it describes the organisation as a constellation of cooperative and competitive interests possessing intrinsic values. Descriptive justifications attempt to show that the concepts embedded in the theory correspond to observed reality. Stakeholder theory is instrumental, as it establishes a framework for examining the connections, if any, between the practices of stakeholder management and the achievement of various organisational goals. This is based on the assumption that organisations practising stakeholder management will, other things being equal, be relatively successful in conventional performance terms. Instrumental justifications point to evidence of the connection between stakeholder management and corporate performance. Normative justifications of stakeholder theory involve its connection with more fundamental and better-accepted philosophical concepts, such as individual or group "rights", "social contract", or utilitarianism.

Stakeholders' norms determine what organisational purposes, activities, and outcomes the stakeholders will see as appropriate or proper in a given set of circumstances. As moral actors, if stakeholders believe an organisation is acting illegitimately, they are unlikely to support the organisation (Tschirhart, 1996).

Donaldson and Preston (1995) suggest using the above three aspects of stakeholder theory to build a full-blown theory, however Freeman (1995) disagrees and argues that this is misleading. Different theories depend on the stakeholder idea and so it should be seen as a metaphor that is very important in a story told about how human beings create value. The normative core of a theory is the set of ethical (at least in the descriptive sense) assumptions and presuppositions to which the theory appeals or is deducible from the theory. Friedman and Miles (2002) argue that current attempts at integrating the separate strands of stakeholder theory to achieve a convergent stakeholder theory are premature for the following reasons.

First, there is no agreed way of defining and identifying stakeholders. Mitchell et al. (1997) propose that stakeholders are those who become salient to managers to the extent that those managers perceive them as possessing power, legitimacy and urgency. However, their focus is on defining who and what are the stakeholders of the firm, ignoring the dynamics of the organisation/stakeholder relation. Indeed, Agle et al. (1999) test the model with positive results. However, they do not explore: (1) why some stakeholders will be perceived as having more of the three attributes than others; (2) how managers' perceptions of stakeholders may change; and (3) differences in the way managers behave in relation to stakeholders perceived as possessing widely different degrees of these attributes. It is very difficult, if not impossible to develop a stakeholder theory without clearly specifying who are the stakeholders and why. The definitions and identifications of stakeholders, especially in the area of information systems, will be discussed in more details in Section 5.3.2.2.

Second, as Friedman and Miles (2002) argue, trying to develop a convergent stakeholder theory based on normative cores at this stage lays stakeholder theory open to Gioia's (1999) criticism of naivety. The representation of alternative accounts influences individual conceptions of what constitutes reasonable strategic action and can thereby "make a difference" in how managers think and act. Jones and Wicks (1999) consider that normative stakeholder theory involves specifying the moral obligations stakeholder theory places on managers. It involves creating alternative narrative accounts of moral behaviour in a stakeholder context. As Jones and Wicks (1999) note, the similarity of this approach to the interpretivist paradigm in organisation studies, which assumes people construct and sustain their own organisational realities. Such criticism may be countered if descriptive stakeholder theory was formulated in a manner that allowed a better understanding of the pragmatic forces operating in the corporate world as they apply to particular organisation/stakeholder relations.

Third, stakeholder theory has been hampered by an almost exclusive analysis of stakeholders from the perspective of the organisation (Friedman and Miles, 2002). Freeman (1984) justified consideration of stakeholders for their contribution to the strategic management of firms. Generally stakeholder theory has been approached from the point of view of business ethics, corporate governance and/or corporate social performance. This puts the organisation at the centre of the analysis and discourages consideration of stakeholders in their own right as well as discouraging balanced viewing of the organisation/stakeholder relation. Two notable exceptions have been Hill and Jones (1992) and Calton and Kurland (1996). Hill and Jones (1992) develop an "agency-stakeholder model". The firm is viewed as a "nexus of contracts between resource holders (stakeholders)". They consider market processes at work in relation to these contracts by which institutional structures evolve in order to monitor and enforce the terms of implicit contracts. These institutional structures reduce transaction costs to the point where further reductions in such costs are balanced by the costs of developing more complex institutional structures to reduce them. Calton and Kurland (1996) claim that their post-modern theory of "stakeholder enabling" decentres organisational

discourse by replacing privileged managerial monologues with multilateral stakeholder dialogues.

Therefore, Freeman (1995) suggests that stakeholder theory can be used as a metaphorical approach. The original point of stakeholder thinking was to do just that: see stakeholders as fully complex moral beings who are inseparable from the idea of “business” (Freeman, 1995:46). The aim is to take metaphors like the stakeholder concept and embed it in a story about how human agents create and exchange value. Considering the benefits and limits of stakeholder theory, this research will use the theory in a metaphorical approach, especially during the data collection and analysis period.

#### **5.3.2.2 Identification of Stakeholders**

There are different ways of defining, identifying and categorizing stakeholders. Clarkson (1998:2) categorises stakeholders into voluntary stakeholders who have chosen to take a stake and bear some form of risk in anticipation of some form of gain or increase in value, and involuntary stakeholders who are exposed unknowingly to risk and thus being harmed or benefited, as a consequence of the corporation’s activities. Stakeholders can also be categorised in different ways, depending on whether they are internal or external, primary or secondary, active or passive, economic or social, core or strategic or environmental (Carroll and Näsi, 1997).

Generally, speaking, a stakeholder is defined more often in the broad sense than in the narrow sense (Freeman and Reed, 1983). The broad view of stakeholders is based on the fact that anyone can affect and are vitally affected by an organisation’s actions. Freeman (1994) defines stakeholders as “groups and individuals who benefit from or are harmed by and whose rights are violated or respected by, corporate action.” Similarly, Hemmali (2002:2) suggests that “Stakeholders are those who have an interest in a particular decision, either as individuals or representatives of a group. This includes people who

influence a decision, or can influence it, as well as those affected by it". Recognising that management cannot attend to all actual or potential claims, the narrow view of stakeholders attempts to specify a pragmatic reality and proposes a variety of priorities for managerial attention (Mitchell et al., 1997).

In the area of information systems, Lyytinen and Hirschheim (1987) suggest the identification of stakeholders depending on the nature of the information system, the relationship of the stakeholder to the system, the direct and indirect "depth of impact" and the level of aggregation that may vary between individuals, groups or larger collectives. Later, Lyytinen (1988) adds the external versus internal dimension. Pouloudi and Whitley (1997) argue that the identification of stakeholders depends on the specific context and time frame, which calls for flexible and dynamic techniques.

Therefore, as Mitchell et al. (1997) argue, no individual organisation theory has offered systematic answers to questions about stakeholder identification and salience, though most such theories have much to tell us about the role of power or legitimacy (but not both) in stakeholder-manager relations. Urgency is not a main focus of any organisational theory, but it is critical to any theory that purports to identify stakeholders and to explain the degree of attention paid to them by management. Hence, Mitchell et al. (1997) suggest a way to evaluate stakeholder-manager relationship systematically, both actual and potential, in terms of the relative absence or presence of all or some attributes: power, legitimacy and/or urgency.

Furthermore, organisational legitimacy is assumed to have many benefits. Being perceived by stakeholders as legitimate helps an organisation to attract resources (Parsons, 1960), prevent opposition (Mueller, 1973), reduce demands for accountability (Simon, 1965), increase and advance managers' personal interests in their career development and social acceptance (Sutton and Callahan, 1987). To gain or maintain support for their organisations, organisational leaders act to improve or maintain their legitimacy with stakeholders by influencing stakeholders' perceptions of the congruence

of organisational purposes, activities, and outcomes with stakeholders' values and norms (Tschirhart, 1996).

In this research, we treat as a "stakeholder" any "government organisation(s) on the city level whose intentional involvement can significantly influence the outcomes of implementing the IS project." Stakeholders identified in this research need to satisfy four criteria:

1. The involvement of stakeholders is ethical and legitimate. The legitimacy refers to the relationship to their organisational objectives and responsibilities.
2. A stakeholder can be an organisation or a group of organisations that share similar interests and attributes.
3. A stakeholder in this research is restricted to the operational level, that is, the city government level, rather than the strategic level, such as central government.
4. The actions of stakeholders are intentional, no matter whether the outcomes are as they desired or not. In other words, they have an option of doing things in another way, which may affect the outcome of this project.

According to the above four criteria, in this case study we can identify the following stakeholders. The city government of Foshan is a stakeholder that oversaw the implementation of the new personnel and salary management system. It was responsible for the system development for the central government at the local level by organizing and co-ordinating various local government bureaux during the system development process.

The Finance Bureau is a stakeholder, because one of the system development objectives is to improve public finance management. Along with the Personnel Bureau, it was assigned the responsibility by the city government to design and develop the new system and it was a direct user of the new system.



Similar to the Finance Bureau, the Personnel Bureau is also a stakeholder. The new system aims to solve the problem of “ghost workers”, the prime cause of the over-staff problem. After the new system is developed, the Personnel Bureau is responsible for maintaining and updating the database.

The Housing Reform Office, the Social Insurance Bureau and the Local Tax Bureau are also stakeholders. Some may argue the legitimacy of these organisations as stakeholders, given their lack of involvement in the earlier stages of system development. Particularly, the only expected change from this system in relation to these organisations is that they would receive the data from the computerised system rather than from individual organisations. However, as the data output of the system, that is, the salary payment, is related to income tax, social insurance contributions and housing funds, they are considered as legitimate stakeholders for this research.

Another stakeholder is the Foshan city branch of the Bank of China, which was the vendor responsible for developing the new systems for the Finance and Personnel Bureau. It was the only organisation involved in the project that was not a government organisation. The bank was the developer of the system, and so it played a very important role in the whole system development process. Though it is not a government organisation, its involvement in the project has had a significant influence on other stakeholders.

Finally, all the government organisations that needed the new system to pay their employees were considered as a stakeholder group. They were involved in the project in similar ways, providing the original data input to the system and transferring the management of basic salary payment to the computerised system. After the system was developed, they needed to use the system in similar ways.

However, those government organisations who were no longer involved in the salary payment process were excluded from this research. These organisations had the power

to distribute and make salary and substitute payment decisions but have now lost that power. Though they were involved in the old system, they did not actively take part in developing the new system. This was confirmed by the interviewees.

To summarise, the stakeholders identified include the city government, the Bureau of Finance, the Bureau of Personnel, the Bureau of Local Tax, the Bureau of Social Insurance, the Housing Reform Office, the Bank of China and all the government organisations whose employees received the salary payment from this system.

### **5.3.2.3 Identification of their stakes**

Clarkson (1998:2) defines a stake as “something of value, some form of capital, human, physical, or financial, that is at risk, either voluntarily or involuntarily.” Stakes require action of a certain sort, and conflicting stakes require methods of resolution (Freeman, 1994). In order to clarify the term “stake”, we need to differentiate between groups that have a legal, moral, or presumed claim on the firm and groups that have an ability to influence the firm’s behaviour, direction, process, or outcomes (Mitchell et al., 1997).

In the data collection stage, we collected information regarding each stakeholder from the following three perspectives. First, we needed to identify the legitimate interests or stakes of each stakeholder in what the organisation was doing and how it was accomplishing its objectives from the perspectives of administrative reform, organisational missions and our system development project. The stake could be manifested as a legal or moral right, or claim, on the organisation (Carroll and Näsi, 1997). Legal stakes are established by the accepted legal system extant in a country, while moral claims are justified based on some ethical or moral claim on the organisation.

Tschirhart (1996) summarized four types of problems that an organisation might experience with a stakeholder, which could help us identify conflicts among

stakeholders and how this affects the system development project. First, there could be a misfit between an organisation's and a stakeholder's purposes, activities or outcomes. Their interests are in conflict, not that values and norms are violated. In other words, this is not a problem of legitimacy. The second problem is that an organisation's purposes, activities or outcomes are incongruent with a stakeholder's values or norms. This results in the organisation lacking legitimacy with the stakeholder. The third problem is the opposite that organisational leaders believe that the stakeholder's purposes, activities or outcomes are inappropriate. Finally, there is the problem that a stakeholder and an organisation have conflicting values and norms, but neither the stakeholder nor organisation has acted in a way that has led to the other's disapproval of their purposes, activities or outcomes.

Second, we needed to identify the resources available to each stakeholder, or the characteristics related to stakeholders (Tshirhart, 1996). In our research, these may include the stakeholder's importance based on resource dependencies, its power in decision making in relation to other government organisations, its ability to access information and its formal and informal relationships with other stakeholders. Moreover, when there are conflicts, we needed to notice the other organisational characteristics that may influence scanning, interpreting and responding to the problems including organisational age and size.

Finally, we needed to be aware of the social contexts, such as the methods and timing of the information collected from each stakeholder. For example, the legitimate interests of the stakeholders and the resources available to them may change over time. Data collection methods are discussed in detail in the following section 5.3.3.

### **5.3.3 Data Collection Methods**

This project was initiated in the summer of 2000, and the new computerised payroll system was put to use by the end of the year. The field work was mainly undertaken on

four research trips in August 2000, February 2001, October 2001 and June 2002. It involved face-to-face interviews with government officials and system developers, attending meetings and the analysis of both primary and secondary data. In-depth semi-structured interviews were carried out with the key members in the project team from the city government, the Bureau of Personnel, the Bureau of Finance, and the technical staff from the IT Section of the Bank of China (Foshan branch). With the progress of the project and the research results emerging, government officials from the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office were also interviewed. Additionally, officials working in the finance and personnel divisions from individual government offices or institutes who were closely involved in salary payment were interviewed. Informal interviews were also carried out with other government officials, who receive salary payments directly from the system. After returning from the site, continuing contacts were maintained through fax, emails and telephone conversations with key informants. The collected data were triangulated by cross-interviewing and analysis from multiple sources. The latter included internal memos and reports, published government documents and the popular press.

Interviews are a basic data collection method for qualitative researchers to obtain a rich, in-depth account of an event. Interviews are not neutral tools but active interactions between two people leading to negotiated, contextually based results (Fontana and Frey, 1994). Interviews are seen as a source of information, which is based on the assumption that interviewing results represent true and accurate pictures of respondents' selves and lives. However, since each interview context is one of interaction and relations, the result is as much a product of this social dynamic as it is a product of accurate accounts and replies. Respondents may not reveal the truth, either because people are unwilling to disclose their "selves" (Fontana and Frey, 1994) or because they may give the answers that they imagine the researcher may want. Therefore, researchers should be reflexive about how interviews are accomplished. Traditional interviews have attempted to maintain neutrality and achieve objectivity, and have kept the role of the interviewer as invisible as possible (Fontana and Frey, 1994). However, as Oakley (1981) points out, in

interviewing there is “no intimacy without reciprocity”. Thus the emphasis is shifting to allow the development of a closer relation between interviewer and respondent, attempting to minimise status differences and doing away with the traditional hierarchical situation in interviewing. Interviewers can show their human side and answer questions and express feelings. In our research, all the interviews were noted manually and subsequently summarised immediately. The interviews were tailored to each particular person and focused on their perceptions of what happened and why; on how decisions and actions were influenced and made and conflicts resolved; on the influence of various aspects of context on the process of IS implementation; on the interviewee’s particular role, attitude and motivations; and on the consequences of previous actions in terms of organisational change and future actions.

Documentary analysis is another source of information gathering. We looked into documentary evidence from both primary and secondary sources. Some primary sources were minutes of meetings, strategy documents, internal memos and reports, and the organisation’s staff magazines. Secondary sources included articles in newspapers, and various government sector publications.

Some information was collected from participant observation during the visits to the site. Participant observation refers to the "method in which the observer participates in the daily life of the people under study, either openly in the role of researcher or covertly in some disguised role, observing things that happen, listening to what is said and questioning people over some length of time. (Becker and Geer, 1969:322)” Attending project meetings with the stakeholders and observing the project teams working in the IT department of the Bank of China and the Welfare and Salary Office in the Personnel Bureau, where the staff from individual government organisations come to update their data, enabled us to get insight into their daily routine and how things actually happened.

Triangulation, which refers to checking inferences drawn from one set of data sources by collecting data from other sources, was also used in our research. The basic

assumption of using triangulation is that the weaknesses in each single method are compensated by the counter-balancing strengths of another (Jick, 1979). Since our research focus is involved with the information before and after administrative reforms, we needed to use both documentation analysis and interviews to verify the data. Every effort was made in the historical reconstruction to try to distinguish between participants' views at some historical time and their enactment of them at a later period. Interview information on historical periods, such as before the administrative reforms, was cross-checked where possible against other sources of evidence, such as published data and official reports written at the time of the events. Results from the historical period could then be compared with those from the interviews.

#### **5.3.4 Data Analysis**

The data display of this case followed an event listing matrix (Miles and Huberman, 1994) that arranges a series of concrete events by chronological time periods, sorting them into several categories. This research used event-state network to display the data collected for the following reasons. First, it helps to show the involvement and interaction of different stakeholders at the different stages of the system development process. For each event, it helps to find out what is happening and why a particular event has happened. Second, as the events are sorted in time order, it helps to understand how the perceptions of different stakeholders change over time. Finally, it helps to identify the interventions leading to the start of the event.

Pozzebon and Pinsonneault (2005) use Langley's (1999) framework to identify four different strategies of using structuration theory for data analysis in IS research. In Langley's framework, grounding strategies are either inductive (such as grounded theory) or deductive and construct an explanation of an observed phenomenon through the gradual and systematic comparison of data. Organising strategies, including narrative and visual mapping, represent two different ways of describing and structuring process data in a systematic form. Replicating strategies, including temporal bracketing,

quantitative and synthetic, are ways of breaking down the data for replication of theoretical propositions. Grounded, narrative, visual mapping and temporal bracketing are the four strategies identified by Pozzebon and Pinsonneault (2005), as shown in Table 5.1.

Based on this categorization, our research falls into a combination of the narrative and broad-grained temporal bracketing. We use Pettigrew's (1990) contextualism as our narrative strategy when describing our case study in Chapter Six. Though our research looks into the development project of the new personnel and salary management system over a two-year period, we needed to collect data back to before the administrative reforms in order to understand the norm changes for the stakeholders. A broad-ranging bracketing allows us to understand how IT development in local government relates to organisational changes in local government stakeholders and consequently, to broader nation-wide administrative reform.

Pozzebon and Pinsonneault (2005) also suggest that the combination of narrative and temporal bracketing is a good way to deal with the duality of structure and the interplay between micro and macro. With the focus on contextual details, the variety and richness of the events described and the linkages between them, narrative strategies can facilitate the detailed observation of events over time. Complementarily, bracketing strategies can increase the ability to follow sequences of subtle changes and reproduction of structural properties. Hence, Pozzebon and Pinsonneault (2005) suggest that temporal bracketing helps to recognize when and how changes are triggered, while narrative strategies help to explain why. The details of the data analysis are outlined in Chapter 7, Section 7.1.2.

Strategy		Data Collection and analysis guidelines (Langley, 1999)		
		Key Anchor Points	Specific Data Needs	Form of Sensemaking
Grounded		Incidents, categories	Detail on many similar incidents. Could be different processes or individual-level analysis of one case	Meanings, patterns
Narrative		Time	One or a few rich cases. Could be helped by comparison.	Stories, meanings, mechanisms
Visual Mapping		Events, orderings	Several cases in moderate level of detail to begin generating patterns.	Patterns
Temporal Bracketing	Fine-Grained	Phases, events	One or more detailed cases. Requires data density: the period of data collection equals the analysed period.	Mechanisms
	Broad-Grained	Phases, events	One or more detailed cases. Requires historical data for a longer period.	Mechanisms

Table 5.1 Methodological Strategies Applied in IT Structurationist Studies (Adapted from Pozzebon and Pinsonneault, 2005, p. 1363)

## 5.4 Summary

This chapter began with a discussion of the chosen epistemologies and ontology and their suitability for this research. Then, it moved on to justify why an in-depth interpretive case study was suitable for this research and why our research benefits from a stakeholder perspective. Then, it moved on to discuss the strategies for data collection and data analysis.



## ***Chapter 6 Case Study***

### **6.1 Introduction**

The case study used in this research is the development of a computerised payroll system in Foshan, a middle-sized city in China. This chapter describes the context and the process of developing this system.

The wider context of the project, including administrative reform at the national level and the use of IT by the Chinese government has been discussed in Chapter 3. This chapter begins with a description of the narrower context: Foshan, the city government of our case study.

Section 6.3 describes the context of the system development at the organization level. It describes the objectives of the project, the system structure and the related changes to the key functions of the payroll system. Section 6.4 describes the system development process, including the initiation, development by prototyping, data collection and training, and testing and implementation stages. Section 6.5 discusses the system development from the cultural and political perspectives of the stakeholders. For each stakeholder group, we discuss its organisational objectives, purposes for using the system, and its past history of using information systems. Then, we discuss the involvement of the stakeholders through the system development process. The final section summarises the main findings of the research and raises some questions for further discussion in the analysis chapter.

The context of the project is particularly important in this research, which aims to explore the interaction of national government policies with structural properties at the local level. The case study concerns the development of a computerised payroll system in Foshan, a city government in Guangdong Province. This project was driven by the

central government's initiative to use IT to automate the manual salary payment to government employees. With guidelines from the central government, Foshan city government organised a project team with the Bureaux of Personnel and Finance.

This computerised payroll system was designed to help the Bureaux of Personnel and Finance with human resource and salary management of all public-financed government offices and institutes in the city. As an inter-organisational information system, it has three servers, located in the Bureau of Personnel, the Bureau of Finance, and the vendor, the Bank of China (Foshan branch). The system will also supply data to the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office.

In Chapter 5, the stakeholders identified include the city government, the Bureau of Finance, the Bureau of Personnel, the Bureau of Local Tax, the Bureau of Social Insurance, the Housing Reform Office, the Bank of China and all the government organisations whose employees received the salary payment from this system.

It should also be noted that each of the above stakeholders is made up of various offices with different responsibilities which may or may not be involved in the system development process. For simplicity, the organisational names are used instead of individual department names. To be more specific, the city government refers to the mayor and the staff in the mayor's office who were responsible for the project. The Bureau of Finance means the departmental project team, which consisted of a head of department and staff from the Administration and Finance Office, the Budgetary Office and IT department. The Bureau of Personnel refers to the departmental project team, including a head of department and staff from the Salary and Social Welfare Office. The department involved in the Foshan Housing Reform Office was the Housing Capital Management Centre, and the Public Sector Insurance Relationship Office in the Bureau of Social Insurance, and the Tax Collection and Management Office in the Bureau of Local Tax. The government organisations mainly refer to their Salary or Accounts Offices that were responsible for salary payment management. The Bank of China is

mentioned throughout the case study, and although not a stakeholder in the same way as the others. The Bank of China refers to the IT department in the Bank of China Foshan branch.

## **6.2 Foshan: the City and the City Government**

Foshan is located at the centre of Guangdong Province in southern China. As part of the Pearl River Delta, Foshan is adjacent to Guangzhou and close to Hong Kong and Macao. Historically, it was a famous ancient city. In the Ming Dynasty and Qing Dynasty, it evolved into the most economically developed town in the south, one of biggest “Four Terminals” in China together with Beijing (north), Suzhou (east) and Hankou (west). Foshan was well known at home and abroad for its handicraft industry. The exquisite folk-arts have a long history, which is said to start from the Ming Dynasty and is famous for its local styles.

After the establishment of the People’s Republic of China, Foshan City (Chancheng District) was set up on January 12, 1951. In 1958, the Foshan Administrative Region was established, governing the three cities of Foshan, Jiangmen and Shiji and 13 counties (like Zhongshan). In 1970 the Foshan Administrative Region was renamed the Foshan Prefecture, governing 14 counties (cities). In June 1983 the system of City Leading County (City) was implemented. In 1985 the area was transferred into the Pearl River Delta Economic Open Zone. Before 1998, Foshan governed 37 towns and 27 sub-districts, including Nanhai, Shunde, Gaoming and Sanshui. In 1998, in accordance with the unified arrangement by the Guangdong Provincial CCP (Chinese Communist Party) Committee and the Provincial Government, Foshan reformed the country base administrative system by withdrawing the administrative offices and setting up village committees. The total population of the whole city is about 3 million, including about 0.8 million in the city proper.

Foshan has set itself up as a pioneer city in using IT. The city is designated by Guangdong Province as the pilot city for 'informatisation' (e-government), boasting a complex informatisation index of 55.5% (i.e. 55.5% of local government functions are being digitised). Nanhai District is the state-level pilot city for informatization.

The city has one of the most advanced information infrastructures in the country, including a good telecommunications network, computer-based data network and cable TV network that cover the city's urban and rural area. Moreover, Foshan is the first prefecture-city in China with more than 1 million telephone lines, and the first Telephone City in South China. By the end of 2001, the city's installed capacity of SPC (Store Program Control) telephones reached 1.7601 million lines and 3.779 million mobile phone users. The registered SPC customers exceeded 1.7601 million (one line may have a number of registered customers) and mobile users accumulated to 2.35 million.

All levels of government bodies have access to the Internet. The administration and management in government, companies and social services have implemented IT packages. E-government is beginning to take shape with a government services network, office business resources network, and public information network under construction. Internet users number more than 400,000. Foshan and Nanhai municipalities have been listed as the pilot cities for the Modern Project of China's E-Government Application. The IT industry provides a good momentum for development with Nanhai software and Hi-tech Park, one of the four largest parks of its kind in Guangdong. The city is also a leader in the application of digital multi-media broadcasting technologies.

In fact, the development of this payroll system is among the first of its type in China and is considered as an experiment. This gradual and experimental approach in introducing reform policies is very common in China. Normally, when the central government decides to introduce a new policy in the whole country, certain cities or government departments are often selected as pilot sites. Then their experiences can be shared and

their lessons learnt for when the policies are finally announced around the country. As one of the first systems of its sort, the system development experienced a lack of understanding and support from the wider environment, which is also an issue mentioned in the official project report.

## **6.3 Computerised Personnel and Salary Management System**

In this section, we first introduce the architecture of the system and then compare its functions with the old manual system.

### **6.3.1 Objectives of System Development**

The objective of developing this computerised payroll system is closely related to the administrative reform in China. Six system development objectives are specified in the official publication: *Guangdong Province Finance-funded Personnel Income Standardisation Implementation Plan*. In fact, these objectives reflect the three general objectives of Chinese administrative reform as discussed in Section 3.2.2.1.

The first objective is to ensure the appropriate use of limited public finance. Those employed by the government should be paid directly by the Bureau of Finance from the Treasury. The payment will be allocated to individual accounts according to the instruction of the Bureau of Finance without the involvement of any other government organisation. The deployment of the system is to make sure that the funding available for paying salaries is used properly, which meets the purpose of public finance management.

A related objective is to strengthen the budgetary constraints and standardise the management of public finance. The system should provide the Bureau of Finance with up-to-date and accurate payroll information, which should provide a good grounding for the future implementation of zero-based budgeting and detailed budgeting techniques.

The third objective is to ensure that government employees receive the correct salary payment, on time, by standardising the payment process. This also strengthens the supervision of public funding by preventing the abuse of financial resources.

The system also aims to solve the problem of “ghost workers”, a prime cause of the over-staffing problem. This computerised payroll system can systematically link the control of the personnel quota for each government organisation, its personnel management and public funding together. By checking the number of people receiving government salaries, it can not only prohibit the introduction of “ghost workers”, but also effectively prevent government organisations from recruiting more staff at their own discretion.

The fifth objective is to reduce the workload of government departments and improve their efficiency through the use of technology. This computerised system is designed to reduce the number of links in the salary payment process by cutting out the involvement of government organisations. This will not only reduce the workload of organisational finance divisions but also improve efficiency.

Finally, the system is supposed to improve the transparency of the personal income of government officials, and therefore, their expenses. This also prevents individual government organisations from using all kinds of excuses to make extra payments to their employees.

### **6.3.2 System Structure**

The new computerised system consists of three parts: the personnel and salary management system, the standardised finance-funded salary payment system, and the standardised salary payment via bank system. These three modules can network and exchange data, while each one is independent and has its own functions. Among them, the personnel and salary management system is the guiding system, which provides an

advanced tool for government offices and institutes to deal with personnel and salary management issues.

Figure 6.1 shows the structure of the system. Three servers are located in the Bank of China, the Bureau of Personnel and the Bureau of Finance respectively. The system uses Windows NT and Windows 95/98 operating systems, Microsoft SQL Server Database and DELPHI developing environment.

In both the Bank and the Bureau of Finance, the system has a client/server two-layer database structure, with the data on wage payment stored on the server. In the Bureau of Personnel, the system has also a client/server two-layer database structure. It stores all the salary-related data of the government offices and institutes on its server and hence, it is only the Bureau of Personnel that has the right to change the data.

Individual government offices and institutes can use either standalone or networked workstations. Small organisations can use a single workstation with wage data stored on the local machine. Large organisations, with networked workstations, store the data on their servers. To submit data to the Bureau of Personnel, they can use floppy disks, a modem or the Direct Data Network (DNN).

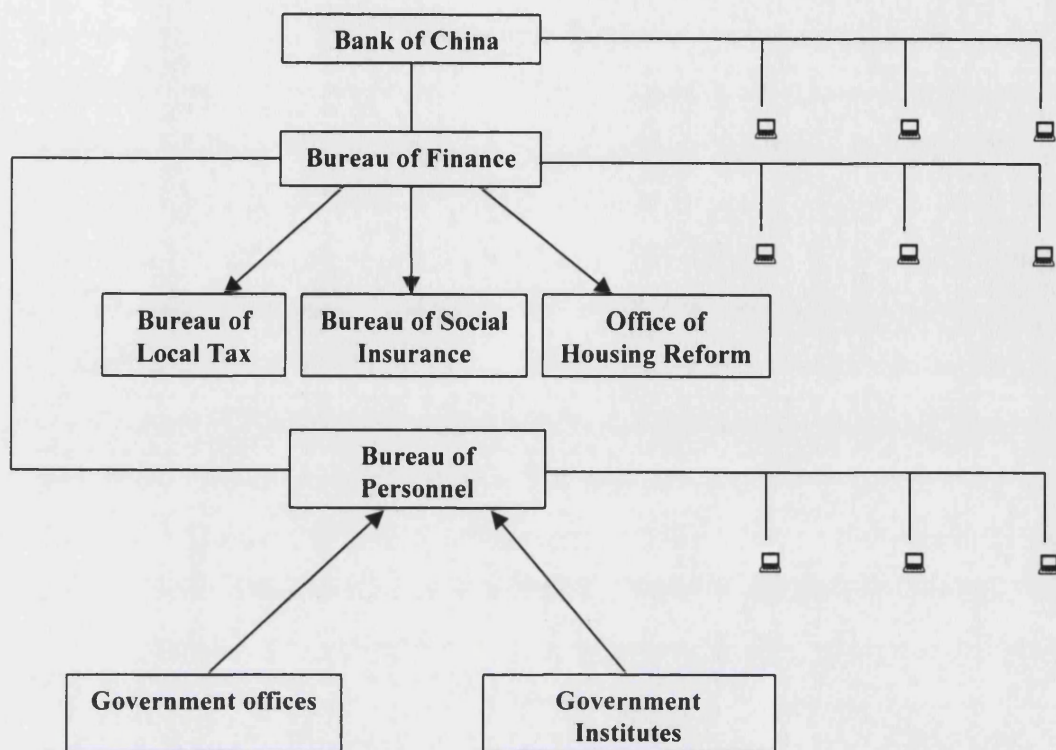


Figure 6.1 The architecture of the system

The basic functioning of the system is as follows. Each individual government organisation reports its up-to-date employee information to the Bureau of Personnel. After verifying the information, the payroll list is automatically generated and passed to the Bureau of Finance. Then, the Bureau of Finance processes the data, deducts the amount for personal income tax, social insurance and housing accumulation funds from the salaries and passes the data to the Bureau of Local Tax, the Bureau of Social Insurance and the Housing Reform Office respectively. Meanwhile, after receiving the instruction of the Bureau of Finance, the Bank makes the payments.

### 6.3.3 Personnel Management

The personnel and management system was developed according to the salary and welfare policies laid down in the salary reform of 1993. The focus of system development is changes in salaries reflecting changes happening in the individual



situation. As mentioned above, one of the objectives of implementing this system is to solve the problem of “ghost workers” that has led to the problem of overstaffing. Though it was said that this problem did not exist in Foshan, the procedure for recruiting new staff was inefficient and complicated, as shown in Figure 6.2.

When a government organisation wanted to recruit new staff, the personnel division was responsible for filling in the application form for adding new staff (2 or 3 copies) and submitting it to its responsible government bureau (or institute) on the higher level and the Personnel Quota Control Office in the Bureau of Personnel for approval. Having obtained this approval, the personnel division needed to fill in the new recruit salary verification form (2-3 copies), the payroll for extra funding (3-4 copies), the notice for extra funding (3-4 copies) and the salary funding adjustment form (3-4 copies). Again, these would be sent to the responsible higher-level government authority and the Salary and Welfare Office of the Personnel Department for approval. When the Salary and Welfare Office approved, the Finance Division was required to fill in the form for new recruits for extra funding and budget allocation and send it to the Bureau of Finance for approval.

All the forms mentioned were filled in by hand, which was time-consuming and prone to errors. If any mistakes were discovered, the forms would need to be returned and replaced. This process was complicated by the fact that all the forms were delivered between government offices in person.

After implementing the new system, as shown in Figure 6.3, individual organisations can put information about the prospective new staff into the system. According to this detailed information, the system will automatically generate the salary information and print out a new recruit salary verification form for this person. The form will be sent to the responsible higher-level government office(s), the Government Personnel Quota Control Office as well as the Salary and Welfare Office of the Bureau of Personnel respectively for approval. Then, after obtaining all the approvals, the details of the new

staff will be updated by the Bureau of Personnel. Every month the Bureau of Finance will pay according to the data sent by the Salary and Welfare Office.

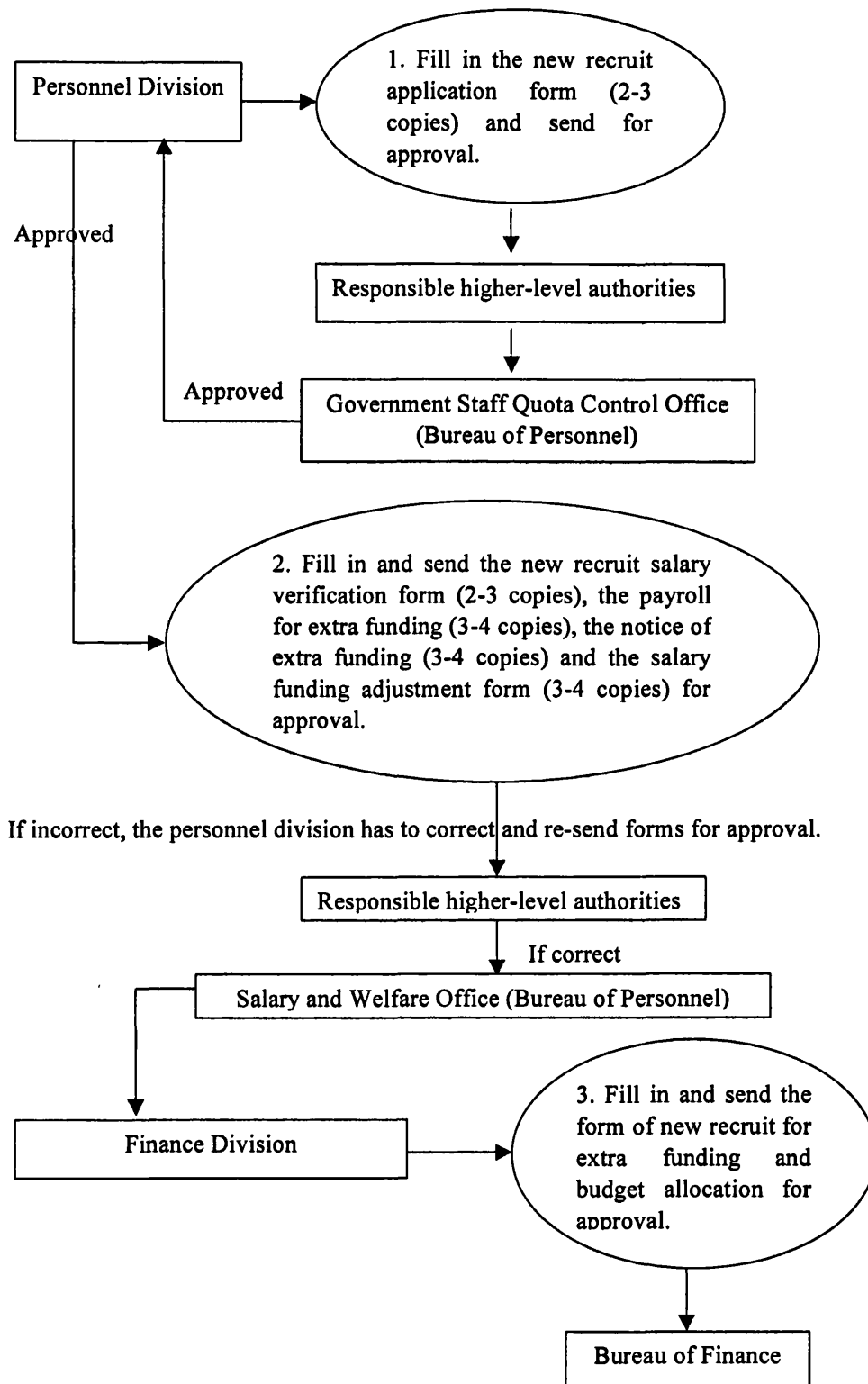


Figure 6.2 Administrative process of recruiting new staff (before implementation)

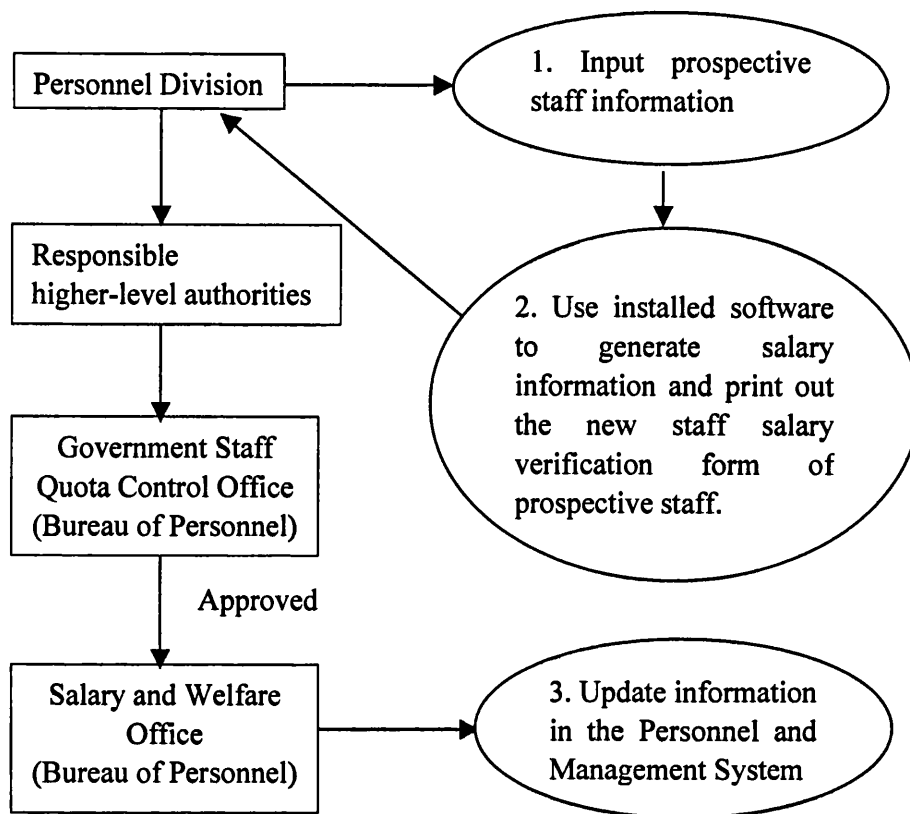


Figure 6.3 Administrative process of recruiting new staff (after implementation)

#### 6.3.4 Salary Payment Management

Before the new system was implemented, every month finance divisions in fully public funded government offices or institutes would give the budget to their higher-level responsible authorities for approval. Then, these budgets were passed to the Bureau of Finance. The Bureau of Finance verified them and allocated money to the accounts of the individual organisations. Then, the finance division calculated the salary payments to each employee. In the past, all organisations would take out cash from the bank, and individuals would go to the accounts office to collect their salaries. However, following a number of robberies some organisations opened bank accounts for their employees and paid their salaries directly to their accounts. This process is illustrated in Figure 6.4.

Nevertheless, it was difficult to compare personal income across government organisations. Part of the reason was that the deductions from the salaries varied

according to individual organisations' regulations. The items deducted may include bills for electricity and water, housing accumulation funds, social insurance and income tax. It was up to individual organisations to decide. For example, where organisations did not deduct income tax, their employees would be required to pay later.

Though given payslips with details of each item, individuals would still not be sure whether the amount was correctly calculated. This was partly because there were many different rules and regulations for salary payment, and partly because the interpretations of the rules and the associated calculations were prone to human error.

Additionally, even where the calculation was correct, there would be no guarantee that the employees would receive the payments on time. If the organisation was short of funds for some reason, there would be delays in payment. This problem would occur because of incorrect calculations of the budget, or in most cases, abuse of salary funding.

Besides the above problems, there was no fixed date that individuals could be sure to receive salary payments. Though they may know roughly when they would get paid, they had to wait for the notice from the accounts office.

The procedure for monthly salary payment with the new system is shown in Figure 6.5. Since it is regulated that any change is required to be reported to the Bureau of Personnel before the 25th of every month, the Salary and Welfare Office is able to send the updated data on payroll details to the Bureau of Finance on 28th. The Bureau of Finance then verifies the data and uses the system to calculate individuals' pay-as-you-earn salary by deducting income tax, housing accumulation funds and social insurance.

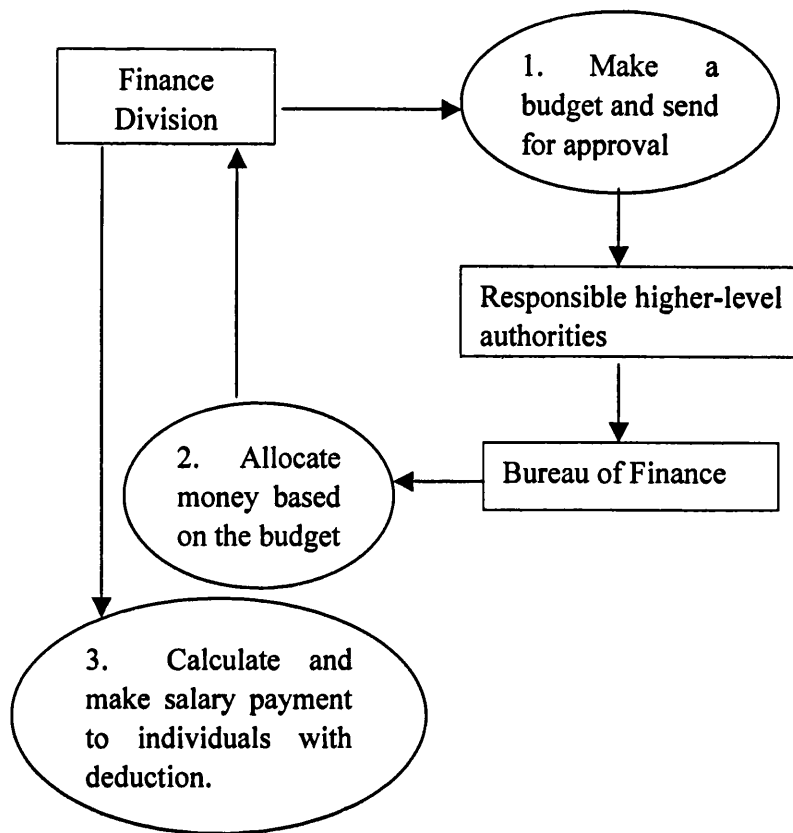


Figure 6.4 Monthly salary payment procedure (before implementation)

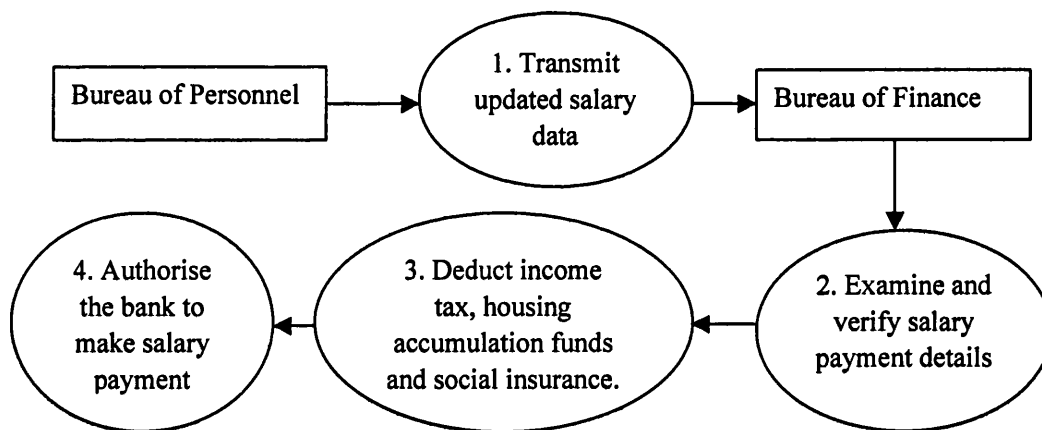


Figure 6.5 Monthly salary payment procedure (after implementation)

According to the payment instruction from the Bureau of Finance, the bank should allocate the money to individual accounts on the 5th. In other words, individuals should receive their salary on the 5th of every month.

Meanwhile, the Bureau of Finance passes the total amount of income tax, housing accumulation funds and social insurance to the Bureau of Local Tax, the Housing Reform Office and the Bureau of Social Insurance respectively.

If there were any changes in the salary standards (including position salary, grading salary and basic salary) or changes in personal details leading to changes in salaries (e.g. promotion), Figure 6.6 shows what would happen under the old system. The organisational personnel division was required to fill in and send the individual salary adjustment form (2-3 copies), the payroll list adjustment form (3-4 copies), the total amount adjustment verification form (3-4 copies) and salary funding adjustment form (3-4 copies) to their responsible higher-level authorities for approval. Then, they were sent to the Salary and Welfare Office in the Bureau of Personnel for examination and verification. When no problems occurred, the organisational finance division would fill in the financial budgetary allocation application form (3-4 copies) and report to the Bureau of Finance.

Under the new system, as shown in Figure 6.7, if there are any changes in personal details or salary standards leading to the changes in salary, the personnel division updates the system and generates a disk with updated salary details. Then, they bring the disk to the Salary and Welfare Office in the Bureau of Personnel. The information is examined and verified by the Bureau of Personnel, and then the database is updated. A new payroll list is printed out. The responsible person brings this back to the head of their organisation for verification and then returns, bringing the document to the Bureau of Personnel to retain.

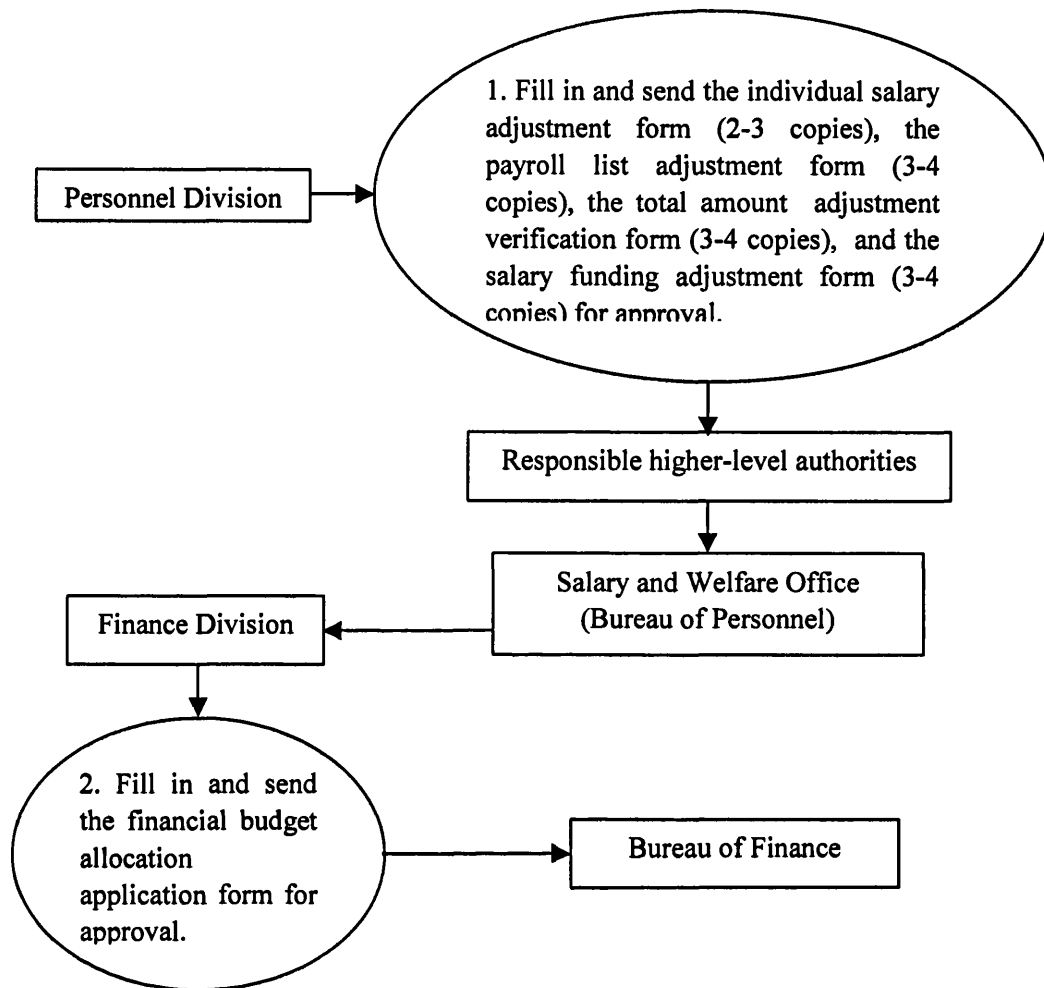


Figure 6.6 Payroll details update procedure (before implementation)

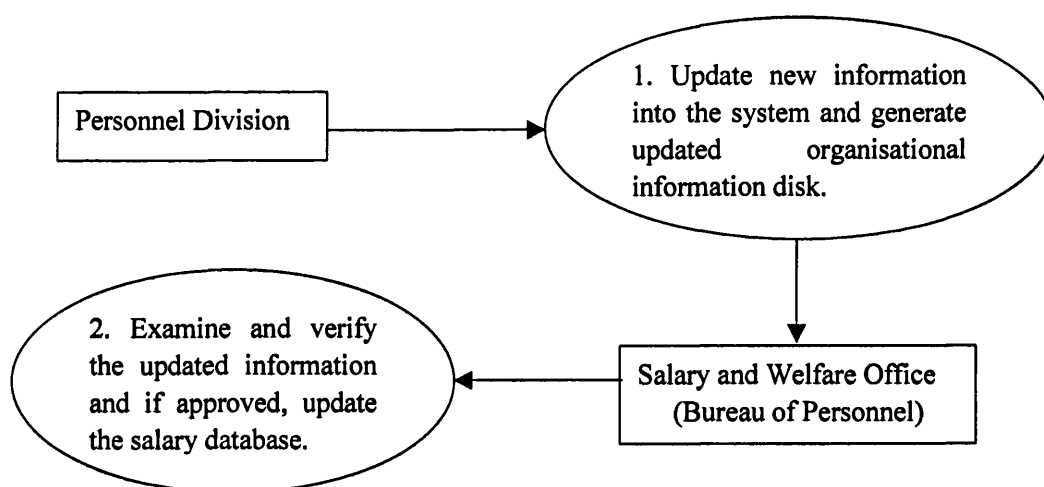


Figure 6.7 Payroll details update procedure (after implementation)

### **6.3.5 Information Supply for Decision-making**

Before the system was implemented, the following problems affected the accurate and timely supply of information on salaries, causing potential problems in decision making.

First, the complicated procedure of updating salary information as shown in Figure 6.6 prevented the Bureau of Finance collecting up-to-date information, especially information about new recruits or leavers. It was hard for the Finance Bureau to make decisions reflecting the current situation. In particular, when the city government required such information for making decisions, it was unable to supply timely and accurate information.

Second, Figure 6.4 indicates that salary payments were based on the budget submitted by individual organisations. In other words, the salary payment was just an estimate. Though the organisation would submit the actual costs in the following month, the Bureau of Finance had to rely on historical records and experience at the time of decision-making.

Third, the budget for salary payments was mixed up with other budgets. As mentioned earlier, the funds available for salary payments might be used for other purposes. If an organisation spent more or less than the budget, the Finance Bureau would allocate more or less funds in the following month based on its financial report. Thus, public finance could not be well managed and used appropriately. Civil servants naturally relied on their salaries to live and the Finance Bureau had no choice but to give extra funding if an organisation claimed that the funds for salary payments were insufficient.

The new system in the Bureau of Finance enables the user to consult based on unit or the salary type. Furthermore, this system module enables the user to create Excel documents for any other type of data analysis or reporting.



## **6.4 System Development Process**

The process of developing this system can be described in terms of initiation, prototyping, data collection and training, testing and implementation.

### **6.4.1 Initiation**

In January 2000, Foshan adjusted the income-distribution system in government institutes that fully relied on public finance, according to the principles of standardisation, unification and monetarisation. In addition to basic salaries, it standardised salary allowances and bonuses. It was an attempt to experiment with the new mechanism of anti-corruption by high salary payments, which should facilitate the income-expenditure two-line management of government institutes and the separation of government offices and their involvement in enterprise management.

Though the formal document about developing the standardised salary payment system was not released until June 2000, the Central Committee of the CCP and the State Council set out this intention at the beginning of the year. Following this statement of intention, Guangdong provincial government selected eleven cities to carry out the experiments. Foshan was one of the first to develop such a system. These systems were supposed to put to use in 2001 or 2002.

This project was given a high priority by the mayor, as an important step in reform. On 12 April 2000, the mayor had a meeting with the heads of the Bureaux of Finance and Personnel as well as the Secretariat. This project was launched in the same year and the project team at the city level was formed, including the heads of the Bureaux of Finance and Personnel, a representative from the Secretariat and a vice-mayor. In the meeting, it was also decided that the selection of the bank responsible for system development would be through tendering.

After two weeks, an invitation to tender was sent out to the banks by the Government Procurement Centre. The banks who wished to take part were required to submit their proposals to the Procurement Centre.

Among many banks competing for the project, the Bank of China (Foshan branch) was chosen. This result was announced on 12 May by the Procurement Centre. The reason was that the Bank of China had made better customer service promises and operated more automated teller machines than the other banks in the city.

The Bank of China was a state-owned bank. Along with the other state-owned banks, it was experiencing the process of changing into a commercial bank, a process that is not painless. In particular, gradually losing the advantages of being protected by the government, the banks had to face severe competition in the market. This forced the banks to improve their customer service. In order to maintain its customer base, for instance, its IT department had taken up system development projects for their customers who needed assistance with technical issues.

In this project, the bank and the government bureaux had vendor-client relationships. Although the bank won this project for commercial purposes, it was different from other outsourcing projects as the bank would not get paid for providing the services. Instead, along with providing technical support, the bank had to be responsible for the procurement of software and hardware, including those used in the Finance and Personnel Bureaux. This first contract would last for three years, then the Procurement Centre would review the project and select a bank to operate it for another three years. The main benefit for the bank from this project was that they could significantly increase their customer base. Every government official would have an individual account in the bank for salary payment and have a Great Wall credit card issued by the Bank of China.

A project team was also established in the IT department of the bank, managed by a graduate with a Master's degree in Computer Science. The team was supervised by the IT departmental head and supported by the head of the bank branch. At the same time, project teams in both the Bureaux of Finance and Personnel were set up. In the Bureau of Finance, the committee was made up of a vice-chair of the Bureau, the head of the Administration and Finance Office, the head of the Budgetary Office, the head of the Social Welfare Office and the head of the IT department. In the Bureau of Personnel, the head of the Salary and Welfare Office was appointed to be responsible for system development while she was directly supported by a vice-chair of the Bureau. The heads of both bureaux oversaw the progress of the project. This project began on 20 May 2000 and was due to be completed in July, at worst in October, in the same year.

#### **6.4.2 System Development by Prototyping**

At the beginning of the project, there was no clearly specified schedule. There were only a deadline and vague plans. The system was developed through prototyping. The Bureaux of Personnel and Finance first explained their requirements to system developers in the Bank of China. Then, the developers built a model and continuously modified it according to the feedbacks from the users in both bureaux.

During the system development process, the main responsible people were the head of the Salary and Welfare Office from the Bureau of Personnel, the head of the Administrative and Finance Office from the Bureau of Finance and the head of the project development team from the Bank of China.

For the Bureau of Personnel, the crucial question was how to design a system to automatically calculate the salary payment taking account of all the rules and regulations. Since the payroll system in China is very complicated, a lot of time and effort was spent on developing the payroll system. In the Chinese payroll system, there are two parts to salary payments: the basic salary and local and job allowances. While the basic salary is

standardised across the country, the main complexity is in the allowances. In fact, the allowances constitute the main income for individuals working for the government. This is partly because there is an inequality of income and different consumer indexes among regions in China due to its large size and economic reform policies.

The problems of allowances were not straightforward as specified in regulations. Some special allowances or rewards had not been well documented on paper. For example, in order to reward a person who had made a great contribution to the organisation, the leaders could organise a meeting to decide to increase this person's bonus or allowance. While this item needed to be added to the computerised payroll system, trackable documentation needed to be in place. This really took time and effort to find where such an item came from, who made the decision and why.

In addition, there was a worry that the government regulations on salary payment would be changed. So, the system had to be designed to allow some flexibility. The extent of this flexibility had to depend on the experiences of those who had worked in payroll management for many years.

For the Bureau of Finance, on the face of it, the question was how to develop a system to meet its needs for making decisions on public finance. However, the essence was how to co-ordinate with other bureaux and government offices to change the old way of allocating funds.

In the past, it had been the responsibility of individual government organisations to collect and submit income tax, housing accumulation funds and social insurance to the Bureau of Local Tax, the Housing Reform Office and the Bureau of Social Insurance respectively. After the new system was introduced, the Bureau of Finance made the deductions from the salaries and paid them directly to these government offices as a lump sum. This posed a problem of inter-organisational co-ordination, which lasted throughout the project. We give examples and discuss this further in the next section.

Although there was no detailed schedule at the beginning of the project, there was a deadline for final implementation set by the city government. The government kept an eye on its progress. Therefore, the project team was working very hard and often put in many hours of overtime. In particular, apart from the system development team in the Bank of China, all the other members of the project teams still had their routine jobs to do.

### **6.4.3 Data Collection and Training**

In consideration of the complexity of the Chinese payroll system as mentioned before and different information requirements for future decision-making in public finance, data collection and verification were considered as an important step in system development. Additionally, there are more than 200 government organisations relying on this computerised system to make salary payments. Therefore, completeness and accuracy were emphasised during this process.

The data collection procedure was carried out as follows: first, government organisations were required to fill in a form for each of their employees. The form included personal details, work experience and other related information about the person, such that the form should be able to provide all the information required by the Bureaux of Personnel and Finance and the Bank of China. The form was carefully designed, fully discussed and finally approved by the heads of the two bureaux.

When the form was completed, the head of each government organisation was required to check and approve by signature that the information provided was correct to their knowledge. When the details of each employee, based on the forms, were first put into the system, the actual salary generated by the system would be compared with the amount calculated and given by the individual organisations. When the two were the

same and correct, the first copy of the payroll would be printed out and kept as a record. This would provide evidence in case of any dispute in the future.

As it was important that the form was well understood and completed correctly, a training session was held in the middle of July. All government organisations were required to send staff from both the personnel and finance divisions. The Bureaux of Finance and Personnel and the Bank of China had separate sessions to explain how the system worked. Following this training session, some organisations also explained the form to their employees to ensure that everyone knew the composition of his or her salary.

#### **6.4.4 Testing and Implementation**

Eventually, the system was ready for testing. During prototyping, old data randomly selected from two organisations were used. At this stage, real data would be put to use.

Data from the Bureaux of Finance and Personnel were first used to do the testing in July 2000. Both bureaux were first implementing the system to pay out salaries in August. Gradually, with the completion of data collection from other government organisations, the system was implemented by government offices in October, and by government institutes in December, with the exception of a few special cases. By the end of December, there were 203 government organisations using the computerised payroll system to make salary payment to 13,186 people. It was the first to complete the implementation of the computerised payroll system in Guangdong Province.

However, during the testing and implementation period, some problems emerged for various reasons. Some problems, which were easily solved according to the fixed salary rules and regulations, were related to the special situations of some employees. These problems were not discovered during prototyping, because not all organisations had such special cases. For example, those employees who were sentenced (for a crime or

misdemeanour) or were granted a reprieve (from sentence) would receive compensation for living expenses rather than normal salary. Also, unlike graduates with a Bachelor's degree, graduates with a Master's degree or above would not have a probation period and would immediately enjoy the year-end bonus.

While the solutions to the above problems could apply to all organisations by adjusting the system, the solutions for other problems were not common to all government organisations. They called for, not only changes in system design, but also negotiation and co-ordination between government offices. For example, when applying the system to primary schools, middle schools and higher education institutions, they complained that the system was too rigid and not flexible enough. How to make payments to a teacher who takes up a class on behalf of another teacher on-leave is such a problem. Before the computerised payroll system was implemented, the finance division at the school could arrange payments. However, now this became a problem between government organisations. Finally, after co-ordinating between organisations, it was agreed that the Bureau of Finance would deduct the amount from the salary paid to the on-leave teacher and give it back to the school. The school would pay the teacher who takes up the class in the form of benefits. Though this procedure looks simple, it was quite complicated from an accounting perspective.

There were still some human problems, irrelevant to the changes to be made in the system. For example, it was required that the changes in payment details had to be reported to the Salary and Welfare Office in the Bureau of Personnel before the 25th of every month, because the data would be passed to the Bureau of Finance to make the salary payment on 28th and individuals would receive payment in their accounts on 5th of the following month. However, in one organisation, the information on a person who retired in January was only reported to the Bureau of Social Insurance and not to the Salary and Welfare Office of the Bureau of Personnel at the same time. For budgetary purposes, a retired person would receive part of the pension from the Bureau of Social Insurance. Meanwhile, the Salary and Welfare Office would stop paying the on-the-job

salary. In this case, this person received double pay in January. Though this issue was solved by gradually deducting from his pension payments over the following three months, after a discussion among government offices, this caused problems involving the Bureau of Finance, the Bureau of Social Insurance, the Bureau of Personnel and the person himself.

In the following section, we analyse the cultural and political issues from the perspectives of the different stakeholders.

## **6.5 Description of the Cultural and Political Perspectives**

This section discusses the system development from the perspective of the different stakeholders: the city government, the Bureau of Personnel, the Bureau of Finance, the Bureau of Local Tax, the Bureau of Social Insurance, the Housing Reform Office and some government organisations. For each stakeholder, we discuss their interests in this project, their use of information systems and their role throughout the system development process.

### **6.5.1 City Government**

Foshan city government aimed at achieving a pioneer position in the use of information technologies in Guangdong Province. Their intention was to use IT to facilitate economic development, as mentioned by Yuguan Li, vice-mayor of Foshan, in the “New economy and the future of Guangdong International Discussion Seminar” held in September 2000. For example, with the full financial support from the city government, the “Government Online Programme” in Foshan was completed in September 2000. Therefore, it was not surprising that the city government regarded the development of this computerised payroll system as an important project.



Foshan was one of the first cities to develop this system in the province as well as in the country as a whole. In June 2000, according to the Central Committee of the CCP and the State Council, an official document about the implementation of computerised payroll systems was issued by the Ministry of Finance, the Ministry of Personnel and the Zhong Bian Office. The official project initiation country-wide took place in October 2000. However, the implementation of the system had already begun in Foshan in August. In fact, after this system was implemented, system developers from other cities in the province (such as Guangzhou and Zhongshan) and from cities in neighbouring provinces (such as Beihai, Nanning and Wuzhou) came to study their experience, which the city government was very proud of.

From the start, the city government leaders paid considerable attention to this project. After the city government was notified about the development of computerised payroll systems at the city level at a meeting in the morning, it organised an urgent meeting immediately in the afternoon. The meeting was chaired by the mayor and attended by the heads of the Bureaux of Finance and Personnel. It was decided that the choice of bank for the project would be through tendering. Immediately after the meeting, the project teams in the Bureaux of Finance and Personnel were formed, both of which were led by the heads of the Bureaux.

During the system development process, the city government played a very important role in keeping the project moving forward and meeting the deadlines. The city government always kept an eye on the project's progress. In fact, the attention given by the top city management posed pressures on the continuing progress of the project. In the project meetings between the Bureaux of Finance and Personnel, the deadlines set by the city government were mentioned as the most critical criteria to be met in the project progress. In order to meet these deadlines, the project team often worked overtime. For nearly a month, the team members of the Personnel Bureau worked together with the team members in the Bank of China until ten o'clock every night to carry out the testing.

The second example of the importance of the city government in this project was the mayor's meeting. In particular, when co-operation with the Bureaux of Local Tax and Social Insurance and the Housing Reform Office was needed, the mayor's meeting was crucial in solving the conflicts. Before the system was developed, these three bureaux were not directly involved in the salary payment process, as they received their share directly from individual government organisations. Therefore, their working relationships were not very close with the Bureaux of Finance and (especially) Personnel.

Normally, there are three ways to solve disputes at the operational level among the city government bureaux, as revealed in the interviews. First, if there is a close working relationship between two organisations, staff at the operational level normally co-ordinate and discuss the issues informally. If agreement is reached, then they report to their supervisors for approval. If agreement is not reached, then staff at the operational level normally report to their supervisor with the issue and their recommendations, in this case, normally to a head of the Bureau. Then, it is up to the heads of the bureaux to discuss and come up with a decision. Finally, if the issue cannot be solved, then it is reported to the city government, which is higher in the management structure than the bureaux. Then, co-ordinating with the bureaux in question, the city government comes up with a solution.

In this project, before the computerised system was implemented, individual organisations paid their contributions to the Bureau of Local Tax, the Bureau of Social Insurance and the Housing Reform Office respectively. Therefore, the involvement of the city government was critical to solve the dispute in the third way mentioned above. The status of the city government was important not only to solve problems among stakeholders but also to make critical decisions about the project development in relation to the overall plan of administrative reform in the city.

Since this system developed in Foshan was among the first, the mayor's office meeting was in a good position to make decisions on the new and important issues. For example, some government institutes, such as hospitals, could make a profit from their functions. In fact, it is argued to be important that they can retain a proportion of earnings as a motivation mechanism. Above all, they may not need to be fully funded by the government. This issue was fully discussed in the mayor's office meeting with the relevant parties. According to the situation in Foshan, it was decided that the salary payment management of government organisations would be separated into two groups. Those government organisations fully supported by the public funding would totally rely on the computerised payroll system to manage salary payment. Those organisations, such as hospitals, that were responsible for their own profit and loss, would only receive part of the salary payment from public funding by using this computerised system.

### **6.5.2 Bureau of Personnel**

In the salary payment process, the role of the Bureau of Personnel is to manage the salary payment in accordance with relevant government policies. Its responsibility is to make sure both the correct amount of payment to individual employees is made and the number of personnel working for an organisation and being paid is as planned. The first is related to timely and accurate payment to government employees and the second is related to eliminating the "ghost worker" problem.

One of the key functions of this computerised payroll system is to help the bureau with personnel and salary management. With the implementation of the system, the bureau is in charge of the details of all government employees. This has strengthened its position in controlling the number of personnel working for the government. Furthermore, this system has set up a basis for forthcoming institutional and salary reforms.

Before the development of this computerised payroll system was started in June 2000, the "ghost worker" problem was not obvious in Foshan. As an employee in the Bureau

of Personnel commented, “our Personnel Bureau has been working with the Bureau of Finance very closely over years, the ghost worker problem is non-existent here.” Therefore, efficiency improvement seemed to be the priority of the bureau. As the salary payment system in China is very complicated and has experienced several big changes since the establishment of the People’s Republic, there were big or small changes several times a year. Every time there is any salary increase to government employees, the Bureau of Personnel has to work out how much each government employee should get paid. Before the computerised system was developed, it meant not only working overtime but also “borrowing” staff from other departments. Every year when a big change occurred, the bureau needed to call for more than ten people from other organisations to help with the calculation and making adjustments.

Before this system was developed, the bureau had developed a DOS system to support this function in the 1990s. Due to funding problems, all government organisations were required to buy the software in order to make the system work. As some organisations refused to pay for the software, the system was not working properly. Therefore, the development of this computerised system was welcomed by the Bureau of Personnel. The department was active throughout the system development process, and it was a key user of the system.

In the development stage, the bureau played a key role in design. The salary management system itself was very complicated, as it incorporated the salary-related rules and regulations for decades since 1949. In the government’s documentation, there was no mention about the actual design of the system. However, the salary system was undergoing continuing reforms. Therefore, the design of the system depended on the experience of the bureau. One of the key members in the project team had more than thirty years experience of dealing with salary policies. The design of the system depended on her knowledge of the salary system and her communications with the technical staff in the Bank of China.

In an interview, she explained that although the Chinese salary payment system had evolved and changed a lot over the years, the key elements remained the same. These key elements included the educational background, the years of work experience in the government and the job ranking. The complications occurred in the calculations of these elements and the incorporation of other flexible elements, such as allowances for specific jobs, which had been changed from time to time.

In the design, development and testing stages, effective communication between this key member of staff and the technical staff in the Bank of China has posed a problem. System developers could not understand the government policies on salary management. At the same time, the experienced staff in the bureau could not understand how the computer system worked; they could only try to use it. However, since the system developers did not know the process for calculating salaries, they did not know where the problem really was. As they mentioned in the interviews, “it took us more than one week to solve some problems that should have been solved in one day”. For this reason, the Salary and Welfare Office in the Bureau of Personnel employed a graduate major in Information Management from the Zhong Shan university in the middle of 2001.

By the implementation stage, the relationship of the Bureau of Personnel and other bureaux involved in the project had changed. By working together throughout the project, the friendships between members of the project teams in the Bureaus of Personnel and Finance became established and developed. This developed trust and understanding that is important for inter-organisational co-operation. For example, on the first working day after the Spring Festival in January 2001, the heads of the Bureau of Finance and its team members came to visit the head and the project team in the Bureau of Personnel for the first time. Although it did not mean that no visit implied a bad relationship, this at least was a gesture of close friendship between organisations in the Chinese culture. The working relationships with the Bureau of Social Insurance and the Bureau of Local Tax were also strengthened, while the working relationship with the Housing Reform Office had been developed.

As mentioned before, the Bureau of Personnel developed a DOS system to manage salary a couple of years ago. The system was incomplete and only used by some organisations and the head of the department hesitated to further invest in this project in consideration of the availability of funding and technology. This old system constituted a basis for the development of the new system. As the use of the new system was required by the provincial and city government, all organisations had to use the new system. The computers in the Bureau of Personnel were upgraded, and two more staff were recruited to work for the Salary and Welfare office mainly for day-to-day system operations and maintenance.

### **6.5.3 Bureau of Finance**

The Bureau of Finance was in charge of public funding, including budgeting and allocating public funds in the city. From the perspective of the bureau, the purpose of using this computerised payroll system was to strengthen budgetary control, public finance management and forecasting, in order to support decision-making at the city level.

The bureau considered itself as at the frontier of using IT in the Foshan city government. It was the first bureau in Foshan to introduce computers in public administration, back in the 1980s. In 1997, it developed an intranet, a department-wide computerised information system to manage the database and workflow. The intranet signalled a new stage in information development. Although there were still problems, the system was in operation by the end of 1997. In early 1998, it implemented office automation and from early 2000, in order to improve efficiency and regulate financial management, the bureau implemented various specialised systems. Except for the head of the department, everyone has and uses a computer for their work. This was evidence of a strong and experienced system development staff in its IT department.

Nevertheless, the computerised payroll system was not planned to be integrated into the existing intranet for two reasons. First, the bureau was not allowed to change the data in the payroll system; they were only supposed to obtain data from it to help to generate summaries and work out budgets. Second, the payroll system was only designed for the management of salary payment in government, and integration would have meant making alternations to the system.

In the design stage, the Bureau of Finance provided its system requirements to the Bank of China. Owing to problems it had experienced with the Intranet, the project team in the Bureau of Finance was very cautious about the project and its ability to meet the deadlines. It believed that its involvement in this project was limited. Its main involvement was during the testing and data collection stage, which determined what information was needed to flow from and to the government organisations.

The use of the payroll system work efficiency inside the bureau; for instance, it can distribute bonuses at the end of every year. In the past, more than 200 government organisations had to calculate the bonus individually and then report to the Reward and Punishment Section in the Bureau of Personnel. Finally, the data would be passed to the Bureau of Finance. This process normally took more than two weeks. Additionally, all the documents were exchanged between organisations by hand.

After the system was implemented, with the evaluation results from all organisations in hand, the Bureau of Finance could use the data in the system to calculate the amount of year-end bonus to be paid to individuals and thus produce a budget. When the results were generated by the system and printed out on paper, the head of the bureau only needs to verify and sign them. Now, the process only takes half a day to complete.

As the Bureau of Finance is responsible for allocating funding to all government organisations, it is in a good position to understand the needs of the different organisations. Compared with the Bureau of Personnel, its role in the city government

enables it to have a closer relationship with the other government organisations. Its working relationships with the Bureau of Local Tax, the Bureau of Social Insurance and the Housing Reform Office are comparatively closer than those of the Bureau of Personnel.

#### **6.5.4 Bureau of Local Tax**

As part of the process of tax reform, the Bureau of Tax was divided into the Bureau of National Tax and the Bureau of Local Tax. The latter was in charge of taxation at the local level. The Bureau of Local Tax was established in September 1994 for the implementation of the tax policy of the central government in the city, tax collection and supervisory and other responsibilities.

Using IT in tax collection was given an important role by the bureau. Since 2001, they had been developing a programme to collect tax in the private sector across the city, which was called “Tax Treasury Enterprise All-In-One Programme (Shui Yin Ku Qi Yi Ti Hua Gong Cheng)”. The system development was outsourced to the China Construction Bank (Foshan branch). From 2002, enterprises and individuals could go to any branch of the China Construction Bank in Foshan to pay taxes.

Nevertheless, the collection of income tax from the public sector was separated from this new system. Before the computerised payroll system was developed, individual organisations submitted their tax payments directly to the Bureau of Local Tax. The bureau would check the payments randomly and give a grading. For those organisations which did not honestly submit the correct amount, the bureau would lower their grading and increase accordingly the number of checks on their tax submissions. This sort of tax problem did not often occur in the public sector with fixed salaries but it did happen when government organisations paid out various bonuses and allowances. It was the norm that how much you were paid depended on which government organisation you were working for.



It was hoped that the implementation of the computerised payroll system would solve this problem. In the new system, all the salary payments, including bonuses and allowances, would be allocated by the Bureau of Finance. Therefore, they would be standardised, preventing individual organisations paying extra to their employees.

In developing the payroll system, there were at least two problems from the point of view of the Bureau of Local Tax. First, historically some bonuses and allowances were paid by other organisations, rather than the Bureau of Finance. For example, the police received allowances from the Bureau of Social Security, and the schools and universities from the Bureau of Education. These payments may not have gone through the Bureau of Finance. However, tax collection needs to be based on the exact amount of salary including all sorts of bonus and allowances. Second, the payroll system was not compatible with the existing system in the Bureau of Local Tax. The payroll system recorded the amount of payment based on individual accounts, while the tax system recorded the amount of payment based on individual government organisations. Because of this incompatibility, the implementation of the payroll system was delayed by one month.

### **6.5.5 Bureau of Social Insurance**

The Bureau of Social Insurance is the social insurance administration office at the city level. The contributions made to social insurance funds are compulsory for government employees. Every month, a percentage of their salaries is deducted and contributed to the social insurance fund. At the same time, the public organisations they work for also make a contribution to the social insurance fund, the amount being a percentage of the salaries.

The Bureau of Social Insurance in Foshan was established in 1988. They built an intranet to manage the collection of social insurance in 1993, which was said to be “very

advanced” at the time. Each individual was allocated and identified by a social insurance number.

Before the development of the payroll system, the Bureau of Social Insurance collected their funds from individual organisations every month. The Bureau of Social Insurance kept records of all the employees in the government organisations. If there were any changes in salaries, then updated information would be submitted to the bureau by the respective organisation.

During the systems development process, two problems were experienced by the Bureau of Social Insurance. First, there was a problem of system integration. As noted above, each individual had a unique social insurance number, which helped keep track of records, whenever they changed jobs. However, the problem was with organisations with a high turnover or job movements, like the police. The police had a large number of employees, who tended to move around different branches with changing job requirements. For each job change, the Social Insurance Bureau had to key in the updated information. As their system was not comparable with the data output from the payroll system, there were frequent problems with matching data because of incorrect social insurance numbers. If the government organisation supplied the wrong number, the Social Insurance Bureau could not input the data into the system. This problem persisted even six months after the implementation of the payroll system.

Second, efficiency improvements became a controversial issue, depending on the issues of concern. Efficiency improved from the perspective of calculating individual employees’ social insurance contributions in the Bureau of Social Insurance, because the payroll system could supply the exact amount of individuals’ salaries and the amount deducted to contribute to social insurance funds. For example, from 1 January 2001, the bureau increased the contributions from personal income to the social insurance funds by 1%. The Bureau of Personnel accordingly updated the payroll system, which automatically generated the amount of social insurance. Before the use of this system,

the Bureau of Social Insurance had to calculate the contributions from each government employee because the total amount received from the government organisations was not broken down into individual accounts.

However, in reality, changes in salary payment and personnel movement happen very often. Some of the changes are unexpected and incur complicated calculations, such that the Bureau of Personnel needs to update the payroll system from time to time. Since this payroll system is not integrated with the intranet system in the Bureau of Social Insurance, the latter also needs to update their own system. In these cases, the Bureau of Social Insurance not only needs to update their system, but also to make sure the new database is compatible with the data supplied by the payroll system. This means complexity and an extra workload.

### **6.5.6 Housing Reform Office**

The Housing Reform Office is responsible for collecting housing accumulation funds. These funds comprise a separate account for each employee, who may apply for a loan from the fund and withdraw the entire balance for purchase, construction, renovation or repair of an apartment or house, or for other similar purposes. As the main purpose of the Housing Reform Office is to assist the transition from the old housing system to the new privately funded housing, some argue that the housing accumulation funds should be treated as a temporary measure and that the fund should be placed under the supervision of the social insurance fund (Zhu, 2002).

Compared with the Bureaux of Local Tax and Social Insurance, the Housing Reform Office is very new. In fact, it only began to build up its own management information systems in 2001, even later than the implementation of the computerised payroll system. Therefore, since they did not have their own system yet, the use of the data from the payroll system became problematic.

Before the computerised system was implemented, individual organisations were required to maintain a certain amount of money in a bank account reserved as a payment to the housing accumulation funds. Every month, the Housing Reform Office deducted a certain amount of money based on the number of people working there. Individual organisations checked the amount deducted every month. If there was any problem, it would apply for a refund from the Housing Reform Office. With the implementation of the payroll system, the Housing Reform Office was supposed to receive its allocation of funding directly from the Bureau of Finance.

However, the situation in Housing Reform Office posed a difficult problem. It had calculated the amount to be paid by each organisation and, since the data from the payroll system was based on individuals rather than organisations, the Housing Reform Office needed to regroup the data every month to produce the amount for each organisation. Without a proper information system, the Housing Reform Office argued that this was unfeasible.

The city government held several meetings to discuss solutions. Eventually, the Housing Reform Office agreed that the amount for the housing accumulation funds would be automatically deducted from the salary payment and transferred to them through the Bureau of Finance. However, individual organisations were still required to report the total number of employees to the Housing Reform Office separately. If the data given by the individual organisations did not match the data supplied by the Bureau of Finance, the Housing Reform Office could reject the payment from the Bureau of Finance until these two sets of data were the same.

After the payroll system was implemented, it was found that these two sets of data often did not match. There were two main causes. The first problem was timing. For the payroll system, the deadline for any amendment in salary payment was the 24<sup>th</sup> of each month, while the deadline for any amendment for the Housing Reform Office was the 27<sup>th</sup>. So, some changes made to the Housing Reform Office may not be reflected in the

salary payment. The second problem was due to the initiatives of individual organisations. For instance, if there were any new personnel, they would be reported quickly to the Bureau of Personnel as new personnel needed to get paid. But, they tended to delay the reporting to the Housing Reform Office because they needed to make more housing contributions.

### **6.5.7 Government Organisations**

From the start of the project, the project team from the city government, the Bureau of Finance and the Bureau of Personnel agreed that the co-operation of government organisations would be critical to the success of this system.

In the data collection and testing stage of the system development process, the Bureau of Finance, the Bureau of Personnel and the Bank of China held a one-day training course. All the responsible staff in government organisations were required to attend.

At that time, generally speaking, there were two different attitudes towards the development and use of this payroll system. Some government organisations considered that they had to use this system because its development was a policy from the central government. In hindsight, they might question the effectiveness of the system. For example, one interviewee was cautious about whether the standardised salary payment system could get rid of the problems that staff of the same rank received different treatment in different government organisations. She argued that the benefits and bonuses some government organisations paid their employees took forms other than money, for example, free tickets, free dinner vouchers, free holidays and so on.

Instead, some other organisations were very supportive of the development of the system. Among them, some considered it as a reduction of workload. It was common that a person was responsible for several jobs in a government organisation, including managing salary payments. So, they would be happy to have fewer tasks.

Some big organisations considered it as an efficiency improvement that saved time, especially when there were any changes in salaries. With this system, they would not need to work overtime to calculate individual employees' salaries. Take the Foshan No. 1 Hospital as an example. In the past, if there were any changes in the salary policy, the finance division had to recalculate the salaries for all the employees affected by the new policy. As the largest hospital in the city, during this period, the finance division had to work overtime and sometimes even ask for extra help from other administrative offices in the hospital.

Some organisations considered it to be a good opportunity to leave the explanation of the complex salary payment system to the Bureau of Personnel. Staff in the finance division had much fewer troubles with the salaries. Since individuals tended to believe in the accuracy of a computer system, there were fewer people coming to the finance division with questions about salaries. At the same time, the standardisation of the salary payment process made it easier for the finance staff to answer salary-related questions. They could check the records in the system. If there was no problem, individuals could go to the bank to check the cash inflows and outflows in their salary accounts. Additionally, it was no longer as important and necessary for staff in the finance division to remember all the various salary policies as before. Therefore, some organisations were very serious about the supply of salary data to the Bureau of Personnel. They introduced the functioning of this new payroll system to their employees, and gave copies of the forms to individuals for approval before submitting them to the Bureau of Personnel.

When the system was implemented, two types of problems occurred due to the changes in the work process. First, some organisations had special situations which needed to be accommodated; for example, compensation for overtime teaching in public schools which was not seen in other government organisations. However, some problems were historical and more difficult to solve. Historically, many government organisations had

the power to decide the salary payments. Not all the decisions were well documented; in particular, some decisions were made locally that might only affect a few people. It was very difficult, if not impossible, to incorporate these items into the new payroll system.

Second, the proper functioning of the payroll system required that government organisations changed some working norms. For example, the system needed timely updates for personnel information. This required the staff working in the government organisations to report any changes in employment immediately, rather than whenever they had time. The delayed report of an employee's retirement earlier in this chapter was such an example.

After the system was put into use, there was still scope for improvement from the perspectives of government organisations. For example, red tape still played an important part in government administration, and any changes in the salary payment needed to be verified by the Bureau of Personnel on paper. Besides the Bureau of Personnel, government organisations still needed to report to the Housing Reform Office in person.

#### **6.5.8 Bank of China (Foshan branch)**

The Bank of China is one of the biggest state-owned banks in China. Before China carried out the banking reforms, each state-owned bank had an assigned role in the banking sector. The Bank of China mainly dealt with business with the public, such as personal saving accounts. With the rapid economic development in China, the assigned role of the state-owned banks became very vague; in particular, bad debts became a very big problem. In order to ensure healthy economic development, state-owned banks, except the People's Bank of China, which plays the role of a central bank, were making reforms to become responsible commercial banks.

In addition to the increasing competition among Chinese banks, the entry into the WTO has enabled multinational banks to enter the banking sector in China. Therefore, the question facing the Bank of China, like most state-owned banks, was not only profitability but also survival.

In the interview with a manager of the IT department in the Bank of China, he considered the most significant change from a state-owned bank to a commercial bank to be the fact that the head of bank is no longer appointed by the local government. In his words,

*“It really matters. In the past, there was a saying that ‘a loan can be accepted by a piece of cigarette paper’. This means that, as long as a governor agreed and signed, companies could get the loan no matter whether the application procedure and checking procedure were completed... Or, another saying reads ‘mayor orders loans’”.*

This phenomenon posed a significant problem for the operating of the bank before the reform, as it was working on the basis of administrative order rather than profitability. After the reform, the Beijing headquarter of the Bank of China took full responsibility for its branches all over the country.

Another example is the reform of computer procurement procedure in the bank, as the manager mentioned in the interview. This reform took place in 1999. Before the reform, the IT department had the power to buy computer equipment as needed. After the reform, it had to first report to the head of the branch, who then needed the approval of the Beijing headquarters. This budgeting procedure strengthened the financial control of the Beijing headquarters, with the intention to solve the problems of waste and lack of control.

According to the interviews with the IT staff in the Bank of China, acting as the vendor in the client’s IT projects became a way to attract and maintain the customer base. The



Bank's IT department had experienced staff who have worked on developing the bank's computer system for years. To take advantage of this, the Bank entered into agreements with its clients to develop various systems for them. The main benefits were the good relationships built up and maintained through helping the clients with the IT systems, rather than the profits of these projects. On the other hand, the clients could make good use of the bank's IT expertise.

The development of this new payroll system was such a project. The project manager in the Bank of China said, "Of course, this project has brought us more customers and business, but this is not so important in this case. Our main aim in this project is to build up the good relationships with government organisations. Of course, if the government is very happy with what we do, we are looking forward to closer co-operation for the years to come." The contract of this project was subject to review after three years, therefore the project was given full support by the branch manager of the Bank of China.

## **6.6 Summary**

This chapter illustrated the implementation process of the computerised payroll system in Foshan and how the City Government, the Finance Bureau, the Personnel Bureau, the Local Tax Bureau, the Social Insurance Bureau, the Housing Reform Office, the Bank of China and personnel staff in other government organisations were involved in this process.

The original objective of the system was to develop an inter-organisational information system among the Personnel Bureau, the Finance Bureau and the Bank of China. The aim of the project was to enhance the management of personnel information and public funds through automating the salary payment process.

As the development of the system was initiated by the central government, some implementation issues appearing in this case study provided an opportunity to study the interaction of national policy with the social context of local government. There are three problems as summarised below which need to be answered.

The first obvious problem is the delay of the project owing to the system integration problem. The original design of inter-organisational data exchange looked quite simple and straightforward. After the direct deduction of income tax, social insurance and housing contributions from the salary payment, the detailed information would be sent to the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office in the form of paper or computer-disk. However, problems arose when the data output of the new system was not compatible with the existing systems in the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office. As a result, this caused the delay of the project.

Additionally, the payroll system was designed implicitly as a shared database of salary and personnel details of government employees among different government departments. Though the Personnel and Finance Bureaux had direct access to the database, the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office would be able to benefit from the data generated from the new system.

The lack of inter-organisational co-operation, including the problem of data sharing, could be seen as the result of the traditional administrative culture or a lack of management support. However, it seems that this does not apply in this case. First, from the beginning of the project, the city government gave full support to the project, which was also recognised by the project team. In particular, it played an important role in solving the problems in inter-organisational co-ordination. Second, the problem of inter-organisational co-operation cannot be explained by the traditional administrative culture, which suggests that government departments are reluctant to share their information and co-operate with each other. The problem in this case was that the

Personnel and Finance Bureaux intended to share the personnel data with other bureaux. From the perspectives of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office, they had to make compromises and to some extent accept the direct deductions made by the new system.

The second problem concerns the bonus and allowance payments to the employees of individual government organisations. Although the new system was able to handle the basic salary payment, the payments of bonus and allowances remained in the hands of the finance departments of individual government organisations. The Finance and Personnel Bureaux were trying to integrate the bonus and allowance payments into the new system to strengthen public finance management. However, they encountered many problems, while individual government organisations insisted on retaining their ability to manage allowances and bonus payments to maintain effective organisational management. On the face of it, the problems of managing bonus and allowance payments from the Finance and Personnel Bureaux's perspective were owing to the lack of historical data. However, both the Personnel and Finance Bureaux and individual government organisations claim that their arguments were in favour of achieving administrative reform objectives. In other words, the issue of whether and how the bonus and allowance payments should be handled by the new system is subject to debate. Therefore, it would be worth investigating the reasons behind this problem.

The third problem is the parallel use of the old and new systems. The problems of data integration with the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office ended up with the adoption of three different solutions respectively. However, all these solutions were compromises, such that the old and new systems had to work in parallel. The Local Tax Bureau accepts the data generated by the new system and from individual government organisations, and audits individual organisations through occasional visits as before. The Social Insurance Bureau checks the data generated from the new system against the information collected in the old way that includes the information already held in its Intranet and the updates from individual

government organisations. The Housing Reform Office still requires personnel staff in government organisations to hand in the information about their employees and checks it against the data generated by the new payroll system. The parallel use of the old and new systems was not the intention of the project; therefore, there is a need to understand how it came into being.

## ***Chapter 7 Case Analysis***

### **7.1 Introduction**

In order to study the implementation of national policy on stakeholders at the local government level through computerising an information system, this chapter uses Giddens's structuration theory to study the changes of stakeholders' perceptions before and after the development of the system.

This introduction consists of two parts. The first introduces the administrative structure and government bodies at different levels related to this case study. More importantly, it classifies the stakeholders at the local government level into different stakeholder groups for the convenience of later analysis. The second part explains how structuration theory is used to analyse the case and outlines the structure of the rest of the chapter.

#### **7.1.1 Administrative Structures in the Chinese Government**

Since China introduced the Open Door Policy in 1978, reforms have been (and in some cases are still being) implemented to change the old administrative structure in order to achieve the overall administrative reform objectives. Figure 7.1 shows the relationships between the different government bodies at all levels, directly or indirectly involved in this project. This existing administrative structure needs to be understood from two perspectives, both vertically and horizontally.

Horizontally, ministries at the central government level are in charge of departments at the provincial level, who are in charge of bureaux at the local government level, as shown in Figure 7.1. For instance, the Finance Bureau, the Personnel Bureau, the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office in Foshan are

managed respectively by the Finance Department, the Personnel Department, the Local Tax Department, the Labour and Social Security Department and the Construction Department at the Guangdong Provincial government level, which are also under the administration of the Finance Ministry, the Personnel Ministry, the State Administration of Taxation, the Labour and Social Security Ministry and the Construction Ministry at the central government level respectively.

Vertically, at the city government level, the Foshan city government oversees the operations of the Finance Bureau, Personnel Bureau, Local Tax Bureau, Social Insurance Bureau, Housing Reform Office and other bureaux. At the provincial level, the Finance Department, Personnel Department, Local Tax Department, Labour and Social Security Department and Construction Department are under the supervision of the Guangdong provincial government. At the central government level, the State Council is the highest state organ of administration. After a major reform of its organisational structure in 1998, the State Council consists of the General Affairs Office, 28 ministries and commissions (including the Finance Ministry, Personnel Ministry, Construction Ministry and Labour and Social Security Ministry), 17 directly affiliated organs (including the State Administration of Taxation), 7 working offices and a number of directly administered institutions. The State Council's General Affairs Office and Government Offices Administration are the organisations in charge of implementing national policies and managing relationships with provincial governments.

In this research, the unit of analysis is the government bureau and the level of analysis is the local government level. However, there were one or more offices in each bureau involved in the project; for example, the Administration and Finance Office, IT department and Budgetary Office in the Finance Bureau, the Salary and Welfare Management Office in the Personnel Bureau, the Social Securities Fund Management Centre in the Social Insurance Bureau and the Levy Management Office in the Local Tax Bureau. Moreover, those government officials participating in the project might behave differently for different reasons such as personal interests, which could influence

the project in various ways. Although we were aware of this, in order to study the organisational changes of local government stakeholders when implementing a national policy, government bureau remains the unit of analysis. The only exception is the Housing Reform Office, which although it is now affiliated to Foshan's Real Estate Bureau, it was part of the Social Insurance Bureau before the Housing Reform was implemented. Therefore, the name of "the Housing Reform Office" is appropriate to reflect the transition from the Social Insurance Bureau to the Real Estate Bureau.

For the convenience of the analysis, we have categorised the stakeholders identified in Section 5.3.2. into five groups according to their organisational objectives and interests in this project, as shown in Figure 7.1. using double-ended arrows.

First, the city government of Foshan was the change agent that organised and supervised the implementation of the Personnel and Payroll System. For the central government, it was responsible for developing the new system. At the local government level, it initiated the project, organising and co-ordinating various local government bureaux during the system development process. It played a unique and important role as a co-ordinator and decision maker in this project.

Second, the Personnel and Finance Bureaux were active stakeholders who participated in the system development process. They were assigned the responsibility to develop the new system by the city government. Also, they were direct users of the resulting system.

The third stakeholder group includes the Housing Reform Office, Social Insurance Bureau and Local Tax Bureau who were passive stakeholders in the project, without direct involvement in the project at the initial stage. They were grouped together because they were influenced by the new system in a similar way and they shared similar interests in the system.

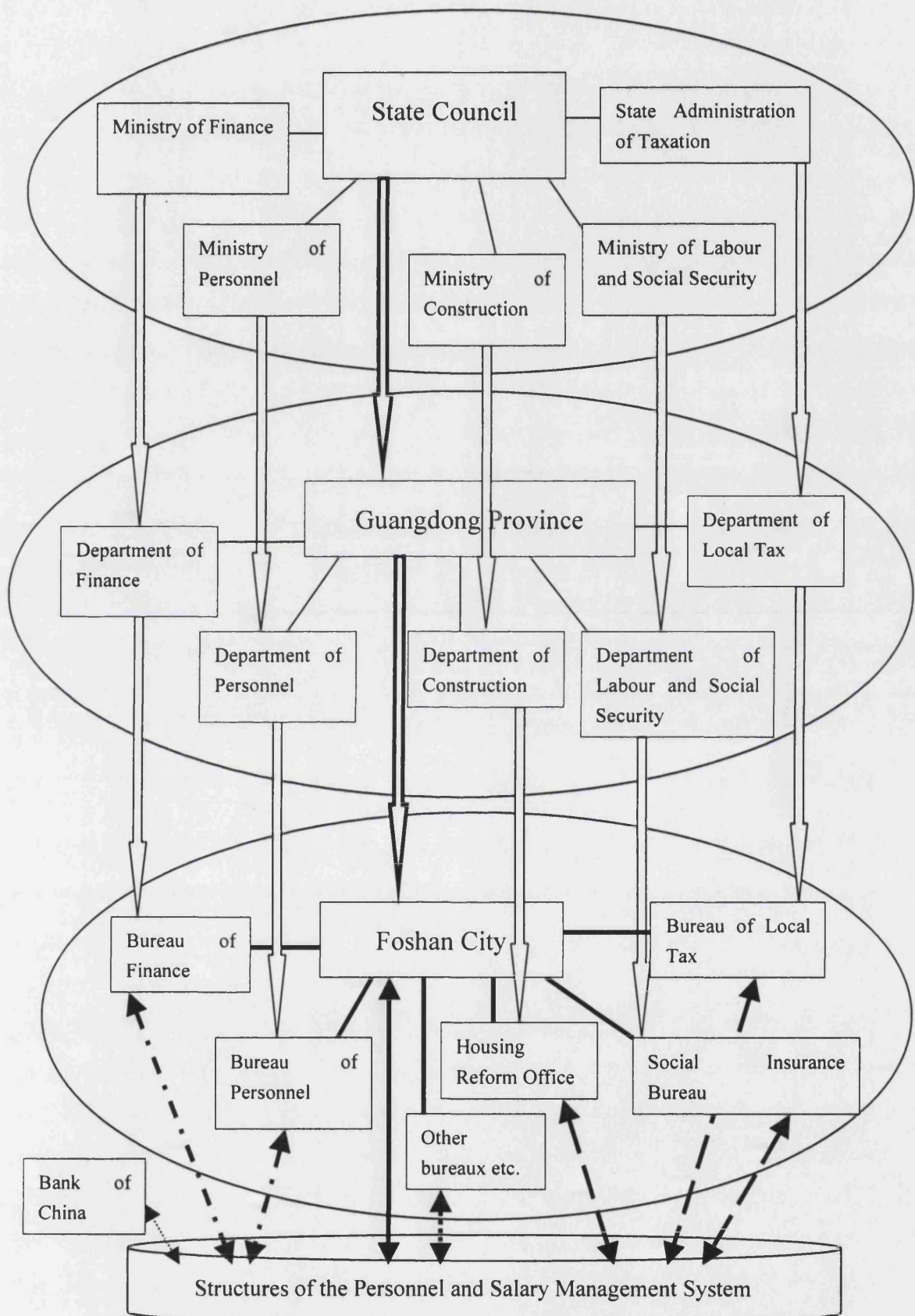


Figure 7.1 Administrative Structure in the Chinese Government



The fourth stakeholder is the Foshan branch of the Bank of China, which was the vendor responsible for developing the new systems for the Finance and Personnel Bureaux. It was the only organisation involved in the project that was not a government organisation.

Finally, all the government organisations that needed the new system to pay their employees were considered as a stakeholder group. They were involved in the project in similar ways, providing the original data input to the system and transferring the management of basic salary payment to the computerised system. After the system was developed, they needed to use the system in similar ways.

### **7.1.2 Sketch of the Analysis Structure**

The analysis section consists of two parts. In the first, we use Giddens's structuration theory to study norm, power and interpretive scheme changes in each stakeholder/stakeholder group and the conflicts of perceptions among stakeholders.

The project of developing an automated Personnel and Salary Management System was based on a national policy made by the central government, reflecting the administrative reform objectives of the central government. Table 7.1 summarises three objectives of the Chinese administrative reform that are discussed in detail in Chapter 3.

In terms of legitimation, from each stakeholder's perspective we discuss the old norms before administrative reform, the ideal norm changes, and the conflicts with other stakeholders. Here, the norms refer to the ways of doing things, no matter whether they were written rules or unformulated, which are also subject to the interpretations of stakeholders.

In terms of domination, from each stakeholder's perspective we discuss their views of the power structure before the development of the new system and the expected power

structure after using the new system. Then, we move on to discuss the conflicts among stakeholders and how this influenced the development of the new system. According to Giddens (1984), power is generated in and through the reproduction of structures of domination which are drawn from allocative and authoritative resources. Therefore, when discussing the power structure, we focus on the allocative and authoritative resources available to stakeholders and how they used these resources to influence the system development process.

In terms of signification, we study the changes of stakeholders' perceptions of the development of the computerised Personnel and Finance Management System as a reform policy. The interpretive schemes for government bureaux are the three reform objectives outlined in Table 7.1, including the change from a Soviet-style all-round government to a service government, the change from an authority-based to a law-based system and the development of a performance-based evaluation system. Then, we study the conflicts of these perceptions among the stakeholders during the system development process, as a result of the continuous and reflexive communications with other stakeholders.

In the second part, we use the findings of the first part to understand three issues raised in Chapter 6, namely the problem of project delay, the new and old system working in parallel and the ambiguous bonus and allowances payment. Finally, the research findings regarding the impacts of national policy on local government stakeholders are summarised.

## **7.2 Analysis**

### **7.2.1 Legitimation**

Chapter 3 discussed the background and objectives of administrative reform in China in detail. In this section, we discuss the general norm changes that the Chinese government

hoped to achieve in administrative reform and their relevance to this case study from the city government and the stakeholders' perspectives.

Generally speaking, before China carried out administrative reform, the Chinese government was a Soviet Union-style all-round government in which the public sector dominated society and the private sector was almost non-existent. The central government was in control of government organisations at all levels, including appointing senior officials and allocating public funding. Therefore, government organisations at the local level relied on funding from the central government and cost saving was not an issue in the public sector. This led to the problem of selfish departmentalism and over-budget spending. Furthermore, senior officials decided the promotion of government employees and their ways of working, leading to the problem of nepotism and low work morale in government organisations. Particularly, without a proper performance evaluation and reward system, personnel management suffered from extreme egalitarianism.

With the transition from a centrally planned economy to a market economy, the Chinese government aimed to establish new norms to become an honest, practical and highly efficient government providing good public services. It was hoped that government officials at all levels would be held accountable for their jobs with the establishment of responsibility systems. Hence, the heads of each government organisation were responsible for achieving their organisational objectives, including personnel and expenditure management. In the new norms, the responsibilities of government officials and the corresponding evaluation and reward systems were specified in rules and regulations.

### **7.2.1.1 Ideal Norm Changes by Stakeholders**

#### **City Government**

From the city government's perspective, the ideal norm changes can be understood from three perspectives.

First, the city government's relationships with the central government and local government bureaux needed to be changed. Before the reforms, as long as the city government followed the policies made by the central government and other higher-level authorities, it was considered to be competent, regardless of the actual policy implementation outcomes. Similarly, local government bureaux had to follow the policies made by the local government and other higher-level authorities.

As shown in Table 7.1, the Chinese administrative reform aimed to establish a performance-based evaluation system and put more emphasis on laws rather than authority. As a result, after the reforms, with more discretion in decision making, the city government took up more responsibilities for managing local issues than before. Moreover, the city government was accountable not only to the central government as before, but also to the grass-root government organisations and the general public.

Similarly, under the old norms, local government bureaux were obliged to follow the instructions of the city government and other higher-level authorities. In the new norms, the role of the city government was to set the targets and provide assistance to grass-root government organisations rather than simply giving orders. The priority of government bureaux was to accomplish their organisational missions, although they were still supervised by the city government.

<i>Old norms to be challenged</i>	<i>New norms to be achieved</i>
<b>All-round government</b>	<b>Service government</b>
In a centrally planned economy, the government was in the best position to manage the whole society, keeping the existence of the private sector to a minimum.	In a market economy, the government should be small and efficient. The private sector is encouraged to participate in appropriate government projects to reduce costs.
Government organisations should provide almost free social welfare to their employees.	Social welfare should be provided using the market mechanism, not by government organisations.
Local government organisations worked for the central government and senior officials at higher-level authorities.	Local government organisations should work for the public and facilitate economic development at the local level.
All local income and expenditure was managed by the central government, so local government organisations' over-budget spending was met by extra funding from the central government.	With shared tax income and public expenditure with the central government, local government organisations need to be cost-conscious, spending within the budgets.
<b>Respect for authority</b>	<b>Respect for law</b>
Local government employees should follow the orders of the central government or senior officials under all circumstances.	Local government employees have the obligation to work following the procedures specified as rules and regulations.
Senior officials at higher-level authorities decided promotions and appointments of government officials.	Promotions and appointments of government officials are based on the rules of the personnel evaluation systems.
<b>Extreme egalitarianism</b>	<b>Clear reward and punishment system</b>
Life-long employment	Contract- or term-based employment with the possibility of losing jobs.
Pay was the same for those with the same job titles, regardless of their performance and how hard they worked.	Good performance and hard working are rewarded by extra bonus and promotion.
Promotion based on work experience and personal relationships rather than job performance. Job titles move only in one direction, up.	Promotion based on evaluation, examination and competition. Job titles could go either way, up or down, depending on their job performance.

Table 7.1. Ideal norm changes in Chinese administrative reform

Second, in terms of finance management, in order to accomplish the change from an all-round government to a service government and establish a performance-based evaluation system, the city government had the responsibility to change the old norms of over-budget spending in local government agencies.

Before the start of administrative reform, public funding was allocated by the central government and was not a big concern for local government. In fact, the lack of a market mechanism also made it hard to measure administrative costs, because all the prices were fixed by the central government. When government organisations spent over the original budgets, the overspending would be met by extra funding from the central government sooner or later.

The new norm promoted in the public sector was frugality. Along with the discretion of allocating part of local tax revenues, the city government had more responsibilities and accountability over public finance allocation than before. In order to manage public finance at the local level, the heads of local government organisations were held accountable for their organisational expenditure. At the same time, Foshan city government also encouraged government organisations to use various cost-saving channels, including the involvement of the private sector in some government projects.

Finally, in terms of personnel management, Foshan city government developed a personnel evaluation system to reward hard-work and good performance.

Before the administrative reform, government employees were paid and promoted regardless of their efforts and job performance. Unless they committed serious crimes, government employees would not lose their jobs. The performance of government employees was also separated from the assessment of their organisational leaders. Therefore, under the old norm, government employees tended to take a very relaxed approach to work and took up as few tasks as possible. This is because they could be blamed if they committed a big mistake but they were not blamed for not working. Low

efficiency was the norm in the public sector, where government officials tended to avoid facing difficult issues.

In order to establish new norms among government staff in Foshan, the city government working with the Personnel Bureau set up a civil servants' performance evaluation system, later formally named "Temporary regulations on the service performance of civil servants in Foshan". It was hoped that, in the new norms, civil servants would be motivated to work for the public and be responsible for their work. Each civil servant's performance was assessed by the number of complaints received by the city government's complaint handling organisation. These complaints may come from those to whom they provide services or the general public. The number of complaints was linked to the percentage deduction from their monthly bonus and allowances. Civil servants receiving more than four complaints in a year could lose their jobs by the end of the second year if they did not change. On the contrary, those who received no complaints in a whole year not only received a full extra bonus payment but also an "excellent performance" honour. More importantly, the heads of local government organisations were also assessed by the performance of their employees.

### **Finance and Personnel Bureaux**

The ideal norm changes from the Finance and Personnel Bureaux's perspectives can be understood from two perspectives. First, the Finance and Personnel Bureaux were more responsible and accountable for public finance management and personnel management at the city level than before.

Under the old norms, the Finance and Personnel Bureaux' main responsibilities were to simply pass the data submitted by local government organisations to the city government and the central government. Since the information supplied was not important for decision making at the central government level, the Finance and Personnel Bureaux were not held accountable for the quality of the data. Similarly, the

Finance and Personnel Bureaux did not have the responsibilities to ensure the accuracy of the information supplied by local government organisations. Under the new norms, the Finance and Personnel Bureaux were held accountable for the reliability of personnel and finance data, as they needed to supply quality data to the city government for decision-making.

In terms of personnel management, the Personnel Bureau hoped to establish the new norms of responsible and transparent personnel management. Each government employee in local government organisations should be clear regarding their job responsibilities, and their performance would be assessed based on the criteria set by the city government and the Personnel Bureau. For example, in the administrative reform programmes in 1998, “three ceilings” were introduced to control the over-swelling problem and evaluate the performance of civil servants. Three ceilings controlled the functions of the public sector (ding zhineng), the administrative organs (ding jigou) and the number of personnel (ding ren yuan). In this way, it was hoped that the responsibilities and posts of each government employee could be specified, controlling the swelling problems and forming the basis for the evaluation of their job performance. This aimed to change the blurred division of responsibilities and roles of personnel in government organisations before the administrative reform.

In terms of public finance management, the new norm the Finance Bureau hoped to establish was to supply reliable and credible public finance information to the city government for decision making. At the same time, local government organisations should be held accountable for their expenditure and supply quality data. Particularly after the fiscal reforms, with shared tax revenue between the central government and the city government, the expenditure of local government organisations became the responsibilities of local government. Therefore, the Finance Bureau had an increasingly important responsibility in managing the expenditure of local government organisations.



Second, in order to improve personnel and finance management, both the Personnel and Finance Bureaux considered it important to change the old norms in order to establish a law-based system. Under the old norms, the Finance and Personnel Bureaux had to respect the authorities and often accept the “special instructions” from senior officials or higher-level authorities, because finance and personnel management were prone to problems such as “backdoorism” and nepotism. Therefore, in order to improve personnel and finance management, the Personnel and Finance Bureaux aimed to change the old norms of authority-based management to new norms of law-based management.

The Finance Bureau emphasised “law-based public finance management, equitable and honest”. Before the reform, government organisations tended to operate in different ways, including personal relationships, to get extra funding. Therefore, to enhance finance management, the Finance Bureau in Foshan aimed to establish a legitimate system based on the “three iron principles”, as they are called by the bureau. These three principles comprise: no illegitimate fund allocation (Iron Cock), no inaccurate calculation (Iron Abacus) and no illegitimate or unfair judgement on fund allocation (Iron Judge).

The Personnel Bureau also emphasised the importance of legitimate ways of recruitment and promotion in personnel management. Before the administrative reform, owing to the lack of a legitimate recruitment and evaluation system, nepotism and “backdoorism” in employment and promotion led to malpractice and corruption (Dong, 1994). Therefore, the Personnel Bureau aimed to enforce the rules and regulations of the new civil service system to improve personnel management.

#### **Local Tax Bureau, Social Insurance Bureau and Housing Reform Office**

Regarding the Local Tax Bureau, the reform policies changed the passive tax collection under the old norms to active tax collection under the new norms. Before the fiscal

reforms, tax collection at the local level was not as difficult as after the reforms, because the central government managed tax income and public expenditure at all levels of government. In addition, as private enterprises hardly existed, tax income mainly came from the big state-owned enterprises. These were willing to pay the tax because they could always ask for extra funding from the government. Income tax was also non-existent, as nearly everyone was employed by the State. Since the assets of state-owned enterprises belonged to the government, the collection of tax was described as moving money from the left pocket to the right pocket. Therefore, under the old norms, the Local Tax Bureau's responsibility was to collect tax from the state-owned enterprises and pass it to the central government.

The norm change in the Local Tax Bureau was due to the change of policy focus to economic development after the "Open Door Policy" was introduced. With private enterprises springing up and income gaps widening, the Local Tax Bureau's responsibilities included not only the collection of taxes but also using tax to encourage local economic development. The new fiscal system was characterised by the sharing of tax revenues, and the scope of expenditure of government at different levels determined by their respective responsibilities. Local government became mainly responsible for public spending under their respective jurisdictions. State tax agencies and local tax agencies were established separately. State taxes and shared taxes were collected by the state tax agencies, while local taxes were collected by the local tax agencies. Therefore, under the new norms, the Local Tax Bureau had the responsibility to ensure successful collection of local taxes based on the new tax policies. At the same time, in order to improve the rate of tax collection and the services to the public, the Bureau also had the responsibility to ensure that the tax collection procedure was convenient to tax payers.

Similarly, regarding the Social Insurance Bureau and Housing Reform Office, their norms changed from the local providers of social welfare services in the centrally planned economy to the local managers of social welfare and housing funds in a market

economy. Before the social welfare reforms, the central government was responsible for providing social welfare to government employees, such as almost free housing, medical care and even nursery facilities to their children. Government employees could continue to enjoy these facilities and receive a monthly pension even after they retired. Therefore, under the old norms, local social welfare agencies acted on behalf of the central government to distribute social welfare benefits at the local level. However, this created problems such as corruption and “backdoorism”. For example, although the central government had made some rough guidance in housing allocation, it was mainly subject to the persons in charge to decide which houses should be allocated to whom. Besides the huge financial burden of the central government and government organisations at all levels, local government employees were often dissatisfied with the services.

Against this background, the Social Insurance Bureau and the Housing Reform Office were established to implement the policies in social welfare reforms. The norms in these organisations reflected the overall aim of social welfare reforms in China.

In terms of the social security system management reform, since the mid-1990s, the government had undertaken reforms to bring all social security systems under unified planning and to improve management and supervision of the use of social security funds. Social insurance, which was previously governed by a number of administrative departments, was now under the centralised management of the labour and social insurance administration department. Labour and social insurance administration departments at all levels of government established offices to handle the daily routines of social insurance. Therefore, under the new norm, the Social Insurance Bureau became responsible for examining and supervising the collection of social insurance funds and raising the ratio of such funds in the overall financial expenditure.

In terms of housing reforms, in mid-July 1998, the central government introduced a new housing system. Government organisations would no longer build, purchase or allot residential houses to their employees. Instead, they would turn a proportion of their original funds for housing construction and purchase into various forms of housing

allowances, which would be paid directly to employees either on a monthly basis or in a lump sum. Employees would then have to resolve their own housing needs through either purchase or rental of housing from the market (Gu, 2001). Therefore, under the new norms, the Housing Reform Office became responsible for the collection and management of housing funds. Its responsibility was to help to establish a market-oriented housing management system in order to solve the inequality of housing distribution among government organisations, to relieve the burden on government organisations and improve their efficiency, and to create a good market environment through correcting irrational housing prices and low rents (Yuan, 1998).

To summarise, under the old norms, since tax collection and social welfare management were carried out according to the instructions of central government, the amount of tax collected and the satisfaction of government employees in terms of social welfare were taken for granted. The local tax and social welfare management agents were not held responsible. Under the new norms, the performance of the Local Tax Bureau, Social Insurance Bureau and Housing Reform Office were assessed on their abilities to collect and manage tax, social insurance and housing contributions. They were not only held responsible by the central government but also by the city government. They also needed to be accountable for enquiries by government employees.

### **Government Organisations**

The norms of the personnel and finance staff in government organisations were also changed by administrative reform. Under the old norms, they reported personnel and finance information with the approval of the heads of their organisations. The information was sent to the central government through the city government. The central government was unable to check the actual number of personnel and the accuracy of the actual expenditure, and the local government did not hold them responsible for the accuracy of these figures, without the orders of central government. Therefore, with the high turnover of personnel staff, no one was held responsible for the personnel and finance information in government organisations under the old norms. As long as no serious crime was committed, for example taking public funds as a personal income, no

one would be punished for inaccurate information. Even if government organisations spent over budget, the extra funds would be met by the central government. As a result, over-spending by government organisations was not controlled and punished.

These old norms had to be changed after administrative reform. With shared tax income and public expenditure with the central government, the local government had the responsibility to control the expenditure of government organisations. Without the burden of providing social welfare to their employees, each government organisation was expected to be accountable for their expenditure. Under the new norms, it was hoped that the heads of government organisations would hold their personnel and finance staff accountable for the information, who would in turn be held accountable by the city government.

### **Summary**

The ideal norm change was to establish a shared and law-based responsibility and accountability system among different government organisations at all levels, which would be regulated by laws and regulations and rewarded according to a corresponding performance evaluation system.

In this case study, the city government was given the responsibility by the central government to develop a personnel and salary management computer system. The city government considered it as a way to improve personnel and finance management, hence giving the responsibilities to the Personnel and Finance Bureaux. It was hoped that the new computer system would be a law-based system and would form part of a performance evaluation and reward system.

### **7.2.1.2 Norm Conflicts as the Actual Norms Vary from the Ideal**

The findings in this research have thrown doubt on whether the ideal norm changes happened in reality. For instance, the new laws and regulations did not cover some historical or special cases that were again subject to the judgement of the authorities or the persons in charge. Also, in reality, there was no agreement among the stakeholders regarding what was the priority of the project and what should be evaluated, which was dependent on their positions and understanding of their organisational objectives.

The difference between the actual and ideal norms was either due to staff following the old norms, or the conflicts existed within the new norms preventing them from achieving the objectives of the reforms, or the stakeholders had different priorities or emphasises on norm changes due to their status. The conflicts between the actual and ideal norms are explained from the perspectives of each stakeholder group.

From the city government's perspective, it was responsible for the management of government agencies and administrative affairs at the city government level. However, in reality, the city government's ability to co-ordinate the various government agencies was limited by the dual administrative structure that persisted. For example, the Housing Office, the Local Tax Bureau and the Social Insurance Bureau were also under the supervision of their corresponding departments in the provincial and central governments. Their priorities differed from the objectives of the Personnel and Finance Management Project. Moreover, with no financial support from the central government in this project, the city government had to use market mechanisms to bring in external vendors, the Bank of China. However, when the interests of the project and the vendor differed, as shown in this case, the city government had very limited authority to manoeuvre among different interest groups. As a result, government agencies had to make compromises in terms of the best interests of the project.

From the perspectives of the Personnel and Finance Bureaux, they were assigned by the city government to develop the system. However, in reality, when the interests of the project were in conflict with the Local Tax Bureau, Social Insurance Bureau and Housing Reform Office, they were not in a position to negotiate with them. The development of inter-organisational information systems such as the Personnel and Salary Management System required co-ordination among different stakeholders. However, under the old norms, if different government organisations were not working with each other before, they were not used to working together. More importantly, without personal relationships between these organisations, it required authority to make things work, which the Personnel and Finance Bureaux did not have in this case. Additionally, the persistence of old problems due to historical and cultural reasons also prevented the Personnel and Finance Bureaux achieving their objectives. For example, the confusion over bonus and allowance payments authorised by different government departments and which were hard to trace restricted the ability of the Personnel and Finance Bureaux to take control of the payments through the use of the new system.

From the perspectives of the Local Tax Bureau, Social Insurance Bureau and Housing Reform Office, there were two conflicts in terms of ideal and actual norms. First, they were supervised and assessed by both the city government and their corresponding government agencies at the provincial and central government levels. Second, they were supposed to co-operate and adapt to the new system by changing their existing ways of working, which was in conflict with the fact that they did not receive any funding and were not assessed through the success of the project.

From the perspective of the Bank of China, its priority in this project was the consideration of commercial benefits, including the potential benefits obtained from the relationship with government agencies resulting from the development of the system. If the problem to be solved was well-defined, the project objectives of the Bank of China and the government agencies could be both agreed and executed. However, as this case showed, the problems that the project was trying to solve were often ambiguous and

unclear. Therefore, when there were conflicts, the priorities of the Bank of China were different from those of government agencies.

From the perspectives of individual government organisations, they were supposed to give the power of paying allowances and bonuses to the Personnel and Finance Bureaux. However, in reality, this was in conflict with the evaluation systems for the performance of their employees. In particular, some government organisations were considered to be special cases, such as the police, whose overtime would be subsidised in a different way to other government organisations. However, since in the past the rules and regulations were made by government agencies at different levels and were not standardised, it was hard, if not impossible, for the Personnel and Finance Bureaux to manage the allowance and bonus payments. Moreover, this also reflected the different priorities of individual government organisations to motivate their employees with an evaluation system and the priorities of the Personnel and Finance Bureaux to enhance personnel and finance management.

### **7.2.1.3 Summary**

From the above analysis, the conflicts in terms of the three ideal norm changes in the Chinese administrative reform can be summarised as follows: First, the change of role of the government from an all-round government to a service government was to some extent in conflict with the change of the Bank of China from a state-owned bank to a commercial bank. The priorities of the city government and government bureaux were to save costs while improving public services, however the priority of the Bank of China was to maximise commercial benefits and learn to compete in the open market. For example, when the new system needed more investment to make it compatible with the existing systems in the Local Tax and Social Insurance Bureaux, this need to serve the public good was in conflict with the commercial benefits to the Bank of China.



Furthermore, while co-operation is an ideal relationship among government organisations, and one of the purposes of using information systems is to enable information sharing and inter-organisational co-ordination, in the private sector competition is the norm among organisations. Therefore, as this case shows, conflicts of interests arise when government organisations become involved with commercial vendors.

Second, regarding the change from an authority-based to a law-based system, this case study reveals two difficulties in this type of norm change. One is that the new norm builds on an old norm that may be difficult to change. For example, under the old norms, the authority at all levels decided the payment of bonuses and allowances, which might not be easy to trace back to particular rules and regulations. Nevertheless, these ways of paying bonus and allowances have been followed for many, many years. Therefore, although the system should be rule-based under the new norms, the problems of old norms still persist.

The other difficulty is that it is very hard to develop a law-based system when different stakeholders have different perceptions of both the old and new norms and how the norm changes should happen. Particularly in the projects involving several stakeholders, the misunderstanding of existing rules can lead to problems of designing and implementing new rules. In our case study, when the project was designed at the central government level and implemented at the local government level, particularly when several stakeholders were involved, a lack of understanding of the needs of different stakeholders can easily occur. For example, the existing working procedures for the tax, social insurance and housing contributions were not well understood by the city government or the Personnel and Finance Bureaux.

Finally, in terms of the development of a performance-based evaluation system, there are conflicts of perceptions among stakeholders regarding how to develop such a system. Under the new norms, stakeholders are responsible for meeting their own organisational

missions, which can cause conflicts among stakeholders. In this case study, the priority of norm changes for the Personnel and Finance Bureaux was to develop a law-based system to improve personnel and finance management. Therefore, they considered the bonus and allowances payments should be regulated across government organisations at the city government level. However, from the individual government organisations' perspective, their priority in norm changes was to establish a tailor-made performance-based evaluation system to motivate their staff to improve performance. Therefore, the intention of the Personnel and Finance Bureaux to use the new system to manage bonus and allowances payments was in conflict with the intention of individual government organisations' developing their own organisational bonus and allowances payment systems.

### **7.2.2 Domination**

Giddens argues that "power is generated in and through the reproduction of structures of domination" (1984:258). He has identified two types of resources: allocative resources and authoritative resources. Allocative resources include the material features of the environment (such as data and public funding), the instruments of production acting as the means of material production/reproduction (such as technology), and the produced goods, which are the artefacts created by the interaction of the above two (such as salary, bonus and allowances payments). Authoritative resources include the organisation of social time-space (such as the city government meeting), the production/reproduction of the body (such as the inter-organisational relationships) and the organisation of life chances (such as the work routines of government bureaux).

#### **7.2.2.1 Expected changes in the structures of domination**

##### **City Government**

The city government had restricted power in making decisions in terms of personnel and finance management. In terms of allocative resources, they did not have control of the

data sources and the process of data collection. In terms of authoritative resources, the city government did not have the tools to analyse different policy scenarios when making decisions.

First, the city government's decision making in terms of personnel and finance management was restricted by the reliability and accuracy of the data received. Before the new computerised system was developed, the city government had to rely on the Personnel and Finance Bureaux supplying information. However, the Personnel and Finance Bureaux could not be held responsible for the information supply owing to their reliance on individual government organisations.

Second, the city government was constrained by its ability to make estimates and budgets by using the data available. The relevant information supplied by the Finance and Personnel Bureaux was paper-based, therefore the city government's ability to play around with the data by making different assumptions was restricted. If the city government needed personnel or finance information in decision-making, it had to inform the Personnel or Finance Bureau of the scenario and get the estimations from them. Hence, the decision-making process was time-consuming and prone to error.

With the development of the new system, the city government could gain power in terms of personnel and finance management. In terms of allocative resources, the city government could access up-to-date personnel data and related financial statements through the Personnel and Finance Bureaux with the new system. The new system enabled the Personnel and Finance Bureaux to supply more reliable and credible data, which enabled the city government to have a better idea of the situation for decision-making.

In terms of authoritative resources, the city government could ask the Personnel and Finance Bureaux for up-to-date reports and related statistics based on different assumptions. Therefore, the system would allow the city government to reach a decision

more quickly with more reliable and timely reports from the Personnel and Finance Bureaux.

### **Personnel and Finance Bureaux**

Before the computerised system was developed, the Personnel and Finance Bureaux had limited power in managing personnel and finance data. In terms of allocative resources, they had to rely on individual government organisations to supply personnel information and salary payment data. The Personnel Bureau controlled the personnel quota of government organisations using a paper-based system, but could not control it properly if the information supplied by individual government organisations was incorrect. Similarly, the reliance of the Finance Bureau on individual government organisations in terms of salary payments also restricted its ability to control the payments.

In terms of authoritative resources, inter-organisational co-operation in terms of personnel and finance management between the Personnel and Finance Bureaux was based on the existing paper system, which was hard to track and co-ordinate the personnel and salary payment records. From the Personnel Bureau's perspective, it did not have the necessary mechanisms to prevent overstaffing in individual government organisations. Its control of personnel data was reactive. Its power in personnel management was to solve existing problems rather than to prevent problems from happening. From the Finance Bureau's perspective, its distribution of salary payment funds was based on the figures submitted by individual government organisations. In other words, its control was based on estimations rather than actual payments.

With the development of the new system, the Personnel and Finance Bureaux hoped to gain control over personnel data management and salary payment. In terms of allocative resources, with the new computer system as the only way to make salary payments to government employees, individual government organisations would have to supply

up-to-date personnel data to Personnel Bureau in order to have their employees paid. In this way, the Personnel Bureau owned the personnel data which served as the basis of salary payment, hence it had the power to control the personnel quota. The Finance Bureau had control of the public funds to make salary payments to government employees.

In terms of authoritative resources, the functioning of the new system allowed the Personnel and Finance Bureaux to share up-to-date personnel data in individual government organisations using the same system. The power of the Finance Bureau to make salary payments was based on the personnel data supplied by the Personnel Bureau, hence the Personnel Bureau had the power to demand up-to-date personnel information from individual government organisations. With the up-to-date personnel information available in the new system, the Finance Bureau could make timely and accurate salary payments and have a clearer idea of the employment of public finance. Therefore, the new system enhanced the inter-organisational co-operation between the Personnel and Finance Bureaux, giving both a better control of the personnel and finance of government organisations.

Finally, with the support of the city government and the new system, the Finance Bureau gained the power of making direct salary payments to government employees. This enabled the new system to have up-dated personnel data, while the ability to do so is enforced by the fact that the system directly deducted income tax, housing and social insurance contributions from the total salary.

#### **Local Tax Bureau, Social Insurance Bureau and Housing Reform Office**

Before the system was developed, the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office had their own arrangements and hence a certain amount of power over individual government organisations in terms of income tax collection, social insurance collection and housing contributions collection.

In terms of allocative resources, they had established their own practices to ensure data accuracy. The Tax Bureau and the Social Insurance Bureau had their own computer systems to store personnel data in their systems, with each employee assigned with a unique identification number. The Housing Reform Office did not have a computer system, since the housing contributions remained the same regardless of salary. The Housing Reform Office ensured that the number of people working in a specific government organisation was checked against the amount of actual housing contribution payments.

In terms of authoritative resources, every month they had certain arrangements with government organisations to ensure that the correct amount could be collected. Since no government organisation would want to pay more than necessary, the different arrangements in place ensured that no one could miss the payments.

The development of the new payroll system was seen as the Personnel and Finance Bureaux gaining more control over personnel and finance management. Therefore, the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office did not expect any changes in their respective power structures.

### **Bank of China**

Before becoming involved in the project, the Bank of China had no power in terms of the city government's personnel and salary management system. Therefore, the Bank of China used its resources to be selected as the vendor of the project.

In terms of allocative resources, the Bank of China could use its three advantages. First, as one of the most famous and biggest banks in China, the Bank of China (Foshan branch) had a network of branches all over Foshan with more than 2000 employees. Second, the Bank had a strong IT department with outsourcing know-how and technical expertise. Finally, the Bank had the financial resources to promise to provide free technical equipment necessary to develop the system.

In terms of authoritative resources, the IT department in the Bank of China (Foshan branch) had several years' experience in helping corporate clients to develop various systems. Moreover, since the Bank of China was a state-owned bank, normally its local branch had a good relationship with local government, even though the relationship in this project would be different from their previous relationship. Before the Bank of China became a commercial bank, the city government was leading the local bank branches. In this project, the Bank of China and the city government were in a vendor-client relationship.

The Bank of China expected to gain power from the project. The control of technical systems would also give the Bank the power to control the functioning of the system. In particular, at the time of renewing the contract, the Bank would have advantages in terms of technical and managerial know-how over competitors.

In terms of authoritative resources, it hoped to establish co-operative working relationships with the Personnel and Finance Bureaux as well as the city government, which could benefit it in renewing existing contracts and gaining new projects and clients.

### **Government Organisations**

Before the new system was developed, individual government organisations had power over the personnel data management and making salary payments controlling both allocative and authoritative resources.

From the perspective of personnel management, individual government organisations had the exact personnel data, which was seen as an allocative resource. Since the Personnel Bureau depended on their supply of up-to-date personnel data but could hardly carry out routine checks on its accuracy and credibility, individual government organisations also had the authoritative resources.

From the perspective of salary payment management, similarly in terms of allocative resources, government organisations calculated salary, bonus and allowances payments to their employees. In terms of authoritative resources, individual government organisations only submitted their salary budget to the Finance Bureau for approval and had the power to make salary, bonus and allowances payments to their employees, which meant they also had the authoritative resources.

After the system was developed, as the basic salary was paid through the new system, individual government organisations no longer had the power to keep their personnel data and make salary payments to their employees.

### **Summary**

With the development of the new system, the city government, Personnel and Finance Bureaux gained more power over personnel and finance management in individual government organisations. The Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office used their resources to control the tax, social welfare and housing contributions from individual government organisations in different ways and expected no power structure changes in their existing systems.

## **7.2.2.2 Conflicts in the changes of the structures of domination**

### **City Government**

With the development of the new system, the city government gained more power in terms of personnel and finance management. However, during the development of the system, the city government lacked power. In terms of allocative resources, it had no control of the financial resources, as the Bank of China provided the funding. As a result, the new system could not be redesigned to accommodate the needs of the Local Tax and



Social Insurance Bureaux or the Housing Reform Office. In terms of authoritative resources, the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office had the power to prioritise their tasks. Under the existing dual administrative structure, the city government had limited power to give administrative orders to the Local Tax and Social Insurance Bureaux and the Housing Reform Office.

### **Personnel and Finance Bureaux**

With the development of the new system, the Personnel and Finance Bureaux gained power in managing personnel data from individual government organisations, but they did not manage to take total control of bonus and allowances from the individual organisations.

In terms of allocative resources, the Personnel and Finance Bureaux lacked the resources to specify the regulations for the bonus and allowances payments and hence were unable to gain control over them from the individual organisations. In terms of authoritative resources, the Finance Bureau did not have the power to allocate the collected income tax, social welfare and housing contributions to the Local Tax Bureau, Social Insurance Bureau and the Housing Reform Office. The latter still retained control over the individual organisations in terms of maintaining records and operating their own management processes.

### **Local Tax Bureau, Social Insurance Bureau and Housing Reform Office**

After the development of the new system, although the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office did not have the power to collect income tax, social welfare and housing contributions from individual organisations, they retained their power in terms of managing the contributions from individual organisations.

First, in terms of allocative resources, they retained control of the personnel data of the individual organisations. With the contributions directly deducted by the new system from employees' salaries, the Local Tax and Social Insurance Bureaux and the Housing Reform Office received the payments from the Finance Bureau rather than the individual organisations. However, the individual organisations were still required to submit their detailed personnel data to the Local Tax and Social Insurance Bureaux and the Housing Reform Office just as before the new computer system.

Second, in terms of authoritative resources, they maintained their power by making the old and new systems work in parallel, ensuring that they could control the payments and related information of individual government organisations. After the introduction of the new system, although the funds were allocated by the Finance Bureau, they compare the total submitted by individual organisations with the total according to the Finance Bureau. If these match, they accept the funds. Otherwise, they refuse the fund allocation until the difference is traced and corrected.

The Local Tax and Social Insurance Bureaux and the Housing Reform Office maintained their power due to other authoritative resources. In the Chinese administrative power structure (as shown in figure 7.1), local government bureaux came under the administrative power of the local government and their corresponding higher-level authority. When there was a conflict, they had the power to prioritise their organisational tasks. For example, at the time of developing this system, the Local Tax Bureau and the Housing Reform Office were both developing their own computer systems. Additionally, the need to control government organisations for tax, social welfare and housing contributions collection purposes gave them the authority to insist on retaining this power over government organisations.

### **Bank of China**

During the system development, the Bank of China used its power, especially in terms of allocative resources, to maintain its own interests in the project. The Bank had the financial resources to make decisions on what the system needed and how the system should be developed. When the interests of the government were in conflict with the interests of the bank, for example when the interests of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office needed to be taken into account in the later stages of the project, the bank used the contract to protect its own organisational interests and prevent over-spending in the project.

### **Government Organisations**

From the perspectives of government organisations, although they lost control over their personnel data and making actual salary payments, they maintained their power over bonus and allowance payments.

First, in terms of authoritative resources, with the development of the new system, they had to rely on the Finance Bureau to make basic salary payments to their employees. Hence, they had to submit the correct personnel data to the Personnel Bureau in order to pay their employees. In other words, they lost their power to make “special arrangements” in personnel management. The Personnel and Finance Bureau gained supervisory power over their personnel and finance management.

Second, in terms allocative resources, although they lost the power over making basic salary payments, they maintained their power of making bonus and allowances payments to their employees.

### **7.2.2.3 Summary**

In terms of domination, we can summarise the results of the above analysis from three perspectives.

First, this case study shows that there are two challenges when changing from an all-round government to a service government in terms of changing power structures.

In terms of authoritative resources, neither the Personnel and Finance Bureaux nor the city government had the power to enforce the compliance of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office although they had the responsibilities for developing the new system. The Personnel and Finance Bureaux did not have the authoritative resources over these government bureaux as they were at the same administrative level. From the city government's perspective, although it had the authority to supervise the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office, it did not have the authority to prioritise their tasks because of the dual administrative structure.

In terms of allocative resources, although the involvement of the Bank of China could reduce the costs of developing the new system, the city government and government bureaux lost a certain power over the development of the new system. For example, when there were problems with the compatibility of the new system and the existing systems in the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office, the Bank of China could use the contract and the financial resources to decide how the system should be developed.

Second, this analysis shows the difficulties in changing from an authority-based to a law-based system in the Chinese administrative reforms. For instance, in the past, individual government organisations had the power to decide their bonuses and

allowances for their employees, and these decisions were made by their authority and often not well documented. Therefore, although it was hoped that the new system would function based on laws and regulations, the lack of historic data made it difficult if not impossible to computerise the existing systems for bonus and allowances payments.

In terms of allocative resources, the Personnel and Finance Bureaux did not have the necessary information on how the bonus and allowances were paid. They were unable to computerise the undocumented bonus and allowances payments into the new system. Hence, the lack of historic data became an allocative resource individual government organisations could use to retain their power to pay out bonuses and allowances. In terms of authoritative resources, neither the Personnel and Finance Bureaux nor the city government had the power to decide how the undocumented and confusing bonus and allowances payments could be computerised.

Finally, this case study shows the difficulty in developing a performance evaluation system to replace the extreme egalitarianism. In the existing performance-based evaluation system in China, every government organisation had its own budgets and organisational missions. Thus, the conflicts happened because inter-organisational co-operation was very important to realise the full benefits of government information systems. The conflict between the Personnel and Finance Bureaux and the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office was such an example.

In terms of authoritative resources, there was a lack of inter-organisational communicational channels among different government bureaux unless they had been working closely together before. While the Personnel and Finance Bureaux had worked closely together, they were not accustomed to working with the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office. Therefore, the misunderstandings between the Personnel and Finance Bureaux and the Local Tax

Bureau, the Social Insurance Bureau and the Housing Reform Office contributed to the integration problems at the system level.

In terms of allocative resources, since government bureaux had their own budgets and the city government also had its own budget, no one was willing to change their own systems if they had to use their own funding.

### **7.2.3 Signification**

In this section, we first discuss the perceptions of stakeholders concerning the overall administrative reforms and the Personnel and Salary Management System, prior to the start of the project. In terms of administrative reforms, drawing from observations and interviews, we focus on their perceptions of their organisational missions regarding the change to a service government, the establishment of law-based administrative systems and the reward and punishment system, and hence their perceptions of the objectives of the new system. Finally, we discuss the conflicts of the perceptions of the stakeholders during the system development process. The final section summarises the findings.

#### **7.2.3.1 Perceptions of stakeholders on reform objectives**

##### **City Government**

In relation to this system, the perceptions of the city government on the overall administrative reforms can be summarised from three perspectives. First, the city government viewed the use of IT as an important way to improve local government administration. Foshan city government aimed to become a pioneering city in using IS in administrative reform. It encouraged and supported the development of e-government. An obvious example was the Nanhai District in Foshan, which was a very famous example in China of experiments in developing e-government

The city government viewed the project as a way of promoting e-government in Foshan. The project was experimental in nature, as Foshan was among the first cities in China to develop such a system. Moreover, since all the government employees in Foshan would be paid by the system, the development of the new system was related to the overall success of e-government in Foshan.

Second, the city government viewed the system as a project to improve personnel and finance management, hence assigning the responsibilities to the Personnel and Finance Bureaux. At the start of the project, the city government organised an urgent meeting with the heads of the Personnel and Finance Bureaux to announce the project. At the city government level, a project team was organised led by a city government secretary and attended by the key members of the Personnel and Finance Bureaux. Then, the Personnel and Finance Bureaux were required to organise their individual project teams, responsible for developing the system and meeting the milestones set by the city government.

It can be also be seen that the city government perceived the project as a way to establish a law-based personnel and salary management system using IT. Moreover, it was clear from the start that the development of the new system was one of the criteria for the city government to evaluate the performance of the Personnel and Finance Bureaux.

Finally, the city government encouraged individual government organisations to use external vendors to develop systems in order to save costs. In this project, the city government did not receive any funding from the central government, and it did not provide any funding to the project either.

### **Personnel and Finance Bureaux**

From the Personnel and Finance Bureaux' perspectives, the project was very important because the development of IT was seen as important and they were also the main beneficiaries of the project.

First, the use of advanced IT was given high importance by both bureaux. It was believed that IT could improve finance and personnel management and the use of advanced IT was something they can be proud of.

From the Finance Bureau's perspective, it was believed that the standardization of finance management depended on technological development. It specified the requirements for its staff as "loyal to the job, love the career, honest and justice, finance management according to the law, polite service and present with all respect to the society". Therefore, from the Finance Bureau's perspective, the new system enabled them to manage government employees' salary payments according to the law, being honest and just. Moreover, the Finance Bureau was the first bureau to use IT in Foshan, and they proudly claimed that every member of staff could access the Intranet. Their desire to use IT was also related to the nationwide "Golden Finance Project", which encouraged the use of IT by government agencies at all levels to improve the management of public finance.

Similar to the Finance Bureau, the Personnel Bureau also viewed the use of IT as important, even though their actual use of IT lagged behind the Finance Bureau. The existing system in the Personnel Bureau was outdated and not working properly, owing to a lack of funding. Therefore, it hoped to develop a good information system to improve personnel management.

Therefore, both Finance and Personnel Bureaux believed that the use of IT could improve personnel management, as it was based on law rather than authority and



“special cases”. Financial compensation to government employees could be based on their performance rather than the government department they were working for.

Second, from the Personnel and Finance Bureaux’s perspective, the responsibilities and obligations should be aligned. Both bureaux believed that they were the main beneficiaries of the system, shouldering the responsibilities assigned by the city government to develop the system. The Personnel and Finance Bureaux considered the main objectives of the new system as improving personnel and finance management. Therefore, they believed that it was their responsibility to develop the system. Moreover, although they recognized the involvement of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office, they did not intend to enrol them into the development of the new system. As for the collection of personnel information, they assigned the responsibility to the heads of individual government organisations.

Finally, the Personnel and Finance Bureaux welcomed the involvement of private companies in the project. The Finance Bureau had used another bank to develop their system. Although the Personnel Bureau had not used a private company for system development before, the funding of this system by the Bank of China would avoid the financial difficulties experienced developing the previous system.

#### **Local Tax Bureau, Social Insurance Bureau and Housing Reform Office**

First, the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office were also keen to use IT to improve management in their own areas.

Since 2001, the Local Tax Bureau has been developing “shui yin ku qi yi ti hua gong cheng”. This system was given a high priority by the Local Tax Bureau, which it is very proud of. The advantage of this system was to move tax collection from private enterprises to the banking network and hence the taxes could be directly allocated to the government’s treasury. The aim of the system was to improve tax work, making it more “standardized, convenient and effective”.

From the perspective of the Social Insurance Bureau, the system in use was developed in 1995, which was considered as one of the best systems at the time. The functioning of the whole Social Insurance Bureau still depended on this system, although the system has been constantly updated and maintained.

From the Housing Reform Office's perspective, as a new government office, its key task was to develop an Intranet to manage its day-to-day functioning. Before the system was developed, the Housing Reform Office mainly depended on a paper-based system.

Therefore, the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office all had their own organisational missions. Although they viewed the use of IT as important, they understandably placed their own systems as a priority and as the basis for managing their own functions. Since the main purpose of the new Personnel and Finance Management System was to improve personnel and finance management, they perceived its development as the responsibility of the Personnel and Finance Bureaux.

Second, the vendors they used for systems development were different from the Personnel and Finance Bureaux; for example, the Local Tax Bureau used the Bank of Construction.

### **Bank of China**

From the perspective of the Bank of China (Foshan branch), the main objective was to provide the best services to the customers to attract business. It had a slogan "service is the base, customer is the priority". Although the bank was the biggest and oldest in China, it wanted to survive in its transformation from a state-owned to a commercial bank. Therefore, it also wanted to make the market as the leading force and the customer as the service centre.

### **Government Organisations**

Although the perceptions of individual government organisations were divided, generally speaking, they can be summarized from three perspectives.

The development of the new system was seen as a national policy to achieve the objectives of administrative reform to improve efficiency and reduce bureaucratic procedures with the aim to become a service government.

On the one hand, the new system was aimed at saving time and labour for individual organisations. For example, with the development of the new system, their personnel and finance staff expected that they would no longer calculate the salary payments every month. Moreover, the personnel information collected and stored in the new system could be shared by several departments that were involved in the salary payment procedure, including not only the Personnel and Finance Bureaux but also the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office.

Furthermore, they viewed the development and use of the new system as a national policy endorsed by the city government and organised by the Personnel and Finance Bureaux. In other words the development of the system had legal enforcement, which they had to accept.

Nevertheless, the views of the effectiveness of the new system were divided. Some considered it as effective because, with the salary payment based on regulations, this would lead to fewer arguments where employees had doubts or trouble in understanding the salary payment. Others considered it as ineffective because not all financial problem areas would be covered.

### **7.2.3.2 Conflicts of stakeholders' perceptions regarding the project**

#### **City Government**

Although the system was developed and all government employees received salary payments from the system, the city government's original perception was in conflict with reality from the following perspectives.

First, the city government's perception that the Personnel and Finance Bureaux could hold total responsibility for developing the system conflicted with their perceptions that they should be responsible for developing the system to meet their own needs in finance and personnel management. The difference is that the Personnel and Finance Bureaux did not consider that it was their responsibility to accommodate the needs of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office at the start of the project, which might have been due to the lack of communication channels with the latter before the system was developed. Furthermore, the needs of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office were not perceived as important by the city government at the start of the project.

Second, the city government relied on the Bank of China to provide technical support and financial resources for the Personnel and Finance Bureaux. However, there was a conflict in the objectives of developing the system. The government organisations aimed to improve their management, while the vendor had only financial considerations.

#### **Personnel and Finance Bureaux**

The conflicts of the perceptions of the Personnel and Finance Bureaux with other stakeholders can be viewed from three perspectives.

First, due to the previous lack of communication with the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office, the latter's perceptions and needs were initially neglected. The development of the system had to accommodate their needs at a much later stage of the system development process.

Second, the Personnel and Finance Bureaux viewed the computer system as a way to incorporate the rules and regulations of personnel management and salary, bonus and allowance payments into the system, allowing the personnel and finance management to follow the relevant laws and regulations. More broadly speaking, compensation to government employees would be realised by making the salary payments and other compensation according to their performance. However, this perception was in conflict with the perception of the individual government organisations who believed that they should retain the power to pay bonuses and allowances to their employees. Since, historically, individual organisations had made these payments, it proved to be very difficult for the Personnel and Finance Bureaux to trace the actual regulations and basis for past decisions.

Finally, the Personnel and Finance Bureaux perceived that their needs to improve personnel and finance management should be given priority, which conflicted with the Bank of China's needs to maximise their own commercial benefits.

#### **Local Tax Bureau, Social Insurance Bureau and Housing Reform Office**

Owing to different organisational interests, the Personnel and Finance Bureaux's perceptions of management improvement differed from those of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office. The Personnel and Finance Bureau perceived that the new system would be an effective way to prevent overstaffing in individual government organisations. However, from the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office's perspective, they instead needed to ensure that all the staff in these organisations were paying the proper amount of income tax, social welfare and housing contributions. In other words, they believed that their existing arrangements with individual government organisations were the most effective ways to achieve this objective.

Therefore, the Personnel and Finance Bureaux believed that the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office would have few objections and give their support to the new system. However, the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office believed that the development of the new system was the responsibility of the Personnel and Finance Bureaux, while they could keep their existing ways of working.

### **Bank of China**

The Bank of China viewed the system development project as a business project, which was in conflict with the perceptions of government organisations as a system to improve their management. In particular, when there was a conflict of interest, in this case where the interests of the Local Tax and Social Insurance Bureaux and the Housing Reform Office needed to be accommodated in the system, the different perceptions between government agencies and the Bank of China became obvious.

### **Government organisations**

Although individual government organisations' perceptions of the new system differed, their general perceptions conflicted with those of the other stakeholders from the following two perspectives.

First, they perceived the personnel information in the new system should be shared not only by the Personnel and Finance Bureaux but also by the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office. In other words, after the development of the system, whenever they needed to update their personnel information, they only needed to inform the Personnel Bureau. This perception conflicted with the intentions of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office to keep their existing systems working.

Second, they perceived that the new system should only handle basic salary payments, which were standardised by central and local government. This conflicted with the perception of the Personnel and Finance Bureau that all bonus and allowance payments should also be made by the new system to make a fairer performance evaluation system. They wanted to maintain their discretion to make bonus and allowances payments in order to have an effective rewarding system to encourage their employees.

### **7.2.3.3 Summary**

The above analysis shows that different stakeholder groups' perceptions of the objectives of administrative reform were in conflict in terms of organisational objectives to improve public services, the establishment of a law-based system and a performance-based evaluation system, which caused conflict in implementing the new system.

The purpose of developing the system was not shared among different stakeholders, although it was generally agreed that the purpose was to improve personnel and salary management.

First, different government organisations with different objectives did not agree on what was the most effective way to improve public administration. For example, from the Personnel and Finance Bureaux's perspective, in terms of personnel management, the best way was to develop a standard system to manage personnel information of individual government organisations, which could be shared with other government departments. This was in conflict with the perceptions of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office who believed that their existing systems were the only effective ways.

Second, although different stakeholders might agree on the principle of establishing a performance-linked evaluation system, they had different perceptions on how performance could be evaluated and rewarded and who should take responsibility. For example, the Personnel and Finance Bureaux believed that the new system should be in control of all salary, bonus and allowances payments, which encouraged a fairer evaluation system allowing government employees to be rewarded no matter which government organisation they worked for. This was in conflict with the perceptions of individual organisations that the new system should only deal with basic salary payments and the discretion of rewarding their best employees should be left to individual government organisations.

Another example is that the city government considered the Personnel and Finance Bureaux should take up the responsibility to develop the system. This perception was shared by the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office. However, in reality, the Personnel and Finance Bureaux were not perceived to have the power to co-ordinate with the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office.

Finally, although it was realised that the use of private vendors could bring benefits to government organisations, the associated problems were not expected. For example, government departments, including the city government, would give priority to the needs of improving public services. However, the Bank of China had to consider the financial cost. Furthermore, when different government organisations used different vendors, it could cause problems in inter-organisational co-operation.



## 7.3. Summary and Conclusions

### 7.3.1 Summary

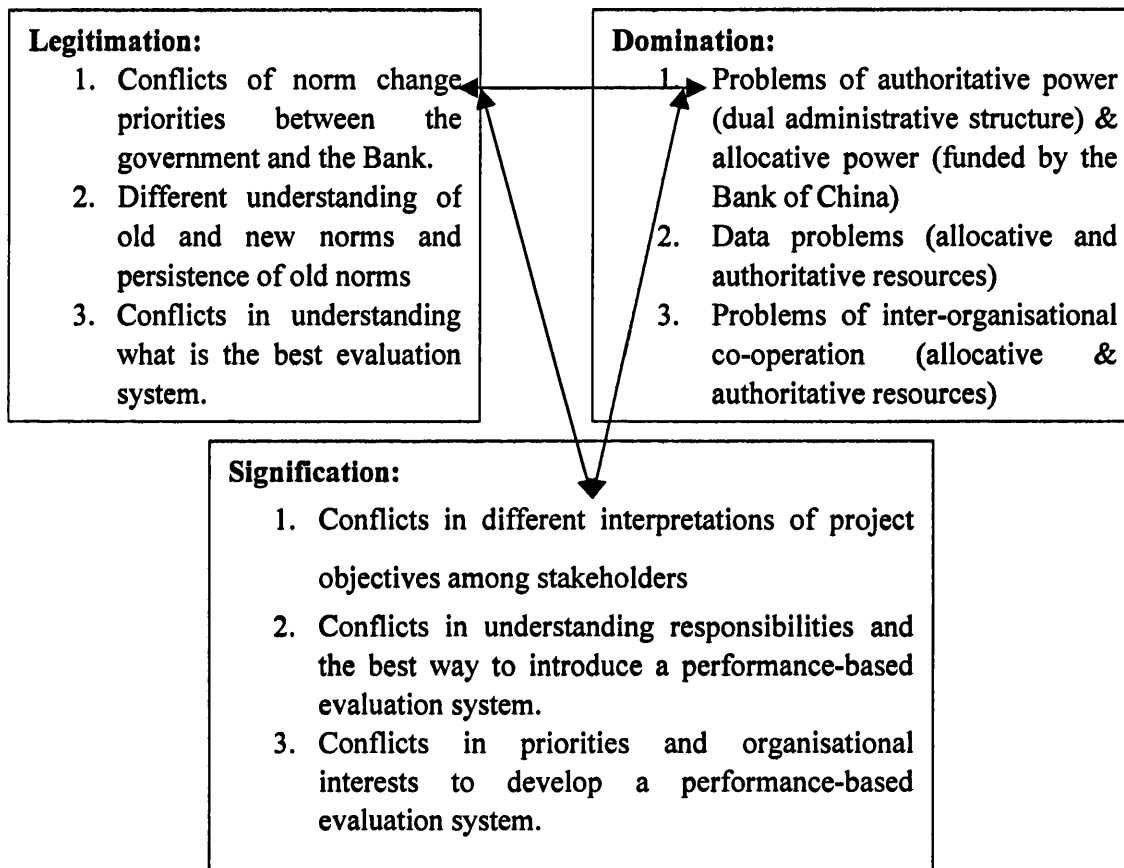


Figure 7-2 Summary of findings

Figure 7-2 summarises the results of analysing the case study from the three perspectives of structuration theory: legitimation, domination and signification. It shows that all three dimensions are inter-linked, which reveals the three problems appearing in this case study.

The followings are the three research problems that arose from the case study chapter. First, why was the project delayed by one month? What caused this delay? Second, why could not the bonus and allowance payments be handled by the new system as proposed at the beginning of the project? Finally, why were the old systems still working in the

Local Tax Bureau, Social Insurance Bureau and Housing Reform Office after the new system was implemented? In other words, why could not the personnel data in the new system be shared with the Local Tax and Social Insurance Bureaux and Housing Reform Office?

### **7.3.1.1 Project Delay**

The project delay was blamed on the incompatibility of technical systems among different government agencies. However, the above analysis reveals the challenges of designing and implementing an inter-organisational information system to change the social structures at the city government level.

First, in terms of legitimation, it shows that different government organisations had different perceptions of the existing norms and the ideal norm changes. One of the problems that caused the delay was the fact that the Personnel and Finance Bureau and the city government did not understand the existing ways of working and the needs of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office. From the Personnel and Finance Bureau's perspective, the existing system was inefficient and a new system was needed. However, from the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office's perspectives, their existing system was an effective mechanism to manage income tax, social welfare and housing contributions. Therefore, the need for change in the Personnel and Finance Bureau conflicted with the need to maintain the status quo in the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office.

Second, in terms of domination, the case study reveals that the existing way of working in every local government bureau is associated with an existing underlying power structure, hence the development of an inter-organisational system means a change of resource allocation and the existing power structure.

There was a lack of communication channels between the Personnel and Finance Bureaux and the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office. For example, since the Personnel and Finance Bureaux had worked together, they could use the new system to change the existing power structure to improve personnel and finance management. However, they had not worked with the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office, and they did not understand how the latter offices used their existing system to control individual government organisations in order to collect income tax, social insurance and housing contributions. Therefore, they faced resistance from these organisations when implementing the new system.

Finally, in terms of signification, the delay reveals the importance of identifying stakeholders and their needs before development starts and responsibilities are allocated. In this case, the city government identified the Personnel and Finance Bureaux as the main stakeholders at the start of the project. It held meetings with their heads, who were given the resources and responsibilities to develop the system. The Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office only became involved at a much later stage when integration problems occurred.

To summarise, when the policy was made by the central government and implemented by the local government, it was hard, if not impossible, for the central government to identify stakeholders, particularly to understand the local context. Therefore, as this case study shows, it was crucial to identify stakeholders and understand their existing way of working to enable a smoother approach to implement the new information system.

### **7.3.1.2 New and Old Systems Working in Parallel**

Ideally, the new personnel and finance management system would have replaced the existing systems and established a new way of working. However, in this case, the result

was that the new system and the old system had to work in parallel. From the above analysis, we can see the conflicts concerning the reform objectives with existing ways of working at the local government level in terms of inter-organisational relationships.

First, in terms of legitimation, this problem shows the limitations of using the private sector in government projects and the use of performance-based evaluation system. One of the administrative reform objectives was to achieve the change from an all-round government to a service government. A highly efficient service government should be able to provide an integrated service to the public, and the use of IT was to serve this end. IT is a tool to realise information sharing and inter-organisational co-operation among government organisations.

However, as this case study shows, this was in conflict with the performance-based evaluation system currently used in the Chinese administrative reform. The latter encouraged government bureaux to pursue their individual organisational objectives, and the co-ordination between government bureaux was left to the city government to manage. Without mutual benefits, such as the improvement of personnel and finance management for both the Personnel and Finance Bureaux in this case, there was little incentive for government bureaux to co-operate. Moreover, government bureaux had their own budgets and were encouraged to use the private sector to reduce costs. However, competition is the nature of business in the private sector and conflicts of interests were almost inevitable among government bureaux with different vendors.

Second, in terms of domination, this analysis shows the conflicts of power in the existing dual administrative structure. When there were conflicts between the new system developed by the Personnel and Finance Bureaux and the existing systems in the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office, these two interest groups were unable to command any changes from each other as they were at the same level in the administrative structure. Although the city government had the administrative power, it was unable to decide the direction of the project because of the

dual administrative structure. As discussed before, the dual administrative structure left government bureaux with the discretion to decide their own priorities. Therefore, the final result, with the new and old systems working in parallel, was a compromise among government bureaux.

Finally, in terms of signification, this analysis shows the difficulties of inter-organisational co-ordination. In this case study, the priority of the Personnel and Finance bureaux was the improvement of personnel and finance management, while the priority of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office was the management of government revenue, social insurance and housing reform respectively. The Personnel and Finance Bureaux designed the new system to ensure their control of personnel data and salary payments, while the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office insisted on retaining their existing systems to ensure the collection of income tax, social welfare and housing contributions.

To summarise, the difficulty of replacing the existing systems in various organisations with a new system reveals the delicate inter-organisational relationships at the city government level and the inter-organisational conflicts among local government bureaux in administrative reform.

### **7.3.1.3 Bonus and Allowance Payments**

The bonus and allowance payments in individual government organisations is an example of the ambiguous administrative reform policies that can bring conflict between different interest groups at the local government level. In this case, the Personnel and Finance Bureaux aimed to incorporate the bonus and allowance payments into the new system, while individual government organisations aimed to retain their discretion on these payments.

First, in terms of legitimisation, the conflict was concerned with who should be in charge of the payments, and hence who would be better to achieve the development of a performance-based evaluation system. From the Finance Bureau's perspective, the standardisation of bonus and allowance payments would help to develop an evaluation system based on the performance of individual employees, regardless of which bureau they worked for. From the individual government organisations' perspective, each organisation should have the discretion to develop a performance-based evaluation system tailored to their organisational needs, which would encourage their employees to work harder.

Second, in terms of domination, the conflict was about how to deal with the existing bonus and allowance payments that were not documented. The lack of knowledge of the rules and regulations regarding these payments illustrated the lack of power of the Personnel and Finance Bureaux to control and incorporate these payments into the new system. Although after the reform, individual government organisations could not make bonus and allowance payments to their employees without the knowledge of the Finance Bureau, they had the power to make such decisions before the reform. Moreover, the Finance Bureau did not have the power to decide how to deal with these undocumented bonus and allowances payments.

Finally, in terms of signification, the conflict was concerned with the difference among organisational missions. Individual organisations felt that they needed to have control over these payments in order to improve organisational performance. However, the Finance Bureau wanted a rule-based evaluation system to be followed by all government organisations at the city level.

To summarise, the problem of bonus and allowance payments reveals that administrative reform policies have grey areas related to historical or cultural issues. Different interest groups try to make good use of these grey areas to retain or gain power to realise their organisational interests.

### **7.3.2 Conclusions**

From the above analysis, it can be concluded that the difficulty of implementing national policies at the local government level through developing an information system is focused on the management of local government stakeholders. The problems of project delays, new and old systems working in parallel, as well as the bonus and allowance payments represent the difficulties of understanding the social context of the stakeholders at the local government level and managing inter-organisation co-operation.

Before the start of the project, the difficulty was to identify the stakeholders and understand their ways of working and their interests in the project. This difficulty can be understood from three perspectives. First, different stakeholders can have different perceptions of the status quo, the objectives of administrative reform and the ideal norm changes. For example, the Personnel and Finance Bureaux viewed the existing system as unreliable and problematic, while the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office did not see the need to change.

Second, the status quo of each local government stakeholder varied a lot, which cannot be predicted or generalised. For example, the Housing Reform Office did not have an Intranet when this new system was developed. Therefore it was impossible for the Housing Reform Office to realise the benefits of information sharing from the new system. In other words, its existing paper-based system became its way of controlling the data of individual government organisations.

Third, it is particularly difficult to understand the needs of different stakeholders if these organisations have not been working together before. For example, in this case study, neither the city government nor the Personnel and Finance Bureaux had knowledge of the needs of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office at the start of the project.

During the system development process, the difficulty was to try to seek compromises from different local stakeholders in order to achieve the objectives of administrative reforms to a greater extent. This difficulty can be understood from three perspectives.

First, since different government organisations have different reform objectives, and hence different job priorities, it is very hard to assure that responsibility is matched with power. For example, in this case, the city government and the Personnel and Finance Bureaux were responsible for developing this system; however, they did not have the power to influence the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office. Without the proper power, the responsibilities and obligations could become empty promises. Particularly in the Chinese context, the dual administrative structure made the alignment of power and responsibilities more difficult.

Second, existing ways of working in government organisations have their own underlying power structure, which may be difficult to change. It is impossible for the central government to know the social context of every local government and accommodate every area when making national policies. Local stakeholders might take advantage of the grey areas of policy-making to suit their organisational interests. The argument over the bonus and allowance payments between the Finance Bureau and individual government organisations is such an example. In the Chinese context, the lack of documentation, owing to the past authority-based decision-making system, can bring many problems to the development of a new law-based system.

Finally, in this case study, the performance-based evaluation system and the use of the private sector as vendors created problems in inter-organisational co-operation. For example, there were funding problems when the Personnel and Finance Bureau, using the Bank of China as their vendor, needed to integrate the new system with the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office, which used different vendors.



## ***Chapter 8 Conclusion***

### **8.1 Overview of the Thesis**

The use of information technologies has brought high hopes to governments of achieving administrative reforms, particularly in developing countries where public administration is under national and international pressure to change. However, IS implementation is a difficult exercise, many IS projects have failed to achieve their objectives, and IS failures can be very costly for developing countries. Therefore, this research contributes to our understanding of how the implementation of information systems in local governments can achieve the objectives of administrative reform. To be more specific, this research set out to study the implementation of an IS project that was initiated by the central government to achieve administrative reform in the People's Republic of China, a developing country in transition from a centrally planned economy to a market economy.

Chapter 2 is the literature review of the relevant research areas of IS implementation in government in developing countries. We view IS implementation as a process of social interaction involving social and technical factors, and the deployment of IT in public administration as an evolutionary process. Government institutions shape the development of IT while IT, in turn, may reshape government institutions. As social contexts are very important to IS implementation studies, we have reviewed the general trends in public administration with the focus on administrative reform. It is found that New Public Management has been the focus of many administrative reform programmes since the 1980s. However, research shows that New Public Management is not a generalised, once-and-for-all solution to administrative reform. Reform initiatives have to be adapted to prevailing local circumstances. Contingency factors, varying from situation to situation, even within the same country, play a predominant role in determining the outcomes of individual reform initiatives.

With the changing expectations of using IT in public administration, the relationship between central and local government, as well as the involvement of the private sector, produces challenges for both central and local government in developing IT at the local level to achieve administrative reform. Furthermore, the literature review also found that implementing IS in developing countries is very challenging, with a need to accommodate their unique conditions, needs and obstacles. Ciborra (2002) suggested that studies of IS implementation in local government need to consider the interplay between the various actors involved in the automation initiatives rather than considering either the technological features, or the dynamics of the local public administration or development in isolation. However, research in this area is still very limited, an area in which this research contributes.

The focus is placed on studying the development of IS to improve local back-office operations to achieve administrative reform objectives desired by central government. It is different from previous research in the following three ways. First, most recent studies in local government focus on the development of front-office applications rather than back-office operations. Without the improvement of back-office operations, the front-end will experience problems in improving service levels. Therefore, our research can contribute to the improvement of efficiency and effectiveness of government operations in the long run, particularly to developing countries. Second, rather than assuming national government policies as given, this research illustrates the different interpretations of administrative reform policies by different stakeholders. Hence, the results of this research can contribute to central government policy making and local government IS development. Finally, as the use of IT is an evolutionary process with the interaction between IT and institutions, this research contributes to our understanding of IT use in public administration in the current social context of China.

Chapter 3 reviews administrative reform and the use of IT in public administration in China. The objectives of Chinese administrative reform can be viewed from the following three perspectives, which may share some similarities with other countries in

transition from a centrally planned to a market economy. First, the government aims to change from the Soviet-style all-round government to a service government. Second, it aims to change extreme egalitarianism in personnel management to a performance-based personnel management and evaluation system. Finally, the government aims to change the authority-based administrative system to a law-based system by establishing and enforcing a legal system to govern government operations. The separation of these three objectives is for the purposes of analysis; in fact they are interdependent. The establishment of the performance-based personnel management and evaluation system helps to establish a service government, at the same time depending on the operation of rules and laws rather than orders from higher levels of authority.

The Chinese government has made big efforts with IS to improve public administration. However, it is facing several problems, including a lack of information sharing across government organisations, the 'digital divide' and the lack of understanding by government officials regarding the changes brought about by the use of IT.

Chapter 4 focuses on the conceptual framework, which is based on structuration theory. Structuration theory is particularly suitable for analysing social changes between different levels. Our research is concerned with the national policies of developing IS at the local government level to achieve administrative reform objectives and the organisational changes to local government stakeholders. Rather than separating national policy implementation and local IS implementation as macro and micro issues, Giddens views them as a problem of the connection of social with system integration. Structuration is a way to break out of the unsatisfactory dualism of action and structure and between individual and society.

Structuration theory is valuable for this research because it provides a way to understand how a national policy of developing information systems has an impact on achieving the objectives of administrative reform at the local government level. The process of IT implementation within local government is viewed as a duality of structure and action.

System implementation at the local government level is seen as a social action that is situated temporally and contextually and that always involves interaction between human agents in local government departments. Actions of stakeholders are enabled and constrained by structures. As structures are reproduced, modified and created in actions taken by stakeholders, the implementation of IT is changing the social structure in local government.

We have also discussed two main critiques of using structuration theory in IS research: its treatment of technology and its usefulness in guiding empirical studies. In our research, we view the physical existence of IS as a form of storing authoritative and allocative resources. The utilization of information systems depends on the capabilities of human memory and the skills of interpretation, which may vary a lot among human agents. In terms of the use of structuration theory in empirical studies, we use some of its key concepts to guide data collection and analysis. The duality of structure and action in structuration theory allows us to study how local government stakeholders draw on national administrative reform policies and the new IT system to judge legitimate actions, provide meaning and use available resources to exercise power during system development. Giddens suggests that time and space are defined by social relationships rather than physical measures. The time and space concept of structuration theory allows us to look beyond the timescale of the IT development project by tracing back to the social contexts before administrative reform and to look beyond the space of the local government by widening out to the global trend of administrative reforms and the nationwide administrative reform policies in China.

Chapter 5 discusses the research design. An in-depth case study approach was chosen for our research. Such research in local government in China is still limited. This approach allows us to study it in its natural setting, which is valuable for developing and refining concepts for further studies. Since our study serves the purpose of interpretive investigation rather than statistical sampling, we decided to study a single case study in-depth rather than several case studies. Although we cannot claim the study is

representative, it can offer valuable learning opportunities because it was one of the first systems developed in China to computerise the salary payment process to facilitate administrative reform. Moreover, we were able to have close contacts with the various government organisations involved in the project, which means that we were able to obtain rich data. During the fieldwork, we followed the seven principles proposed by Klein and Myers (1999) for carrying out interpretive field research in information systems. We used semi-structured interviews, document analysis and participant observation for data collection, while data collected from different sources was triangulated.

We found the stakeholder approach useful in our data collection and analysis. Building on previous research, we set out four criteria for identifying stakeholders. First, the involvement of stakeholders should be ethical and legitimate. Second, a stakeholder can be an organisation or a group of organisations sharing similar interests and attributes. Third, stakeholders in this research are restricted to the city government level, as our level of analysis is on the local government level. This is closely linked to our research purpose to study how the implementation of national policies on local government stakeholders achieves administrative reform objectives. Finally, the actions of stakeholders are assumed to be intentional, which means they have an option of doing things in another way, and may affect the outcomes of the project. The five stakeholder groups identified in this case comprise the city government, the Finance and Personnel Bureaux, the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office, as well as the Bank of China.

Chapter 6 describes the case study, following Pettigrew's contextualism. The case study is the development of a computerised Personnel and Salary Management System in the local government of Foshan, a middle-sized city in Guangdong Province. This project was driven by the central government's initiatives to use IT to automate the payment of government employees. The chapter first introduces Foshan and its city government. Foshan city government was a pioneer in developing e-government, while this project

was one of the first developed in China as an experimental project. Then, it moves on to describe the objectives of the project, including the system structure and the changes to personnel and salary payment management,

The implementation process of the computerised system in Foshan is described following four stages: initiation, prototyping, data collection and training, and implementation. It describes how the city government, the Finance Bureau, the Personnel Bureau, the Local Tax Bureau, the Social Insurance Bureau, the Housing Reform Office, the Bank of China and personnel staff in other government organisations were involved in this process. Then, each stakeholder is described from the cultural and political perspectives.

The problems of implementing the system are summarised from three perspectives. First, the project was delayed mainly because the data supplied by the new system was incompatible with the existing systems in the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office. Moreover, the data collected and kept in the new system could not be shared with the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office as intended. Second, the bonus and allowance payments were supposed to be managed through the new system, but this was not realised. Finally, the arrangements with the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office meant that the new system had to work in parallel with the old system, rather than replacing it as intended.

Chapter 7 uses structuration theory to analyse norm, power and interpretive scheme changes in each stakeholder group and the conflicts of perceptions among different stakeholder groups. The findings from the analysis are three fold. First, government organisations interpret the administrative objectives of the project in different ways, and these interpretations can conflict with one another. Second, different government organisations' perceptions of what needs to be done to achieve the project objectives may vary and can be in conflict. Finally, with the involvement of the private sector in

government projects, the priority of government organisations to achieve administrative reform objectives cannot be taken for granted as the priority of the profit-seeking vendors. Moreover, conflicts of interest may arise when system integration is required between two government organisations that use different vendors.

## **8.2 Contributions**

### **8.2.1 Theoretical Contributions**

This research develops a conceptual framework based on structuration theory to understand the implementation of IS projects in local government that were initiated by the central government to achieve administrative reform objectives in the People's Republic of China.

From the theoretical perspective, this research differs from the existing literature in the following two areas. First, national administrative reform programmes have been given greater weight in our research, in which we studied IS implementation at the local government level. In the existing literature, it is recognized that government policy integration is a crucial issue and that it is difficult for IS implementation, particularly in developing countries, to achieve the objectives of administrative reform. However, the existing literature tends to treat administrative reform policies as a factor at the macro level, with a limited impact on IS implementation in local government. In many cases, national policies only refer to the national IT policies.

In this research, it is believed that there is a strong link between administrative reform and IS implementation in local government, particularly in transitional economies like China where the central government often prescribes IS projects to local government. Moreover, it is believed that the local stakeholders are influenced by national administrative reform programmes, and the effectiveness of these programmes depends on the outcomes of the local implementations. We do not assume that national policies

are rational; instead we believe that local stakeholders are influenced by their perceptions of the project, the reform intentions of central government and other on-going administrative policies.

The findings of our research confirm the importance of taking national administrative reform policies seriously while studying IS implementation in local government.

First, it is found that the local stakeholders can have different interpretations of administrative reforms and how to achieve the objectives of these reforms. For example, the Finance Bureau and individual government organisations disagreed on who should be in charge of paying the bonus and allowance payments in order to develop a fair performance-based evaluation system.

Second, our research has found that the dual administrative structure in China leads to different priorities for the stakeholders in local government, causing difficulties in inter-organisational co-operation during system development. For example, the Local Tax Bureau focused its efforts on developing its own system to manage tax payments as part of the national Golden Tax Project and so they were reluctant to participate in developing the Personnel and Salary Management System.

Finally, our research suggests that studying IS implementation projects in local government can reveal the problems of national policies. There can be a mismatch between the reality and the design of the IS project, like the design of information sharing among different government bureaux, in conflict with the reality of varying data requirements and systems among government bureaux, as in our case study. There can also be conflicts between different government policies. In our case study, the aim of using IT to enable information sharing and exchange among government organisations to develop an integrated service government conflicted with the performance-based evaluation system where every government bureau is responsible for its own budgets and organisational missions. The difficulty of inter-organisational co-operation is further



complicated by the different vendors used for outsourcing by the various government bureaux.

The second way in which our research differs from the existing literature is in the conceptual framework, which is based on structuration theory. Its use in this research shows a way to understand IS implementation in local government that is initiated by central government to achieve administrative reform objectives.

Administrative reform policies are often studied at the national level while IS implementation in local government is often studied at the local level. This research uses structuration theory as a means to understand the relationship between individual and society and between action and structure. From the structural perspective, the administrative reform policies are seen as “traces in the minds” of the local stakeholders. Hence, the conceptual framework allows us to understand the interaction of national policies and IS implementation at the local government level.

Yet, structuration theory only provides a way of thinking of IS implementation in local government to achieve administrative reform objectives. To identify the objectives of administrative reforms in China, we refer to the principles of New Public Management, on which administrative reform policies in many countries are based, as well as the social contexts of the Chinese administrative reforms. Hence, the conceptual framework, based on structuration theory, and the identification of the Chinese administrative reform objectives, together provide a different way to view IS implementation at the local government level to achieve administrative reform objectives desired by the Chinese central government.

### **8.2.2. Practical Contributions**

The recommendations for practitioners drawn from the findings of this research can be summarized according to the following four perspectives.

First, this research suggests that the difficulties of inter-organisational co-operation during system implementation cannot be solved at the local level alone. They call for changes at the central government level, in two ways. To start with, they call for policy integration and co-ordination among different government ministries, which means the strengthening of horizontal inter-organisational co-operation at the central government level. Secondly, they call for changes to the dual administrative structure, which is not suitable for inter-organisational co-operation, especially in an IS development project that requires information exchange and data sharing among government organisations.

Second, this research suggests that there is a need for an authority at the local government level to co-ordinate IS projects. The authority should have the power to persuade the different local stakeholders to cooperate and, at the same time, it should be responsible for the system development projects. In this case study, although the city government played the role of co-ordinator, this was insufficient as the city government was not in a position to oversee and co-ordinate the IS projects going on in different government bureaux in terms of both its authority and responsibility. Although there was a local government Information Management Centre, it had little power and was in fact not involved in this project. There is a need for such an authority as a co-ordinator responsible for developing IS projects for the following reasons. First, as it oversees the development of IS projects at the local government, it can understand the local operations and identify the stakeholders at the start of the project. In our case, neither the city government nor the Personnel and Finance Bureaux had enough resources and working knowledge to understand the operations of the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office. Second, it should have the power as a co-ordinator to prioritise IS projects in different bureaux and the necessary resources to make changes if necessary. Third, it should be the point of contact between central government and local stakeholders, and it should ensure that the objectives of the IS projects are agreed in principle among the local stakeholders.

Third, our research suggests that local governments should be aware that the policies designed by central government may not be suitable for the local social contexts. When there are conflicts, the problems should not all be left to the local governments to solve and there should be an effective communication channel between central and local government during IS implementation. In our case study, we identified three conflicts between the assumptions made by the central government and the reality at the local level. First, the design of the Personnel and Salary Management System assumed that all the rules and regulations for paying government employees were clear and unambiguous. However, in reality, the allowance and bonus payments were not very clear and sometimes the sources of such decisions were hard to trace back. In other words, the ideal of developing a computerised rule-based salary management system can conflict with the existing confusion caused by the old authority-based decision-making system. Moreover, the existing rules and the perceptions of new rules can also vary among the local stakeholders. Second, as the purpose of the system was to improve personnel and public finance management, the central government identified the Personnel and Finance Bureaux as the stakeholders responsible for system development. However, this conflicted with the way of working at the local level. It turned out that the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office should have been involved in this project at an earlier stage. Finally, in this case, the vendor was completely responsible for funding and developing the system, which was good from the cost-saving and budgetary control perspectives of the central government. However, in reality, the conflicts between the stakeholders using different vendors and the lack of control of project funding brought problems to inter-organisational relationships, which could harm IS implementation in local government. Moreover, the existing performance-based evaluation system, in which government bureaux are responsible for their own budgets and organisational performance, does not encourage inter-organisational co-operation. A new and more creative performance evaluation system may be needed to encourage inter-organisational co-operation during the system development process.

Finally, although this research focuses on the social context of the People's Republic of China, the research findings may be useful for governments in other countries. It may be particularly useful for other transitional economies, where central government often plays a key role in promoting IS development in local government. Although the reform objectives and the social contexts may differ, the conceptual framework developed in this research and the approach adopted can be useful for them to understand the difficulties of implementing IS in achieving administrative reform.

## **8.3 Limitations of Current Research and Directions for Future Research**

### **8.3.1 Reflection on the Use of Structuration Theory**

The conceptual framework developed in this research, based on Giddens's structuration theory, provides a way to understand the implementation of IS at the local government level to realise administrative reform objectives. In the initial stages of this research, structuration theory formed the basis of our epistemology in that it sensitised our views of social changes. The time/space concept of structuration theory allows us to define time and space based on social relations rather than physical presence. It helps us to understand the contextualities of institutionalised patterns of interactions across time and space. For example, through tracing back to the situation of each stakeholder before administrative reform and collecting secondary data, we could understand why the resources available to the stakeholders varied a lot from one another and why the stakeholders thought and behaved in the ways they did. In the analysis stages of this research, the duality of structure and action was very informative and useful for us to understand how local stakeholders draw on social structure including administrative reform programmes to provide meaning, exercise power and legitimate actions. The results of the analysis provide insight in understanding the problem of project delay, the bonus and allowance payments issues, and the parallel use of old and new systems.

While structuration theory may be a useful way, it is not “the way” or “the only way”. Structuration theory assumes that structures do not exist independently of human agency, but as instantiations in human actions and as memory traces in the mind. However, material constraints do set limits on what is possible and what is not possible for human agency to achieve. For example, the information sharing and system integration could not be achieved between the new system and the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office because of the limited funding. Furthermore, although Giddens recognises that the availability of resources can put constraints on human actions, he argues that structures do not exist independently of human agency. However, as this research shows, the availability of funding limited the actions of local stakeholders, the unavailable historical data on allowances and bonus payments limited the ability of the Personnel and Finance Bureaux to standardise the payment process and the Housing Reform Office was unable to use the data provided by the new system without its own computer system. In other words, without these “materials”, human agency does not have a choice and cannot “do otherwise”. Therefore, upon reflection, the equal treatments of human and non-human as actants in Actor Network Theory may have its merits.

In this research, the conceptual framework based on structuration theory, provided insights into the IS implementation in local governments to achieve administrative reform policies. However, as discussed in Chapter Four, there are alternative theories to overcome the problem of macro/micro level division. Therefore, future research in this area can either build on the conceptual framework developed in this research or use other theories to assess their usefulness.

### **8.3.2. Reflection on the Research Approach**

The case study approach proved to be appropriate in this research. Since the research to date in this area is very limited, this case study allows us to get an insight into the IS

implementation projects within local government. Focusing on studying a single case study in the natural settings of the project, we could put all our efforts into understanding the perceptions and actions of the stakeholders and their interactions with each other. This allows us to have an in-depth understanding of the problems of implementing IS in local governments from the perspective of achieving administrative reform objectives. However, this research has two limitations that leaves potential for future studies.

First, upon reflection, there may be alternative explanations for the phenomena discovered in this research. For example, when we explained the parallel use of the old and new systems in the case study, we focused on the different perceptions of the Personnel and Finance and the Local Tax Bureau, the Social Insurance Bureau and the Housing Reform Office from legitimization, domination and signification perspectives in relation to administrative reform programmes. However, the compromises reached can also be understood in terms of the Chinese culture, where people tend to make compromises and work towards a win-win situation. In other words, although this research shows clearly the strong links between administrative reform programmes and IS implementation in local government, there may be other aspects that can provide insights into such IS implementations that this research does not cover. Indeed, from the existing literature, our understanding of IS implementation at the local government level is still limited. Further research is needed in this area.

Second, most of the findings of this research are quite specific and applied to the particular case study. Considering the differences in local social contexts even within China and the lack of similar studies, the difficulties of system implementation experienced in this case study might not happen in other areas of China and it is very hard, if not impossible, to generalise conclusions that are applicable to the whole country based on our research findings, let alone other countries. Therefore, further research needs to be done in this area.

## 8.4 Summary

This chapter starts with a summary of the main themes of this thesis. Then, we summarise the contributions made by this research from the theoretical and practical perspectives. From the theoretical perspective, first this research shows the strong link between national government policies and IS implementations at the local level. It is argued that national policies should be taken seriously when studying IS implementation in local government. Second, the conceptual framework, based on structuration theory, and its use in this research shows a way to understand IS implementation in local government that is initiated by the central government to achieve administrative reform objectives. From the practical perspective, we have made suggestions to both central and local governments from the following four perspectives. First, this research suggests that the difficulties of inter-organisational co-operation during system development process cannot be overcome by the local government itself, and they call for changes at the central government level. Second, it is suggested that there is a need for a government organisation as a co-ordinator with the authority and the responsibility to take charge of implementing IS projects at the local level. Finally, our research suggests that the rationality of the policies made by the central government may not fit with the social contexts at the local government level. A creative thinking and an effective communication channel between central and local governments may be needed. Finally, the findings of this research may also be useful for other governments, especially those of transitional economies. After discussing the contributions of this research, we reflected on the use of structuration theory and our case study research approach and made suggestions for future research.

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## ***Appendix I Interview Transcripts***

### **Interview with a project team member in the Personnel Bureau (Excerpts)**

**Time:** 1:30 p.m. – 5:00 p.m. Beijing Time

**Date:** 5 February 2001, Monday

*With the system upon running, I'm interested in knowing whether the system has met the objectives, the six objectives of developing this system. The first objective is to effectively and reasonably use financial resources in order to meet the requirements of public finance.*

Yes, generally speaking, we have achieved this objective. We have solved the “secret money box” problems. Now all the payments are made by the Bank to individuals’ accounts, except those paid through allowances.

*Is everyone happy with this?*

Of course not. Some individuals have complaints. They complain this system is too rigid, not flexible enough, for example for those working in educational institutions, middle schools and primary schools. But we have tried our best to achieve the objective of government employees getting paid in accordance with their ranks and responsibilities.

*Why the education institutions were complaining? Any example?*

I take the example of payment to a teacher who took class on behalf of another on-leave teacher. We deducted the salary of the on-leave teacher and paid the teacher who had taken up this responsibility. This looks very simple. However, it is quite complicated in terms of the procedure. Since the salary should be paid by the Finance Bureau, the salary first should be deducted from the on-leave teacher. The amount of money deducted would be given to the school. The school could then pay the teacher who took the responsibilities in the form of allowances. You can imagine this is quite complicated from the accounting perspectives.

*The second stated objective is to strengthen the budgetary control and weaken the departments’ distributional functions. I’m not sure what it means by “to weaken the departments’ distributional functions”.*

It means the control, the budget control to the departments. Departments cannot exceed the budget limit. For example, they cannot promote anyone without asking for the personnel quota permission first. If there is a vacancy, it is announced and applicants need to compete for that. Promotion is made public. In this way, there is a restrictive function on promotion.

*Is this guaranteed by the payment system?*

Yes. We have quota in every government department. Payment is linked closely to the quota. The Finance Bureau will instruct the bank to pay according to the records in the Personnel Bureau. Now, there are only two ways the Finance Bureau makes the payments to individual departments. All the salaries are paid by the Bank. To those departments with special functions, for example, they have their income resources, the Finance Bureau will make income returns to them.

*Can these departments distribute these income returns to their employees by themselves?*



Yes. The Finance Bureau will return the income to them proportionally.

*The third objective is to ensure that the amount of money paid to government employees is sufficient and timely. Since the Finance Bureau makes the payment instruction directly through the bank, I think this is not a problem. But do employees think this is convenient enough?*

I believe this is not a problem, because the branches of the Bank of China and their ATMs are all around the city.

*The fourth objective is to help to solve the problem of “ghost workers” and strengthen employee quota management.*

We had already solved this problem before developing the existing system. We developed a computerised system before, so this problem has been solved. This problem is prevalent in many other cities. For example, for those retired people, there is no name list. They should be paid partly by the Finance Bureau and partly by the Social Insurance Bureau. However, they were still paid as an on-the-job employee by the Finance Bureau.

*To reduce the middle procedures of money allocation and improve productivity is said to be the fifth system development objective. Has this objective been achieved?*

Both have been achieved at the same time. In the past, salaries and benefits were calculated by accountants in individual organisations. Now they don't need so many accountants.

*Does it mean some people will lose their jobs?*

Not really. In many organisations, especially smaller ones, accounting is only part of their jobs. These people still have their other job responsibilities. The difference is that in the past salaries had to be calculated by individual organisations, while now salaries can be dealt with by just more than ten people in the administration and finance section in the city government.

*How about in some over-staffing organisations?*

In fact, we will have government structure reform soon. Women over 50 and men over 55 will retire. They won't be counted in the quota, instead the Social Insurance Bureau will be responsible for their living.

*The last stated objective is to help regulate individual finance distribution and to improve the transparency of individual expenditure standards. What do you think?*

This mainly refers to the “secret money box” in organisations. Now this is not a problem, because the salaries are paid directly through the bank. Except difference compensation (cha e bu tian), bonus are not allowed to pay in any form. Administrative budget is also tightly controlled in other form by the Finance Bureau.

*This can mean some people will have less income than before, though maybe through illegal channels. Do you hear any complains?*

Now the payment channel has been standardised. It is true that people have some complains about the channel is too rigid, for example from schools, not catering for special cases. I have given you an example before.

*Except the above objectives, do you think there are some other “unexpected gains”?*

Er...

*Maybe “unexpected problems”... What I mean is what you didn't expect before*

*implementing the system?*

Er... I don't think there are any unexpected gains... If there is, maybe this is one... Normally, the Finance Bureau will distribute bonus at the end of every year. In the past, more than 200 organisations had to calculate the amounts individually, and then reported to the Reward and Punishment Section in the Personnel Bureau, then the proven amount is taken to the Finance Bureau. It takes more than two weeks. All the documents have to be transferred between organisations. Now, the computerised system is used. The budget section in the Finance Bureau only needs to input the data, and checks the results. How much every person in every organisation should be paid is very clear. When it is checked, the printed form is given to the departmental head to print. It takes half a day to complete all these process. By the way, within the Finance Bureau, there are three sections including a social insurance section that is responsible for social insurance, Administration and Finance Section who is in charge of administration expenses and public finance, as well as the Agriculture and Forestry Section who is in charge of watering conservancy, electricity, farming, agriculture and forestry. Obviously, this system is very welcome by the Finance Bureau. Maybe it is an unexpected gain to them. On the first working day after the Spring Festival, two heads of the Finance Bureau as well as the main responsible section heads came to our department to send New Year best wishes. This was the first time they came.

*This is very good.*

Yes. The computerised system can accurately calculate for every individual. People working in different areas will have different living subsidiaries, and the rewards and punishments also differ... All these have been taken into account by this system. It saves expenses and human resources, and it is accurate. Staff don't need to work overtime any more.

*The second question is about the problems appearing during implementation. How the problem was discovered? Why this problem came out? And, how to solve this problem? OK, let's come to the first small question. Did you experience some problems during implementation? Did the problem come from the Finance Bureau, the Personnel Bureau, the Bank, or the Tax Bureau, the Social Insurance Bureau, the Housing Reform Office, or individual organisations? Are there any examples?*

Yes, we have some problems during implementation. Until now, for instance, we haven't figured out why the promotion cannot be input correctly into the system. For example, a person is promoted in January. Usually the salary will be increased correspondingly since February. Since the salary is paid on 5 February, the salary increase can only appear in March. In March, the increase part of the February's salary as well as the March's salary will be paid together. In other words, the total income for the person in March should be higher than the normal salary level, due to the compensation for February. The salary in April should be back to normal. However, now the problem is the salary in April could not be back to normal, either lower or higher. Sometimes the total balance for March is not correct. The technical staff in the bank are searching for the reasons. They are more specialised in mainframe, while the skilled staff employed from Shanghai has left. But, anyway, this problem has to be solved.

*This problem will be solved sooner or later. However, by which way you keep your records about the changes?*

We keep the changes in the records both in the database and in paper-form.

*During the system implementation problem, have any changes made to the system? How were the problems discovered? How to change them?*

The communication between organisations is a problem obviously. A small mistake made by individual organisations can cause big troubles. For example, a person retired in January, which should have been reported to us timely. The retirement should be reported to the Social Insurance Bureau as well as us. For the budget purpose, the Social Insurance Office should pay the retired person, while we will stop paying the salary to this person as an on-the-job one. However, since the subordinating organisation only reported to the Social Insurance Office and didn't report to us. So, this person received both the payment from the Retirement section in the Social Insurance office as a retired person and the on-the-job payment from us.

*This problem looks very simple, but the solution may be complicated because of the budget.*

Yes, the budget for the Social Insurance Office is different from ours. They are responsible for the retired people, while we pay for the on-the-job employees. This is, in fact, not a technical problem. It is a problem on the connection between the government sector and subordinating organisations. In the above example, in considering of the benefits of the retired person concerned, we decided to deduct the extra payment gradually in three months rather than in one-go.

*Did you provide any training before implementing the system to prevent these types of problems from happening?*

Yes, we did. We require the changes in every month have to be reported to the Personnel Bureau before 25<sup>th</sup> every month. Then, we can transfer the updated data to the Finance Bureau on 28<sup>th</sup>. On the 5<sup>th</sup> every month, individuals must receive salary payment in their accounts. At the same time, they will receive the pay slip created by the system printed in the Personnel Bureau.

*This is very clear, why this type of problem will happen? In the case mentioned above, what was the excuse the organisation gave?*

"Go out to travel". It is required not to go through the retirement procedures at the end of the month. All processes have to be completed and reported by 25<sup>th</sup> every month. When people are retired, they will receive part of their income from the retirement section of the Social Insurance Bureau, and the regional living allowance from the Personnel Bureau. From this example, you can see our system is not completed yet. It needs to be completed, and the rules and regulations should be formed and followed.

*Was the system implemented according to the timetable?*

Yes. In July, we first tried the system on ourselves, the Personnel Bureau and the Finance Bureau. In October, we implemented the system to the administrative institutions, and the enterprises institutions in December. All followed the timetable, except some very special cases.

*Have these systems linked to the system on the provincial level?*

The system will be linked to the Finance Bureau on the provincial level for financial

budget purpose. The system has specified clearly what “ke” each person belongs to. In our Personnel Bureau, the annual salary summary statement has already been designed to comply with the provincial annual salary summary statement. Now we can send the disk to them.

*Have you experienced any other problems during system implementation? Any example?*

There was a problem with the Social Insurance Bureau. For example, in an organisation, there are 533 people. Among them, there are ten people are not paid in the financial budget. In other words, these ten people are not in the government staff budget. They are employed by individual government organisations.

*Do the organisations need to report to the Personnel Bureau about these people?*

Yes, if they need extra staff, they need to report to the Personnel Quota Control Office in our department. Then, they can hire. However, these staff are not paid by the Finance Office, but paid by the gong zi cha e bu tian (salary gap allowance).

*What is the standard of their payment?*

Their payment is similar to the standardised payment.

*What is the “going zi cha e bu tian”?*

This amount of money is allocated as a percentage of the organisation’s administrative expenditure by the Finance Bureau, in consideration of the number of extra staff mentioned above. For instance, the expenditure is 200,000 yuan, and x% of this amount is the allowance. Some organisations have their own income, for example, hospitals, they should be allowed to distribute bonus as a motivation to their staff.

*OK, I see. Then, what is the difference to the Social Insurance Bureau before and after implementing the system?*

After implementing the system, the insurance amount and tax are deducted automatically by the system. The total amount is generated automatically. However, before implementing the system, the Social Insurance Office has its own working routines. They required individual organisations to pay a certain proportion as social insurance capital, which had to rely on manual calculations. It is much more convenient to generate the amount by the system and send the disks to the Social Insurance Bureau, the Tax Office as well as the Housing Reform Office.

*Which offices in your department use the system?*

The Personnel Quota Control Office and our Salary Office. In fact, from calculating social insurance perspective, the system can produce results more accurately and quickly. For instance, since 1 January this year, the social security office will have x% more for social benefits from personal income. The amount for more than 20,000 people is generated at once. The calculation is very complicated if using manual system. Social Insurance is paid both by the organisation and individuals. Now the organisation will pay x% of the amount paid to individuals as salary to the Social Insurance Office, and x% to individuals as social insurance. At present, among the total x%, the organisation pays x% to individuals. Among the individuals’ salary, x% will be deducted, x% pension funds, x% unemployment insurance and x% health insurance.

*When the salary payment has been standardised and regulated by the new system, how about the problems appeared before implementing the system?*

Past mistakes will be forgiven, as usual. Everything starts now. Now the small money box is strictly forbidden in government organisations.

*Then, how about those organisations with extra income themselves?*

This is the difference between full-amount management and margin management. All hospitals have used margin management. In other words, all hospitals are responsible for their own income and expenditure. A “bian min” (providing convenience to people) hospital will be established in the future. Those people who apply and get the permission can see a doctor in this hospital free of charge. The idea of full-amount finance management and margin finance management was raised in the Mayor’s Office meeting, according to the reality in Foshan.

*The system is working very well, what do you think?*

It works, but still needs improvement through continuing modifications. As I mentioned before, now at least a technical problem has been solved yet. This problem has to be solved. The staff in the bank is working hard on it. I know government policies, but don’t know how to develop a system. On the other hand, the engineers know the skills, but don’t know the policies. During the system prototyping, there are some problems related to special cases coming out. For example, Lao Jiao Ren Yuan (people who were sentenced and have been released and working) are special cases. Their living expenses are paid but not salary, the same as people in Huan Xin (people who were sentenced and would be sent to prison after a fixed period of time).

*Were these problems discovered in organisations when they used the system?*

Yes. There is also problems discovered related to graduates with a Master degree. Normally, university graduates have a probation period and are paid primary salary (Chu Qi Gong zi) during this period. However, graduates with a Master degree are exempted from this regulation. They don’t have a probation period and are paid the standard salary straight away. They are also paid the year-end bonus as well.

*(Pointing to the diagram in a document demonstrating the links between the Personnel Bureau and subordinating organisations) Are subordinate organisations are using the system directly?*

Not really. They are using standalone version or networked version, while the management version is in the Personnel Bureau.

*What is the networked version?*

Some organisations are very big. So we have a networked version, which many computers are linked to a Local Area Network.

*System implementation proceeded according to the plan, didn’t it?*

Yes. With the reform, in many cities, organisations are arguing with each other. The staff quota cannot be fixed up. Our city is the first (in China) to tackle this problem.

*What is the attitudes of the management on the city level towards this? How this affected the system development?*

The managers give full support to this system development. The mayor is very supportive and requires the system to be up and running according to government policies as soon as possible. The standardised salary payment is the function of the Finance Bureau, not the Personnel Bureau. However, in both bureaus, the departmental heads are in charge of the project themselves. A standardised salary payment leadership

team has been established in both bureaus. Government officials on all levels are very concerned with the project. The secretary of the city government often convokes meetings with related government institutions.

*What is the purpose of these meetings? Why is it necessary?*

The Finance Bureau, the Personnel Bureau, the Tax Office (belong to the province) and Social Insurance Office and so forth are government institutions on the same level. And the Personnel Bureau cannot control the bank as well. When there is any problems coming out and departments cannot solve on their own. The secretary will have a meeting with all concerned parties and discuss the solutions. This facilitates the co-operation between organisations and solves the conflicts.

*How about departmental heads?*

The departmental heads and the head of the bank are very supportive as well. When we don't have enough personnel, they give us personnel support... In particular, in the past few months when the system was developed and tested, we often worked over time. Rear service was guaranteed, for instance, we were allowed to use the dining room any time in the bank free of charge. We had a free hand on this project.

*Do you think you have sufficient capital and human resources?*

Yes, I think so. The development of this system also relies on the co-operation between departments. For example, in some cases where the government policies haven't specified clearly, the heads of both departments, the Finance Bureau and the Personnel Bureau, the Secretary and the head of the bank will have meetings to discuss and search for agreements.

*Would you please give me a concrete example?*

I gave you an example of the Social Insurance Office above. This example is about the Housing Reform Office to collect housing accumulation funds. The new system will automatically deduct the amount for the housing accumulation funds from individuals' salaries. However, the Housing Reform Office originally required every organisation to have a certain amount of money saved in the bank and reserved as the payment for the housing accumulation funds. Then, the Housing Reform Office takes the money out from the organisation's bank account periodically. If there is any problem, the organisation will report to the Housing Reform Office. Every organisation has to check its own account, and if the amount is incorrect, the Housing Reform Office will return the extra amount to the organisation's bank account. Since the Housing Reform Office has calculated the total amount for every organisation, they were reluctant to change and required to remain the same. Therefore, the Secretary and the departmental heads held meetings together. They decided to use the system in order to reduce the burden on subordinate organisations. These subordinate organisations don't need to go here and there for the housing accumulation funds. Now every person's housing accumulation funds are deducted automatically from his or her account. However, for this to work, the Housing Reform House had to check all the accounts once more. This is why they were first reluctant to change to use this new system. In fact, the advantage of this new system has been proved when the housing accumulations funds increase by 1%. The changes in all individuals' amount are shown clearly in half a day.

*What is the main difference before and after using the computerised system?*

The main difference is that in the past individual organisations calculate the payment and create pay slips. The manual system takes time and often has mistakes. Before the system was developed, we had to check all payments again and found 99% of organisations had mistakes, including our Personnel Bureau. Once the computerised system is used, the amount is generated automatically and free of mistakes. In particular, the salary for those who worked in the army before and now work as a cadre now becomes very easy to calculate. In the past, in order to calculate their salaries, we have to go back to personal files and find all the related documents about the regulations. In addition, when individual organisations create the pay slips themselves, they may intentionally or unintentionally pay more. Now the Finance Bureau has unified the payment process. The budget is more accurate. The personnel payroll system as well as the finance management system has been upgraded.

*By the way, I'm interested in the staff quota system. Please tell me more about it. For example, when it began to use?*

The staff quota control began from 1985. The posts and quota are fixed now, because we will soon introduce a reform in government structures. It is very convenient to calculate a new staff's salary now. If a person is allowed to take up a post, we only need information about the age, post, years of working and so on. The system will automatically calculate the payment.

*Except those mentioned above, are there any other advantages the system can bring?*

The system can facilitate continuing sharing of resources. Now we are planning to expand its functions.

*What lessons or experiences can be learned from this project? What do you think? For example, the support from the city government?*

Yes, the support from the city government is very important. Also, I think we need to have some specialists with different skills. In fact, we will have a graduate major in Information Management from Zhong Shan University. We want some person who knows both sides (technology and policies), I mean, government policies as well as technical skills. I have more than twenty years working experiences in this area and know all the process within the payroll system. But I don't know the technical terms. I can only try to use the system. Now the most valuable person is the one who can design the system. While I find problems in the system, I know what the problem is. But the technical staff don't know where the problem is because they don't know the process. They change it but the problem still exists. Because we lack a specialist with knowledge on both sides, we have to try many times. It really took time. Some problems which we should have solved in one day, took more than one week.

*Any other experiences from this project?*

This project requires the Bank, the Finance Bureau and the Personnel Bureau to work together towards the same goals. It needs the co-operation between organisations, and organisations cannot shirk responsibilities.

**Interview with a project team member in the Finance Bureau (Excerpts)**

**Time:** 9:30 a.m. – 11:30 a.m. Beijing Time

**Date:** 9<sup>th</sup> October 2001 Tuesday

*I have a few questions to ask about the situation after the system was implemented. (I have a printed-out questionnaire in Chinese, and he is given one).*

OK, I will try my best to answer you.

*The first general question is about whether the system has achieved the specified system development objectives. Do you think the system has help to effectively ensure the finance capital to be used in the right way, I mean, in the way it is supposed to be?*

This problem didn't exist here even before the system was implemented. To us, this change is not significant. The unified salary distribution in fact is to ensure salary payment. This problem doesn't exist in the Pearl River Delta.

*The second stated objective is to strengthen the budget control and weaken the functions of individual organisations. Do you think this has been achieved?*

Yes. It has weakened the functions of individual organisations. Salary is directly paid to individuals according to the government policies, and the organisation cannot get involved in this process. The organisational heads cannot use the funds for another use. Salary payment is a departmental function, not an organisational function.

*The third objective is to make sure the salary payment is sufficient and timely. What do you think of this?*

On 5<sup>th</sup> every month the money is allocated to individuals' accounts. In the past, if there is a holiday, money will be prepaid. Now, it is standardised, not earlier or not later.

*The fourth stated objective is to solve the "ghost worker" problems and strengthen the quota organisation.*

This problem didn't exist in Foshan already, because the old system is quite complete. However, this problem is existing in other provinces and cities. As far as I know, in X Province, they found about 5000 ghost workers. In our city, when we implemented this system, we didn't find any ghost worker. This is due to the complete operating system. The operation is strictly according to the rules. The changes in employees have to strictly report to the Quota Management Office in the Personnel Bureau. The co-operation between departments is pretty good. The system and execution are quite standardised according to rules. Instead, if people have more power, especially in some poor areas, the human factor during the operation is more obvious.

*The next objective is to reduce the middle process in fund allocation and to improve productivity. How about this?*

This achievement is quite significant in our city. The delayed and short of salary payment is forbidden due to this government policy, though, in economically developed areas, this problem is not obvious. The objective here is to strengthen the management of salary payment through the use of this system. Though there are some small problems about the software, in fact this objective has been achieved. Take the increase in salary city-wide as an example. In the past, we didn't have the exact data of all the employees. We could only calculate according to the estimated average. In other words, we could only get a rough number. Now, all the data is stored in the database, so we can get an



accurate number. This helps to improve the accuracy of financial function management, improve productivity and get the accurate budget and final accounts. It helps to calculate the proportion and adjust the salaries accordingly. In this way, the finance management is standardised and direct. We have three sections in our department. In the past, our three sections have to estimate a rough number when requested. Now, if the government needs any data, they can get it immediately from the system. We can accurately make the budget for every item. This is the most important objective. This is about financial management both on the macro-level as well as in details, about the accuracy of reference materials and the budget. In the past, we had to estimate according the historical records of individual organisations. But organisations may distribute more or less. Now organisations are not allowed to distribute money themselves. In the past, people working in the same area, for example, in financial departments, could have a big gap in their salary payments. Now this has been standardised. If there is any gap in the money received, the commission for inspecting discipline and the municipal Party committee will find out who is to blame. In the past, people working in those departments with power or money had more benefits. Now, this system helps to improve the working initiatives of public servants and solve the unfair salary distribution problem.

*The last objective to be achieved is that the system will help to standardise individual expense distribution and improve the transparency of individual expenses. What do you think of this?*

The salary can only have differences in grades, not in organisations. In the past, individual organisations can decide when to distribute benefits. It is impossible for the Finance Bureau to check one by one. Now, no matter where you work, the benefit treatments will be the same, provided on the same grade. The transparency in salary payments is also all the same. The grading is very clear. The year-end evaluation is based on individuals' basic salaries. Now, in addition to the grading, education and work experience make the difference in salary payments.

*Except the above mentioned objectives, what do you think could be considered as "unexpected gains or problems"?*

The unified distribution of salary has involved many departments, for instance, the Tax Office about Income Tax, the Social Insurance Office about people social insurance fees, and the Housing Reform Office about the housing accumulation funds. In the past, these are collected and paid by individual organisations. However, this didn't meet the requirements of the new system. This problem needs the co-ordination between organisations. For example, now the Finance Bureau will directly collect the funds through the system and allocate to these office accordingly. However, for example, we still need the co-operation from the Housing Reform Office.

*What is the situation now?*

In the past, it is individual organisations that calculated the total and paid the Housing Reform Office. Now, the Finance Bureau directly paid the Housing Reform Office. However, the Housing Reform Office still asks the individual organisations to report the total amount to them. If they find there is any difference in the amount we report with the amount the individual organisations report, they will refuse our payment and require

us to check again until they are the same.

*Why the amounts could be different?*

Every time, if there is any change in the number of people working, the organisation should report to the quota control office in the Personnel Bureau. If this is reported, we will update the system. Then, the person will get paid. At the same time, once the organisation gets the proof from the Personnel Bureau, they should also go to the Social Insurance Office to update the data there. However, the first one is concerned with the money payment, while the second reason is because people is more reluctant to do so. This will end up, for example, in our database, there are 101 people, but only 100 people are in their database. Thus there is different in the total amount from the Social Insurance Office's point of view.

*Then, how about the Tax office and the Social Insurance Office?*

Now the Tax Office and the Social Insurance Office have already followed the data we give to them. Our data should be accurate. Because people want to get paid, they have to register with the system first. The problem of the Housing Reform Office is that their computer system has not set up and running yet.

*What is their existing work routine?*

In the past, the Housing Reform Office requires individual organisations to fill in forms. This is necessary and reasonable because of meeting the administrative requirements.

*How to calculate the housing accumulation funds? Does every person vary? Or do all people get paid for the same amount?*

All the people get paid for the same amount. So the total amount in individual organisations only varies according to the number of people working there.

*How often this problem happens every month?*

About 7 or 8 organisations every month have the problems of varied number of employees reported.

*Has the system linked with the system in Housing Reform Office?*

Not yet. But the data in the Finance Bureau must be updated due to salary payment.

*What do you think of the co-operation between departments during the system development? How useful is the relationship to the success of developing such a system?*

The co-operation between departments is pretty good. This system development is concerned with the government policies. Many items in the system are initiated by the Finance Bureau.

*A lot of efforts have been put in this project, right?*

Yes. In the past four months, sometimes there were more than ten meetings every week. In August, the system was officially launched. It involved the co-operation between departments, the set-up of hardware and software, the information flow as well as the test of the software. The Personnel Bureau and our department had the tests first. The software was distributed in October, and by December, 99% have used this system to pay salaries.

*What were the attitudes of leaders on the upper levels towards this system? How important their support is to the system development?*

The leaders are very supportive and pay a lot of attentions to this project. The city government is in close control of this project. Guangzhou, Zhongshan, Nanning, Beihai,

Wuzhou, Zhongshan and some other cities have come to learn from our system. Our system is working quite well. It started early and developed steadily. We have sufficient time to develop the system.

*Could you give me an example how the city government pays special attention to this project?*

For example, every department takes care of their own interests. When there are conflicts between departments, the Finance Bureau cannot co-ordinate in-between. The City government will call on a meeting immediately and solve the problems. Otherwise, the project would have been suspended. This project is thankful to the back-up of the government. Since different departments have their own work routines and are concerned about their workload, while all the departments are on the same level, the involvement of the city government has helped to solve the conflicts.

*During the system implementation, what is your relationship with the Personnel Bureau and the Bank? How important this relationship is to the system development? Has the establishment of this system had any impacts on the relationship between organisations?*

The Personnel Bureau and the Finance Bureau are on the same level. The Bank behaves on their self interests, because their role is to provide services by establishing the system. They aim for commercial purposes.

*Has the system made the relationship of your department with the Personnel Bureau better?*

Our relationship has always been good, like this. We are government departments, with different functions. When the system is adjusted and completed, we can adjust accordingly when new problems come out. The bank is seeing this project from a commercial perspective, such as two back-up machines and better hardware.

*How do you keep the records?*

In the past, a lot of forms needed to be filled in for record purposes. Now, when the system was first used, a completed set of data was printed out as a raw data. If there is any change in the future, we will keep a hard copy of every change made. This ensures that we have evidence to check in the future. For example, the Education Bureau had two items less, so the accounts were not right. This even caused the computer break-down. There are some other technical problems existing. However, generally speaking, this system is very useful. For example, the evaluation bonus and the increased salary had to be calculated according to the amount per person average. Now we can calculate according to the exact amount in every organisation, very precisely.

### Interview with a staff in a government bureau (Excerpts)

Time: 1:00 p.m.– 1:30 p.m. Beijing Time

Date: 9 August 2000, Wednesday

*Do you know who sets the standard of your salary?*

I think it is the Finance Bureau, but the accountants in our organisation make the payroll slip to me.

*How do you get paid?*

The salary is directly paid to my bank account. When I go to bank, I can check my account and know...

*Is all that you get paid directly paid to your bank account?*

No. Like dinner allowance and returns, we get cash from the accounts office.

*What does "returns" mean?*

It can be seen as a kind of "bonus". This helps to motivate staff working in the front line.

*Would you please give me an example?*

Take the fines collected as an example. With this policy, staff will be motivated to work to punish and fine those who disobey the laws or regulations set by the government. They can get a certain percentage from the fine as "returns".

*However, it depends on which government department you are working for, right?*

*There won't be such "returns" if it doesn't have the right or similar tasks.*

Yes. People like to work for those government departments with power and potentials. But, even with the same government bureau, there are differences depending on which offices you are working at. It is very hard to achieve equality. For example, the Finance Bureau has the power to decide how much money should be allocated to which government organisations. However, there are so many different sources of extra income. When it wants to check the income tax payments, it is questionable whether it knows all the income sources and treats everyone all equally.

*How about allowance?*

It usually doesn't exceed RMB 10 now. It is just allowance to us when we go out to work at dinner time.

*Do you mind telling me what are the percentages of your income coming from basic salary, bonus and allowance?*

Allowance is the smallest part. The bonus I received is larger than my basic salary. Compared to other government departments, our bonus is not high.

*So, now you get paid both from the direct payment to your accounts as well as in cash, right? I'm studying a computerised payroll system. As I understand, the new system hopes to achieve the objective that everyone should get paid through the direct payment into their accounts, not in the form of cash.*

Oh, this is related to the recent reforms. To avoid corruption, the government decided to proceed with an "Income-Expense two-line system". Because some government organisations use different ways to receive money from organisations, enterprises or individuals who are under their control, then distribute the money collected in these

ways to their officers in the form of bonus or allowances.

*What is the "Income-Expense two-line system"?*

The money goes into and out of the government organisations is strictly categorised into two columns, one for the money coming in from different sources and the other for the money going out as expenses.

*It seems to me that now the "Income-Expense two-line system" will make the account very clear. It is easy to check how much they get and pay to its offices. In this way, if the officers corrupt, it is easier to pinpoint, right?*

Yes. But, there are two events very closely related to this. First, in the banking reform, the banking system has used "real name system". In the past, people can use different names to open accounts. You may have heard of some jokes about people opening an account with a false name in order not to let the family members know, and they ended up forgetting which name they used and could not take money out... *(both laughed)*

*What are the impacts of using real-name to open accounts on government organisations then?*

Some government organisations could open an account separating from the official one with a false name, which is known as their "small treasury". These money are unknown to the public and other government organisations, which only the insiders know... Now, with the real-name banking system, you have to use an I.D. card to open an account in your name. So, there is no way officials can hide the money with another person's name.

*Oh, I see. What is the second one?*

In 1998, Prime Minister Zhu Rongji issued an important document to prohibit the Army and government offices engaging in business activities. It is very clear that they cannot use their power to earn extra money other than their regular activities.

*Do you think it is feasible if you only get paid through your accounts?*

I'm not sure, but some flexibility is needed anyway. For example, in order to check market price and the costs, everyday we need to ask peasants to supply information. As a way to say thank-you, we will give them some cash or presents in return.

**Interview with a staff in a hospital (Excerpts)**

Time: 4:30 p.m. – 5:00 p.m. Beijing Time

Date: 4<sup>th</sup> August 2000 Friday

*How do you get paid?*

My salary is paid to my bank account.

*Do you receive salary or bonus in cash?*

Actually our organisation often distributes living necessities to us. So, even we cannot get cash as bonus, these will save us money in buying them.

*What do you get?*

Cooking oil, shampoos, conditioners, even cups, toothpaste and many other things...

*Do you receive bonus along with your salary in the bank account?*

I'm not clear how my salary is consisted of... I only roughly know the total amount.

Only those accountants can understand (the payroll system)...

*Do you know who decides the bonus/salary?*

The Sanitary Bureau gives out orders to increase our salary or give out bonus in accordance with inflation rate, which is called "shopping basket system". If the individual organisation doesn't have the money, we cannot receive the increased part.

*So, the Sanitary Bureau only gives order without distributing money?*

Yes. The Sanitary Bureau doesn't have the money itself. Any organisation wants to have extra income, it has to develop the "tertiary industry". To a research centre like us, we need to open a clinic. In other cases, the research centres may co-operate with enterprises.

*OK, I see. But these ideas are not bad. Your research results can be turned into profitable products and help patients recover.*

This is not always the case, however. For example, our research centre studies how to control white plague. There are conflicting interests. If we control this disease very well, which means we can hardly find patients and therefore less financial income.

*That's true. The financial incentives lead to unfavourable results.*

So, now many patients are complaining doctors of giving too many unnecessary examinations and too expensive medicines. However, doctors have no choice. I have seen a doctor was criticised by his section leader because he didn't issue examinations and medicines to certain amount. The leader said he shouldn't have been so irresponsible for his patients in the meeting. He said the patients should have received full examinations and the best medicines available... But the leader also has his troubles. When the higher authorities announced the rise of salaries, he cannot give out money if the organisation hasn't got enough money, you can also imagine the pressures from his staff...

*What do you think of paying out salaries directly to your bank account? what do you think of using a bank card rather than getting cash?*

It should be more convenient if the automated teller machine is working well. However, I had a bad experience of using ATMs in China. At that time, I urgently needed to withdraw cash. But I forgot my pin number, my card was "eaten" by the machine. That was the first time I used the ATM.

## ***Appendix II Project Meeting Minute***

(Excerpts)

Attendants:

HF: Project team leader of the Finance Bureau  
BF: Project team member in the Budgetary Office of the Finance Bureau  
EF: Project team member in the Expense Office of the Finance Bureau  
IF: Project team member in the IT Department of the Finance Bureau  
SP: Project team member in the Salary and Welfare Office of the Personnel Bureau

Date: 12 June 2000, Monday  
Time: 3:30 p.m. – 5:30 p.m. Beijing Time

SP: Before the meeting starts, I have to two things to ask for your opinions.

HF: OK, what are they?

SP: First, this is the form I will ask every organisation to fill up for each of their employees. Please go through this and give me some feedback as soon as possible. I also need your signature before it is sent out to be printed and distributed.

HF: OK, no problem. We will give it back to you in the next two days. How is project going right now?

SP: We have got two organisations' data to test the system... Actually the second question I want to ask you is about this item... *(passed on a copy of payslip to HF)* This is an extra payment to teachers with special contributions, but just a couple of teachers have got this. I was told this was proved by the Finance Bureau, and I couldn't find it in the record in our personnel office.

HF: Which one? Was it decided by us really?

EF: We are not sure. How can we remember this?

SP: OK, how should we put this item? Shall we put it into the system?

HF: We would prefer to put all the items in the system, of course, this should be incorporated into the system.

EF: We want the system to deal with all the salaries and related payments together. It will be problematic if our Finance Bureau has to pay something extra by other means, while the system is in use.

HF: How is the project going? The above has put pressures on us. The schedule has been changed once, and we cannot change it again and again. We need to know when we can access to the prototyping system and do the testing.

SP: Now every night I have been working with people in the Bank of China to test the system until 10 o'clock at night...

BF: Yeah, but it really takes time to do the testing.

IF: We have an Intranet which was started to be developed two years ago. It has been put to use for one year. However, the IT specialists are still testing the system. They have tested the system for three times, but it hasn't been completed yet.

EF: We need to see the structure of the system. We have many things to test from time

to time. If we don't know the infrastructure of the system, we can do nothing. We need time to do the testing in the Bureau.

HF: About the form, you need to add "Ke Mu". *[note: Ke Mu has two categories in order to separate those people working for the government itself from those working for the public organisations, though both get paid by the government.]* Because there are employees belonging to different categories, in the same organisation, we need to know which categories they belong to. But the problem is that most people actually don't know which one they belong to.

SP: We are going to have a training class. Usually it is the organisation that fills up all the information for the employees. We will get the head of the organisation signed to prove all the information provided is accurate.

HF: It is alright then. Have you decided the time of having the training session?

SP: Not yet.

HF: We should decide now... Oh, there is a calendar there... Let's see... How many days do you plan to have the training session?

SP: About six days. Three days for government offices, and the other three days for public organisations.

HF: Oh, some organisations have employees belong to both categories. The best way is that the first three-day session focuses on explaining how to fill in the forms for employees belonging to the government employee category, and the next three-day session focuses on the other one, the public organisation employee category.

SP: In this case, they have to come for the whole week. Except the difference in Ke Mu, which one of you need to give instructions in the training sessions, all the items in the rest of the form remain the same. So, I think it makes no sense to ask all of them to come to attend the training session for a whole week. In fact, I plan to have two sessions and ask you to explain in both of them, in case they are confused.

HF: OK. But when we are having the training sessions, the organisations should send their representatives from both the Finance Bureau and the Personnel Bureau to attend.

EF: Also, we should give them instructions on the papers. When they don't know what to do, they can refer back to the materials.

SP: Yes. I have also asked the Bank of China to give some instructions as well as to prepare some guidelines.

BF: You mean, in the training session, your Personnel Bureau, our financial Bureau, and the Bank of China will all have opportunities to say.

SP: Yes. Do you have other problems in relation to the form they need to fill in?

BF: Here, about the Great Wall card, as some people have already had one, the Bank of China shouldn't need to issue a new one to them. When issuing new cards, the Bank usually asks the home telephone number. So, telephone number and existing Great Wall card number should also be asked in the form.

HF: Yeah, the Bank of China should have considered this point. We have to be very, very careful in designing this form. After filling in the form, they have to give some extra information and they will complain... Er... about the time of the training session. Since we need to begin prototyping in August with all the data in hand, so



shall we make it in the middle of July? We cannot postpone it, otherwise we have to delay the whole process again...

EF: There are so many details in the form. I would get a headache if I were asked to fill in this.

SP: Last year, I had already asked all the organisations to fill in a similar form, called "salary adjustment form". There are just a couple of new items here. It shouldn't be too problematic.

HF: From your point of view, this form may be clear. But, once we ask them to fill in the form, lots of unexpected problems will come out. So it is very important to have a good training session and all of them should attend...

SP: We have already developed a DOS system, and most data have already been instored. Once the new system is developed, we only need to upgrade the system and input new data.

HF: But some of them didn't buy the software last year...

SP: Those who have bought the software already will be upgraded free of charge. Those who haven't done so need to buy this time. I will make it clear to them that they cannot get paid if they don't buy the software. If I don't do so this time, no one will listen to us next time.