Chapter 9
Information and Communication Technology Platform Design for Public Administration Reform: Tensions and Synergies in Bangalore, India

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1 Introduction

Over the course of the last two decades, globalisation and information technology have been rapidly dismantling traditional barriers to trade, travel and communication, fuelling great promise for progress towards greater global equity and prosperity. Attracted by the 'hype and hope' of Information and Communication Technologies (ICTs), development actors across the world have sought to adopt computer-based systems for use in government as a means of reforming the inefficiencies in public service provision. Much has been written about e-governance within a growing stream of literature on ICT for development, generating countervailing perspectives where optimistic, technocratic approaches are countered by far more sceptical standpoints on technological innovation.

In trying to analyse both their potential and real value, however, there has been a tendency for scholars to see e-governance applications as isolated technical artefacts, analysed solely as a collection of hardware and software. Far less work is based on empirical field research, and models put forward by scholars and practitioners alike often neglect the actual attitudes, choices and behaviour of the wide array of actors involved in the development, implementation and use of new technology in real organisations as well as the way in which these applications shape and are shaped by existing social, organisational and environmental contexts.

In recent years, cross-sectoral collaborations for e-government software development and sustainability have come under increasing scrutiny as governments turn to the private and non-profit sectors in their quest for high-end technology and

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examples of organisational best practice. For the public sector body, such public-private partnerships (PPPs) offer attractive advantages including increased private finance and investment, greater technological experience and expertise, better risk-sharing, greater public legitimacy resulting from being associated with a successful global corporation, a potential downsizing of the public sector and/or a decrease in publicly subsidised programmes (Fife and Hosman 2007). The public sector at large may also tap into the benefits associated with a liberalisation of regulations and markets (at least in the Telecom and Information Technology sectors), an increased access to new technologies, and exposure to private and tertiary sector work cultures and practices (Virkar 2011).

For the private partner, advantages include access to new markets, greater lobbying power and a say in policy decisions, better risk-sharing, reductions in market uncertainties and an improved image as a result of both their involvement with government and their 'philanthropic', 'citizen-friendly' or 'not-for-profit' work (Virkar 2004). However, governments, individual public sector agencies and private companies are all potentially susceptible to a number of possible negative outcomes including the emergence of severe asymmetries of power and information, and the political and financial risks associated with the failure of key macro-level top-end projects.

This chapter seeks to unravel, through the presentation of a case study, the social dynamics shaping e-government projects used to reform public sector institutions; in particular focusing on the impact that actor behaviour has on project performance within the setting of public sector partnerships with private and not-for-profit organisations. The value of such an approach is based on a review of existing development and political science literature, which tends to be not only overly systems-rational in its approach, but also lacking an in-depth understanding of the underlying actor motivations, values and interests that drive and sustain such cross-sectoral initiatives (Virkar 2011). As a consequence, the literature does not recognise the degree to which cross-sectoral project failure (viz. the general inability of the project design to meet stated goals and resolve both predicted and emerging problems) is symptomatic of a broader, much more complex set of interrelated inequalities, unresolved problems, and lopsided power-relationships both within the adopting organisation and in the surrounding design and environmental context.

2   Research Framework

In the existing literature to date, some research has already been conducted to assess the perceptions and attitudes of strategic élites and non-strategic actors to generally change processes within local government bodies. However, almost all this work has been done from a management studies perspective (without specific reference to those perspectives on e-government project outcome) and is based chiefly on the experiences of actors within developed countries' organisations (Asquith 1998). Little work to date has been done to assess the dynamics of e-government project

design and implementation on the success or failure of those initiatives, particularly in the context of the developing world, and it is this gap that this chapter hopes to fill.

The theoretical framework adopted by this research will emphasise three issues: first, the concept of tax administration and governance which is related to the set of institutions and rules that set the limits on, and the incentives that result in the constitution and working of interdependent networks of actors; second, the electronic government concept itself; and finally, the relationship between technology, organisation and institutional change. To do this, it will seek to ground its case study in three major complementary strands of literature:

1. A conceptual discussion of the role and interactions of a multiplicity of actors with diverse motivations and strategies, conceptualised as an *ecology of games*, within the umbrella of New Institutionalism, and their role in the shaping of political organisations and institutions, with special reference to the success or failure of e-government projects.
2. The literature which deals with public administration reform, and the role of ICTs in improving the functioning of public organisations and in the reduction of corruption within a developing country context.
3. A discussion of the importance of property tax for local government, particularly at the local level, and the definition and scope of property tax reform in India.

Conclusions will be reached through the concurrent use of three dimensions—theoretically on the basis of existing literature, descriptively on the basis of a case study, and analytically using the concept of the Ecology of Games and that of the Design-Actuality Gap model.

3 Research Methodology

The ultimate aim of this chapter is thus to contribute to the development of a conceptual framework that is relevant to policy discussions of e-government within not only an Indian, but also a broader global context. In order to augment theoretical discussions of administrative reform in a digitised world, therefore, the chapter uses a case study to explore its central research issues, within which a mixed methods approach was selected in order to inform and strengthen the understanding of the relationships between the actors, inputs and project outputs.

To achieve this, the research surrounding the case study was developed in the following manner: first, a thorough review was conducted of existing theoretical perspectives and literature surrounding corruption and tax evasion, ICTs and public administration, and property tax reform. Quantitative data relevant to the case was then collected and analysed, and corroborated with a qualitative analysis of official documents. The case study was then further developed through a series of in-depth personal interviews, data analysis and data interpretation; after which conclusions were prepared and validated together with recommendations for the future.

The use of mixed-method case study research is becoming increasingly popular in the social sciences, recognised as a successful approach for investigating contemporary phenomena in a real-life context when the boundaries between phenomenon and context are not evident and where multiple sources of evidence present themselves (Yin 2003). It was thus felt to be a particularly apt way of studying the nature and impact of actor actions and motivations on e-government project outcome, where the aim was not simply to judge whether the project at hand represents a success or failure, but to understand the qualities that have made it so.

Case study research consists of a detailed investigation of phenomena within a given context, often with data being collected over a period of time, the aim of which is to provide an analysis of the surrounding environment and processes to throw light on the theoretical issues being investigated (Eisenhardt 1989). The phenomenon under examination is thus not isolated from its context, rather it is of interest precisely because the aim is to observe and understand actor behaviour and/or organisational processes and their interplay with the surrounding environment. The use of a case study itself is therefore not as much a method as it is a *research strategy*, where the context is deliberately included as part of the overall design. Today, case studies are widely used in organisational research across the social sciences, indicating growing confidence in the approach as a rigorous research strategy in its own right (Hartley 2005).

4 Sources of Evidence and Data Collection

The key activity critical to data collection for this research was the identification of a suitable case study to be analysed, an aim met through the selection of the project, based in the Indian city of Bangalore, discussed previously. In order to appropriately assess the outcome of the project, and the impact that actor motivations had on key decisions taken during the design and implementation process, interviews were carried out with a number of people who had direct responsibility for, or an impact upon, the conception and development of the given case.

Whilst some might argue that diversity of the kind likely to be encountered in a study of local government such as this one is impossible to capture fully (Stanyer 1979), this research project nevertheless has endeavoured to bring together a broad cross-section of different experiences, each giving an insight into different stages of the case study's inception and implementation and adoption. Semi-structured, individual-centred interview techniques were employed to help uncover consistencies (and inconsistencies) in viewpoints and provide an in-depth understanding of actor motivations and actions not easily achieved otherwise. For this study, 40 interviews were conducted over a 24-month period. The interviewees can be roughly divided into four groups based on their relationship to the case:

1. *Senior Civil Servants* involved with the planning and implementation of the project, including current and former Greater Bangalore Municipal Corporation

(BBMP) Commissioners, Deputy Commissioners for Revenue, and Revenue Officers.
2. *Revenue and Tax Officials*, primarily Assistant Revenue Officers (AROs) responsible for the in-the-field collection and administration of property tax in the city.
3. *Software Developers* involved in the conception, design and implementation of the project.
4. *Miscellaneous Actors* including journalists and external consultants.

Once identified, all potential interviewees were contacted by telephone at their place of work or via e-mail. If the interviewee was not easy to reach, a message would be left and a visit would be paid to their place of work. An interview would then be conducted at a mutually convenient time. All subjects asked agreed to express their views and experiences, although some required more persuasion than others and often repeat visits had to be made to the relevant revenue office in order to meet different people. All the interviews were conducted face-to-face, usually at the respondent's place of work (Virkar 2011).

5   Examining ICTs Within the Context of Organisational and Institutional Change

Traditionally, political institutions have been seen as preconditions for civilised society, with students of politics being interested in how they work and how their organisation within a society impacts the lives of citizens (March and Olsen 1989). Institutions may be defined as: '…the structure that humans impose on human interaction and therefore define the incentives that together with the other constraints (budget, technology, etc.) that determine the choices that individuals make that shape the performance of societies and economies over time' (North 1990).

Institutional change, therefore, refers to the intentional or voluntary insertion of innovation into a current system through a sufficiently assumed transformation of its rules and internal games. Alterations of relative prices, such as information costs or technology changes, become the most important sources of institutional change. However, changes in relative prices are motivated both by the transformation of actor perceptions regarding those changes, as well as the behaviour alterations which those perceptions give rise to; that is, by the construction of new mental models that result from the acquisition of learning and skills which help interpret the new context. Institutional change generally occurs whenever an alteration in the relative cost is perceived by one or more group of actors as a out-and-out victory for the group, or a win-win situation for all participants involved.

Organisational change within institutions, on the other hand, may be understood as the deliberate design and implementation of a structural innovation, a policy, a new goal, or an operational transformation; it may be accepted that ICT applications could result in organisational changes (such as the efficient and speedy delivery of public services, increased proximity of services to the citizen, or simplification of

formalities and requirements) that impact public management values (Thomas and Bennis 1972).

In assuming that the manner in which ICT applications are being used depends on the type of institution they are adopted by, it may be accepted that the potential benefits of implementing an e-government strategy will be strongly influenced by current institutions of government as the actors involved determine the choices they make depending on the incentive systems within those structural arrangements (Fountain 2002). ICTs for use in the public sector are therefore designed, developed and used according to the preferences of both government stakeholders and non-governmental private entities which, in turn, have been shaped taking into consideration the formal and informal rules and constraints (or institutions) as well as the enforcement characteristics of both (Fountain 2001).

However, it does not automatically lead on that technology transformations alter the *status quo* of the public organisations. According to Gascó (2003), ICTs will give way to institutional change if the new skills and learning that governmental actors acquire change their perception about the potential gains that result from the new situation. In turn, the degree to which those perceptions may be altered depends on how much the workplace of that actor is affected by the new structures that result from ICTs applications.

6   Understanding Actor Behaviour

The central issue that needs to be understood whilst studying the development of ICT platforms and their implementation in public sector organisations through an analysis of actor interactions is thus: *Why do people do what they do*? One approach to understanding behaviour is to look at the rationality of individual actors, rather than the system as a whole. This is largely because political actors are driven by a combination of organisational and institutional roles and duties and calculated self-interest, with political interaction being organised around the construction and interpretation of meaning as well as the making of choices.

Political actors, in general, have a complex set of goals including power, income, prestige, security, convenience, loyalty (to an idea, an institution or the nation), pride in work well done, and a desire to serve the public interest (as the individual actor conceives it). According to Downs (1964), actors range from being purely self-interested ('climbers' or 'conservers' motivated entirely by goals which benefit themselves and their status quo rather than their organisations or the society at large) to having mixed motives ('zealots', 'advocates' and 'statesmen' motivated by goals which combine self interest and altruistic loyalty with larger values). An in-depth analysis of the ICT for development literature by this researcher identified five actor groups involved in games relating to the implementation of e-government projects:

1. *Politicians*: The first group identified comprises of elected representatives of various hues, guided and influenced chiefly by electoral imperatives and a need

to maintain their public image, and are therefore concerned with directing both key economic policy issues as well as issues of public service delivery.

2. *Administrators/civil servants*: This group of actors is guided by their perceptions of existing institutional 'culture' and practices and their positive (or negative) attitudes towards internal bureaucratic reforms such as concerns about the downsizing of administrative services to promote 'efficiency' and a sense of being policed by elected government through the introduction of ICTs.

3. *Organisations dealing with technical designing of IT systems for tax collection*: The approach private IT suppliers take to e-government might be considerably different to what the adopting government agency actually needs or wants from a system.

4. *Citizens*: This is another particularly interesting group of actors as one is never quite sure what their reaction to the implementation of e-government will be. Whilst in theory citizens should welcome the introduction of a system that simplifies administrative processes, in practice it is equally possible that some citizens might not be very happy if a more efficient system was put into place.

5. *International donors*: This final actor group controls the purse-strings and oftentimes comes to the table with 'higher' ideals coloured by ideas prevalent in international politics (such as the desire to see a particular brand of 'good governance' in the developing world).

The empirical study of the BBMP presented in this chapter has one key limitation, which is that the discussed findings and their implications are obtained from a single case study that examined a particular mode of e-government using an experimental technological platform targeting a specific user group. Thus, although the findings throw light on most of the key factors influencing the behaviour of actors and actor groups involved with the development of e-government platforms, indeed e-governance initiatives, worldwide, care needs to be taken to avoid over-generalising these findings and conclusions whilst examining other technologies, groups or governments. That said, despite this potential threat to the validity of the case at hand, the use of mixed method data triangulation as a research strategy ensures that the study fully captures the key elements of and challenges to and the motives and machinations prevalent behind the development of innovative e-government technologies based on old forms of citizen participation and engagement.

7 e-Government: Definition and Scope

Over the last 10 years, a number of scholars and international organisations have defined e-government in an attempt to capture its true nature and scope. Almost all definitions of e-government indicate three critical transformational areas in which ICTs have an impact (Ndou 2004), illustrating that e-government is not just about the Internet and the use of Internet- and web-based systems with government and citizen interfaces (Heeks 2006); instead it includes office automation, internal management, the management of information and expert systems, and the design, and adoption of such technologies into the workplace (Margetts 2006).

The internal arena: where ICTs are used to enhance the efficiency and effectiveness of internal government functions and processes by intermediating between employees, public managers, departments, and agencies. The use of ICTs is thought to improve internal efficiency by enabling reductions in both the time and cost of information handling, as well as improving the speed and accuracy of task processing. In other words, technology is felt to significantly reduce processing times, eliminate inefficient bureaucratic procedures and skirt manual bottlenecks; allowing information to flow faster and more freely between different public sector entities.

The external arena: where ICTs open up new possibilities for governments to be more transparent to citizens and businesses by providing multiple channels that allow them improved access to a greater range of government information. ICTs also facilitate partnerships and collaborations between different government institutions at different levels of a federal structure and between the government and other non-governmental actors.

The relational sphere: where ICT adoption has the potential to bring about fundamental changes in the relationships between government employees and their managers, citizens and the state, and between nation states; with implications for the democratic process and the structures of government.

Thus, although the term e-government is primarily used to refer to the usage of ICTs to improve administrative efficiency, it arguably produces other effects that would give rise to increased transparency and accountability, reflect on the relationship between government and citizens, and help build new spaces for citizens to participate in their overall development (Gascó 2003). Broadly speaking, e-government may be divided into two distinct areas: (1) *e-Administration*, which refers to the improvement of government processes and to the streamlining of the internal workings of the public sector using ICT-based information systems, and (2) *e-Services*, which refers to the improved delivery of public services to citizens through ICT-based platforms. The adoption of e-government often involves interactions to reform the way governments, their agencies, and individual political actors work, share information, and deliver services to internal and external clients by harnessing the power of digital ICTs—primarily computers and networks—for use in the public sector to deliver information and services to citizens and businesses (Bhatnagar 2003a, b, c, d, e).

8   e-Government Delivery Models

e-Government platforms and applications are generally developed in two stages (Virkar 2011). Initially, a back-office system is set up within the adopting agency, usually in line with software specifications and with software developer input, to handle online processes and information about services provided by the agency is published on a website. The second step involves the setting up of the 'front-office': the use of ICTs in the actual delivery of a service, where citizens can interact with

the site to download application forms and information sheets for a variety of services such as filing a tax return or renewing a licence, with more sophisticated applications being able to process online payments.

Interactions involving the design and development of e-government systems and platforms and the formulation of related technology policy are further supported through the adoption of a key, three-stage strategy used by actors in such games. At the core of this strategy, relevant particularly to those in developing countries who wish to radically transform public administration by moving government services from manual processes to online systems, is the move to develop and adopt different models of service delivery electronically at different stages of the growth and development process and involves a coordinated effort by both the public and private sector partner. The first move generally involves the automation of basic work processes and the online provision of information and services by government departments from computers based within the departmental premises (Bhatnagar 2003a, b, c, d, e).

Citizens interact with a designated government employee or private computer operator who accesses data and processes transactions on their behalf. Locating online terminals within agency premises tends to result in greater ownership of the system by government staff, reducing resistance to technology and facilitating easier acceptance of change (Ravishankar 2013). However, the downside of this mode of delivery is that citizens are still required to visit different government departments to avail different public services, all within their fixed hours of work. In addition, the dependence of an entire agency office on a single person (or small group of people) to operate the system may cause friction.

The second stage in the evolution of service delivery platforms is the use of conveniently located citizen kiosks or service centres in public places, again manned by public or privately hired operators (Basu 2004). This mode of delivery scores over the previous one as multiple services—municipal, state or federal—may be offered at each location. Kiosks also generally stay open longer than government offices, both before and after regular office hours, maximising system coverage by allowing working individuals to access services at times more convenient to them. In recent years, citizen service centres have become popular, particularly in countries where Internet penetration is low.

The final stage in the development of platforms for e-government service delivery, popular in countries where Internet penetration and skills are high, is the emergence of the one-stop shop online portal from where citizens with a computer and an Internet connection that may, at any time of day, access a whole range of public information and services themselves without having to visit a kiosk or depend on a computer operator (West 2004).

However, for such a mode of service delivery to become ubiquitous, a number of conditions need to be in place and met—the back-end of the government agency in question must be fully computerised and an accord struck with the private partner as to how the system will be administered and run, citizens must be equipped with the technological hardware and skills to access the system fully, government staff must be adequately trained on the new technology, security and privacy loopholes must be closed and trust in online transactions must be built up and maintained.

The step-by-step strategy outlined above is generally adopted by key political and administrative actors involved with the implementation of e-government projects, and if followed may reduce political tensions and controversies that might arise as the result of change by not only ensuring maximum citizen access to services, but also an increased acceptance of the technology by agency staff (Bhatnagar 2003a, b, c, d, e).

9 Assessing Project Outcome: The Ecology of Games Metaphor

From the turn of the century to the present, there has been a progressive movement away from the view that governance is the outcome of rational calculation to achieve specific goals by a unitary governmental actor (Dutton 1992), and in that context metaphors based on political games have been extremely useful in developing new ways to think about the policy process and explain certain features of political behaviour.

However, Game Theory and other similar metaphors have had, according to scholars, one major limitation in clarifying policy processes: they focus squarely on a single arena or field of action; be it a school, a county, a legislature, etc. as, by their very nature, policy making and implementation cut across these separate arenas, in both their development and impact (Firestone 1989). One of the few efforts to look at this interaction and interdependence in a more holistic fashion was proposed by Norton Long (1958) in his seminal discussion of *The Local Community as an Ecology of Games*.

The Ecology of Games framework, as first laid out in the late 1950s offers a New Institutionalist perspective on organisational and institutional analysis, and was developed as a way of reconciling existing debates about who governed local communities as he believed they had significant flaws. As with most theories of New Institutionalism, it recognises that political institutions are not simple echoes of social forces; and that routines, rules and forms within organisations and institutions evolve through historically interdependent processes that do not reliably and quickly reach equilibrium (March and Olsen 1989).

Long contended that the structured group activities that coexist in a particular territorial system can be looked at as 'games' (Dutton 1992). Games may be interrelated in several ways: actors ('players') might be simultaneously participating in different games, and some might transfer from one game to another (Long 1958). Plays (i.e. moves or actions) made in one game can affect the play of others. Also, the outcome of one game might affect the rules or play of another (Crozier and Friedberg 1980), and players' moves in one game might be constrained by moves within other games. Individuals may play a number of games, or their major preoccupation for the most part may lie with one central interaction (Long 1958).

A researcher might be able to anticipate a range of strategies open to individuals or organisations if they know what role the actor or group played in the game(s)

most central to them. Conversely, when the actions of players appear irrational to an observer, it is likely that the observer does not know the games or interactions in which the players under study are most centrally involved, and the players' moves in one game might be constrained by their moves within other under-examined or overlooked situations. Within each game or interaction, the following elements help the researcher arrive at an in-depth analysis of the impact that various behaviours have on the outcome of the project under study (Virkar 2011):

1. *Key actors*: the individuals, groups or other entities whose interactions shape the particular game being considered.
2. *Game rules*: the written or unwritten codes of conduct that shape actor moves and choices during a game.
3. *Actor goals and motivations*: the aims that key actors seek to attain and maintain from interacting with other players, both broader long-term achievements as well as more short- to medium-term rewards.
4. *Key strategies*: tactics, ruses, and ploys adopted by key actors during the course of a game to keep the balance of the engagement in their favour.
5. *Key moves*: decisions and other plays made by key actors to arrive at key goals, usually if not always based on their strategy of choice.

The crucial insight in Long's theory, however, was not the idea of games per se which, but his linking of that notion to the metaphor of an ecology (Firestone 1989). Ecology as a concept relates to the interrelationships of species in their environment, allowing for numerous relationships amongst entities, and has been used to understand the relationships among individuals and more complex social systems. Most obviously, co-existence within a common space results in competition for resources and power between different actors, and can result in unique modes of operation as means of achieving one's aims. This in turn may lead to either mutual non-involvement in the same space, or active co-operation between different actors and the development of symbiotic relationships. All this speaks of a singular interdependence between different actors within a given territory. Although there may be other relationships as well, what is significantly missing is a single, rational, coordinating presence.

An *ecology of games* is thus a larger system of action composed of two or more separate but interdependent games; underlining not only the degree to which not all players in any given territory are involved in the same game, but also the fact that different players within that territory are likely to be involved in a variety of interactions (Dutton and Guthrie 1991). For Long, territories (or fields of play) were defined quite literally by being local communities. The notion of an 'ecology' of games underlines not only the degree to which not all players in any given territory are involved in the same game, but also the fact that different players within that territory are likely to be involved in a variety of games (Dutton and Guthrie 1991).

Moved from the community context to the world of e-government platform design, adoption and implementation, territories may be diverse—from the inner circle of the project design team, through to the adopting organisation, the nation and finally the international policy arena—but the idea of each stage being a political

community or a collection of actors whose actions have political implications remains the same and is still very much applicable. The Ecology of Games metaphor thus provides us with a useful way to think about how the various players interact in making and carrying out administration and developing policy.

10 Assessing Project Design and Outcome: The Design-Actuality Gap Model

Like all political interactions, the behaviour of actors related to the design of e-government architecture and to the uptake of public sector projects is circumscribed by the organisations and institutions within which they are played out, and by the range of actors taken from the individuals and groups directly and indirectly involved with the processes of decision-making and governance. The eventual outcome of an e-government project in terms of both appearance and efficacy does not, therefore, depend on a single project entity alone, and instead depends on the interaction between different actors in the process and the nature of the relationships between them. Gaps in project design and implementation can in reality be seen as expressions of differences arising from the interaction between different (often conflicting) actor moves and strategies, determined to a large extent by actor perceptions, and played out within the context of set circumstances.

Heeks (2003) concluded that the major factor determining project outcome was the degree of mismatch between the current realities of a situation (the 'where are we now') and the models, conceptions and assumptions built into a project's design (the 'where the e-government project wants to get us'). From this perspective, e-government success and failure depends largely on the size of this 'design-actuality gap': the larger the gap, the greater the risk of e-government failure, the smaller the gap, the greater the chance of project success. By examining numerous case studies related to ICTs and e-government failure in developing countries, Heeks (2002a, b) identified three dominant categories of reported outcome: *total failure*, *partial failure*, and *success*.

- The first possible outcome is *total failure*, where a project is either never implemented or in which a new system is implemented but is almost immediately abandoned.
- A second possible outcome is the *partial failure* of an initiative, in which major goals are unattained or where there are significant undesirable outcomes. Cases range from straightforward underachievement to more complex 'sustainability failures' of an initiative.
- Finally, one may see the *success* of an initiative, in which most actor groups attain their major goals and do not experience significant undesirable outcomes.

Heeks also identified three so-called 'archetypes of failure', situations when a large design-actuality gap, and consequently project failure, is likely to emerge:

Hard-Soft Gaps (the difference between the actual, rational design of the technology and the actuality of the social context within which it operates), *Public-Private Gaps* (the mismatch that results when technology meant for private organisations is used in the public sector without being adequately adapted to the adopting organisation) and *Country Context Gaps* (the gap that arises when a system designed for one country is transferred unaltered into the reality of another).

10.1 Hard-Soft Gaps

Hard-soft gaps refer to the difference between the actual, rational design of the technology (hard) and the actuality of the social context—people, culture, politics, etc.—within which the system operates (soft). These sorts of gaps are commonly cited in examples of e-government failure in developing countries, where 'soft' human issues that are not initially taken into account whilst designing a project result in undesirable effects after implementation. Hard-soft gaps thus may be seen as the outcome of interactions played out primarily at the level of the project itself, between individuals and agencies involved with the design and acceptance of the technology. Many scholars, such as Stanforth (2006), see technology as just one of a number of heterogeneous socio-technical elements that must be considered and managed during the design and implementation of a successful e-government project, whilst Madon (2004) has discussed different sets of case studies which have revealed that numerous factors that have allowed individuals in developing countries to access ICTs (and which depend on resources, skill-levels, values, beliefs, and motivations, etc.) are often ignored. It may thus be inferred that a lack of training, skills, and change management efforts would all affect rates of failure, as it is these factors that would bridge the gap between the technology itself and the context within which it exits.

10.2 Private-Public Gaps

The next archetype put forward by Heeks (2003) is that of private-public gaps, which refer to the difference between organisations in the private and public sectors, and the mismatch that results when technology meant for private organisations is used in the public sector without being adapted to suit the role and aims of the adopting public organisation. A common problem is again the lack of highly skilled professionals in the public sector, resulting primarily from uncompetitive rates of pay in that sector as compared to the private sector (Ciborra and Navarra 2005). The design of e-government projects is consequently outsourced to the private sector, resulting in a clash of values, objectives, culture, and large design-actuality gaps. Public-private gaps are thus of particular relevance to the discussion which follows in this chapter, as they generally arise out of games played at the

level of the adopting government agency, between the agency and its private sector counterparts, although it is not uncommon to find interactions between public and private individuals on project committees having an impact on the outcome of a project as well.

10.3   Country Context Gaps

The final archetype of failure defined by Heeks (2003) is the country context gap, or the gap that arises when a system designed for one country is transferred into the reality of another. This is particularly true for systems transferred between developed and developing countries, where designs for one may clash with the actualities within the other. Country context gaps are, according to Dada (2006) closely related to hard-soft gaps as they arise from, amongst other things, differences in technological infrastructure, skill sets, education levels and working cultures. Country-context gaps emerge chiefly as a result of games played by national, provincial and international actors operating across borders. For instance, decisions to adopt or promote a certain management style or value system, buy or sell a particular technology from a particular organisation or country, or collaborate with particular government agencies in different parts of the world all stem from games of international trade, aid and diplomacy.

Heeks' model is particularly useful given the large investments made by developing country governments in e-government systems and the large opportunity costs associated with implementation, as it encourages project planners to take a focused, holistic view of problem solving; making them consider concurrently the technology at hand, the current circumstances, the impact of actors' motivations and actions, and possible vested interests. It may be used both as a predictive tool anticipating potential failings and heading them off at the initial stages, as well as being used to diagnose problems during the execution of the project. The framework is thus a means of evaluating outcome and problem-solving strategies at all stages during the development of a project, and not just to examine what went wrong in hindsight. However, when taken alone, it is only able to analyse structural weaknesses in a project's design but doesn't on its own provide an adequate explanation of the decision-making processes that led to such structural deficiencies in the first place.

Similarly, the strength of the Ecology of Games lies in its ability to identify and analyse the interrelationships between the different actors involved in the process of e-government system design and adoption. On its own, the framework provides no insight into the consequences of this behaviour and its impact on project outcome when used in combination therefore, as in this chapter, these two frameworks allow the researcher to not only identify and analyse patterns of behaviour within the case under study, but also link decisions and actions to specific project outcomes.

11 Exploring the Case of the Greater Bangalore City Municipal Corporation

The State of Karnataka is particularly interesting when studying the various games and interactions related to the use of Information Technology for public service reform within Indian government departments, as ongoing processes of change within different government agencies in the state have had the use of ICTs deeply implicated in them, and many government and quasi-government bodies have entered into partnerships with private and non-profit organisations. In recent years, there has been growing pressure placed by citizen groups, international agencies, and the local media on both city corporations and the state government to rationalise existing revenue collection structures and improve the collection of property tax in the field, both within cities and across the State at large (Parthasarathy 2013).

In view of the need to turn property tax into a productive tax instrument, the BBMP teamed up with a series of private and not-for-profit technology firms in partnerships which aimed to improve property tax collections across Bangalore city using computerised revenue records and Geographical Information Systems (GIS)-based property mapping. Against the background of technological innovation in the State, project planners decided to do away with the manual, paper-based system of property tax administration considering it to be increasingly archaic, opaque and inefficient. In particular, members of the core project group felt that property tax collections under the manual system had over the years suffered consistently from poor recordkeeping and bad information management practices, slow processing times, and overcomplicated assessment and payment procedures.

The computerised property tax system was thus borne out of an ever-growing need to reform property tax administration in Bangalore city, increasing tax compliance and reducing frustration created amongst taxpayers by the old system. In particular, key improvements sought to improve both revenues and compliance through the improvement of back-office processes and efficiency, the simplification of tax collection methods and the reduction of money lost as a result of malpractice and the ineffective detection and deterrence of tax evasion. Concurrently planners were also spurred on by the need to enhance their own power, authority, and reputations with their respective spheres of influence and beyond.

The application was put together using an Oracle database on an open-source software platform, with the architects using J2E and Java technology to construct the back-end application servers. Personal Digital Assistant (PDA) devices were integrated into the system so that revenue officers could go out in the field to collect taxes, and then use them to upload data back in real time. It was envisaged that citizens would in time also become users of the system, and would be able to have unrestricted access to their property records (and those of the entire city) online. The system's single-most unique feature was to be its eventual use of Geographic Information Systems (GIS) or online virtual mapping tools, to visually aid the revamping of the addressing system and to improve tax coverage through more comprehensive property identification and stricter monitoring (The Times of India 2006).

Between 2004 and 2007, the external face of the project—the BBMP Revenue Department website—remained rudimentary and formed only a small part of the main BBMP site. As the central focus of the Revenue Department project was to boost the efficiency of property tax administration through the automation of back-office processes, project planners by and large ignored the need to provide citizens with a user-friendly front office gateway and online services. The parts of the site devoted to property tax sought chiefly to provide information to citizens about the various aspects of self-assessment and payment, including a handful of download-able guidebooks and tax forms. However, the information provided on the website was far from comprehensive, with many crucial government reports or publications—such as copies of the all-important property tax handbook—being unavailable for download. As the website developed, some property tax forms and guidelines were made available online, but citizens could not fill these out electronically, manipulate data online or interact with corporation officials in a virtual space.

It was also decided that the system would be integrated with an innovative project known as BangaloreOne, a series of public service counters set up by the Government of Karnataka across the city which aimed to make available round-the-clock multiple services to the public under one roof (Sarangamath 2007). The project was finally realised in August 2009 and the computerised system of property tax administration became the only means of assessing and collecting tax in the city following the complete dismantling of the manual system later that year[1]. The promise made to the people of Bangalore was that the property details of every citizen would be stored in digital databases, and every citizen who paid tax or applied for property tax-related documents would receive a computer-generated receipt and printed-out certificates.

12 Investigating User Perceptions and Attitudes Towards Digitisation and Process Reengineering

As discussed in previous sections, past investigations of e-government have generally been limited in their consideration of the human element during project design and implementation, and tend to overlook the way in which different actors relate to one another and influence outcomes via political processes such as cooperation, alliance building and conflict. It was felt important, therefore, to develop a complete picture of the attitudes and opinions of those individuals directly involved with the chosen case study as end-users, designers or facilitators. This research project makes use of data obtained from 40 in-depth interviews and informal conversations, with project planners and BBMP officials of different ranks based in different revenue offices across Bangalore city. The results of these interviews, summarised and presented below, serve to throw light on the games and interactions that influenced the development of the computerised property tax administration system in Bangalore city.

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[1] Personal Interview with PP1, August 2006.

Interviews with tax officials revealed that most individuals involved felt that there had been serious problems with the manual system of tax administration. Officials were of the opinion that the biggest hurdles to the efficient administration of tax that they had encountered prior to the introduction of the computerised database were the poor and haphazard recordkeeping and the large amounts of paperwork that needed to be done manually. Information was scattered across the revenue office network, resulting in an extremely unsystematic workflow as far as the calculation of tax due, the administering collections, and the checking up on and apprehending of defaulters was concerned. Whilst, as expected, none of the revenue officials interviewed mentioned government employee corruption as being a serious problem, many interviewees spoke of the difficulties they faced in identifying and catching tax evaders.

A large percentage of officials interviewed felt that the introduction of technology had greatly impacted old work processes and had helped alleviate the difficulties they faced under the manual system. In particular, they were convinced that the centralisation of property tax data, the ease with which citizens could access their tax information, and the establishment of tax collection points across the city had helped in bringing more properties into the tax net and contributed significantly towards improving tax payer compliance. All the officials interviewed felt that their interactions with the public had significantly decreased since the introduction of the computerised system, and a little over half of them believed their overall relationship with citizens had improved as a result.

Only a small percentage of revenue officials reported that they had been consulted during the design stage of the project. Further, there appeared to be no mechanism in place to solicit user feedback once the initial system had been developed. Almost all the officials interviewed said they felt disconnected from the system. Most professed a high degree of unfamiliarity with the system, and were completely unaware of its key features. For instance, only one tax official mentioned the introduction of GIS mapping techniques as being useful to his work and that of his staff, a worrying fact given that the core project team had placed much store by the GIS maps as a tool to track property tax payments and identify defaulters. These are not good signs, as effective system implementation requires employees to fully accept and adopt the technology in the belief that it will do them some well-defined good.

Further, none of the officials interviewed knew how to operate even its most basic features. With no scheme in place to give them any formal training on the system, all the interviewees reported to be completely dependent on a private computer operator to feed in, change and retrieve electronic property tax data. This, this researcher feels, created a new problem within revenue offices and limited the effectiveness of the system, as it resulted in a shift in the balance of power within the workplace to the disadvantage of revenue officials and consequently hardened their attitude towards computerisation. Senior officers, once enthusiastic about the system, spoke about the frustration they felt at being unable to fulfil their supervisory role and at being put at the mercy of a junior employee. Junior tax officials, already slightly sceptical of the system, feared that their skill levels would put them at a disadvantage within the office and could eventually result in redundancy.

Opinions were divided about whether or not computerisation of the system that had led to improved tax yields. Most tax officials felt that while the introduction of the computerised system had positively impacted tax collections to some extent, there were many other reasons as to why tax yields had improved. For others, the introduction of the Self Assessment Scheme as a means of shifting the responsibility of tax payments onto the shoulders of the citizens and reducing the workload of revenue staff was almost as (if not more) important as the introduction of technology into the workplace. It may be concluded from the interviews that general citizen apathy towards property tax is to a large extent a consequence of poor public awareness about the benefits of paying property tax, a lack of enforcement measures and a general dislike of cumbersome processes—problems which cannot be solved through the introduction of technology alone.

13   The Interviews: key Results

Building on the history of the Property Tax Information System and the discussion of its key actors, this section analyses the results of interviews conducted with 40 tax officials and the core project planning team in an attempt not only to identify the main games that were played out during the design, implementation and adoption of the system but also to construct a platform from which their impact on the outcome of the project at hand may be examined.

14   The Manual System of Property Tax Assessment and Collection

The first step towards identifying the various interactions involved in the design and implementation of the project was to examine the attitudes of both project planners and revenue staff towards the paper-based manual system of property tax administration. It was felt that attitudes and perceptions towards a manual way of working would both indicate the motivations of project planners that led to their decisions and actions, and influence the way in which revenue staff received and acted on the proposed changes. The motivations and perceptions of key institutional actors regarding the manual system of property taxation are summed up in Table 9.1.

15   Managing the Design and Implementation of a Project Using New Technology

Designing a successful e-government project requires that the system be relevant, efficient, effective and above all sustainable. Project management must thus facilitate interactions between actors that engender either cooperation or constructive

Table 9.1 Motivations and perceptions of key institutional actors regarding the manual system of property tax

Institutional actor	Key motivations and perceptions
Senior BBMP officials	• Identified two major problems present in the manual system: poor recordkeeping and haphazard administration • Need to computerise tax records to reduce tax evasion and petty corruption
Senior revenue officials	• Recognised serious problems with the manual system of tax administration • Need for computerised database to cut down on time/ resource wastage
Junior revenue staff	• Felt that manual system of tax administration was extremely slow and time-consuming • Need for computerised records to increase efficiency and reduce workloads

Table 9.2 Motivations and perceptions of key institutional actors regarding the design and implementation phase of the project

Institutional actor	Key motivations and perceptions
Senior BBMP officials	• Need to constitute a core project group to design and manage project • Need to consult senior and mid-ranking revenue officials before initial design stage
Senior revenue officials	• If consulted, felt that their contribution had made a difference • If not consulted, not unduly worried or upset
Junior revenue officials	• Not upset about having no part to play in the consultation process

opposition, not conflict. It was thus thought important to explore the style of management and decision-making of actors involved during the design and implementation phase of the project in interviews as an introduction to the project itself, the results of which are summarised in Table 9.2.

16 Switching to the Computerised System: Impact on Office Processes

A key component of the computerised revenue system was to be the re-engineering of office processes within the department to speed up integration of the new technologies in the office environment. Accounts of the use of technology gained from senior BBMP officials and software providers indicated that the computerised system merely automated existing processes within the Revenue Department, and did not in any way alter old ways of functioning or encourage the use of innovative methods of working. As noted in Table 9.3, only a small number of officials believed that the introduction of technology had not greatly impacted old work processes.

Table 9.3 Motivations and perceptions of key institutional actors regarding the impact of the system on office processes

Institutional actor	Key motivations and perceptions
Senior BBMP officials	• Wanted the system to be designed as a mere replication of current office processes
	• Were at odds with eGovernments Foundation members on the project planning team, who wished to design a system with greater functionality
Senior revenue officials	• Majority of the opinion that the system did not result in a radical change of office processes
	• Willing to accept a system that did not result in a heavier workload/new skills
	• Small number believed the introduction of the Self Assessment Scheme was more significant than the computerised system
Junior revenue staff	• Recognised the system as a simple automation of work processes
	• Noted that computerisation had not done away completely with manual work

17   Features of the System Preferred by Users

Central to this angle of enquiry is the identification of features of the system that users were happy with, and which they felt had aided them in their work. As seen in Table 9.4, interviews with those behind the design and implementation of the project revealed that the top management of the BBMP expected that the replacement of paper records with a computerised database, online records, and GIS mapping techniques to aid in the tracking of payments and identification of defaulters would greatly help tax officials do their work and would thus be universally welcomed and accepted.

18   Examining User Attitudes to Computerisation

Interviews with senior members of the BBMP and software providers indicated that project planners stood firm in their belief that revenue officials in the field had responded positively to the introduction of the system. In order that this study might gauge initial user attitudes and reactions to computerisation, interviewees were asked to recall in detail their first impressions and opinions of the system, and whether these had changed over time as a result of continued exposure to the new technology. The results of this section are summarised above in Table 9.5.

19   Enumerating the Benefits of Computerisation

Interviews with senior BBMP officials suggested that the introduction of a computerised database and the use of technology in the collection and administration of tax had done away with human error and reduced the scope for misuse of the tax system

Table 9.4 Motivations and perceptions of key institutional actors towards key system components

Institutional actor	Key motivations and perceptions
Senior BBMP officials	• Placed great emphasis on the GIS component as the system's most important feature
Senior revenue officials	• Little or no knowledge of the GIS component of the project
	• Little or no knowledge of how to operate the system in general
Junior revenue staff	• No basic knowledge of the system
	• Apparent unawareness of even basic features of the system

Table 9.5 Motivations and perceptions of key institutional actors focusing on attitudes to computerisation

Institutional actor	Key motivations and perceptions
Senior BBMP officials	• Firm belief that revenue officials would respond positively to the implementation of the system
	• Convinced that changes would be accepted without question, thereby shoring up their own power and authority as senior BBMP figures
Senior revenue officials	• Most reported being delighted with the new system; some initial closet sceptics who were won over with time
Junior revenue staff	• Openly suspicious of the new system from the outset, primarily from fear of being replaced and/or made redundant

Table 9.6 Motivations and perceptions of key institutional actors regarding the benefits resulting from digitisation

Institutional actor	Key motivations and perceptions
Senior BBMP officials	• Belief that problems of the manual system had been completely done away with and that changes to the way of working in revenue offices had been accepted without question
	• Need to reiterate seniority and authority in the BBMP pecking order
Senior revenue officials	• Recognition that computerisation resulted in a reduction in administrative costs
	• Belief that in the long-run the system would bring about the increased ability to act autonomously, especially reducing dependence on junior staff and making it easier to keep an eye on them
Junior revenue staff	• Recognition of a reduction of burden/work load
	• Not (openly) unduly worried about being subject to greater scrutiny by senior officers
	• Acknowledgement of the role played by BangaloreOne centres and the introduction of the Self Assessment Scheme

for personal gain. Further, according to these officials, the Revenue Department on the whole was happy with the changes brought about by the use of technology in the system and revenue staff felt that the problems they faced under the old system had been solved. Interviewees were thus asked questions regarding what they perceived to be the biggest benefits of the system and name those that they felt had had a positive impact on their work (see Table 9.6).

20   Exploring Changes to Skills and Staff Numbers

In order to gauge the impact that the introduction of the system had had on the human resources of the BBMP revenue department, revenue staff interviewed for this thesis were asked about the number of employees working at the Department before and after the introduction of the system, and also the types of skills that they had had to learn as a result. In addition, junior officials were asked about their own experiences of the system within the context of their skill levels. Their key motivations and perceptions are summarised in Table 9.7.

21   Determining and Solving the Unforeseen Problems of Computerisation

A major complaint amongst those interviewed was that, despite being provided with computers to aid them in their work, they lacked the basic facilities and infrastructure necessary for those computers to function. In particular, officials complained about poor office environments and frequent electricity outages. These and other problems related to the adoption of a computerised system are outlined in Table 9.8.

Table 9.7 Motivations and perceptions of key institutional actors to changes to staff numbers and skills required

Institutional actor	Key motivations and perceptions
Senior BBMP officials	• The appointment of private computer operators to bridge the skills gap in Revenue Offices seen as a key issue, no other major changes to staffing • Perception that appointments would be accepted without question by revenue staff, who would also see the logic in their being made
Senior revenue officials	• Deeply worried about not having the requisite skills to operate the system themselves • Worried that the appointment of computer operators would further erode their authority within the revenue office set-up
Junior revenue staff	• Openly critical of being completely dependent on external (private) employees • Worried about the weakening of their own positions and spheres of influence within the revenue office

Table 9.8 Motivations and perceptions of key institutional actors in confronting unforeseen problems

Institutional actor	Key motivations and perceptions
Senior BBMP officials	• Refusal to acknowledge that the system suffered from any unforeseen/unplanned problems, possibly as a public relations ploy
Senior revenue officials	• Large majority pointed out that basic infrastructural issues contributed to the under-utilisation of the system
Junior revenue staff	• Employment of private computer operators still the biggest 'unforeseen' problem for junior staff

22 Exploring the Impact of Technology on Citizen-Government Relations

It was felt that an important part of the study would be to determine officials' perceptions of their relationship with the citizens they served, both before and after the implementation of the system. Interviewees were therefore asked questions relating to their impressions of their interactions with citizens, and whether they felt that these interactions had improved in quality following the implementation of new ways of government agency functioning. The results are summarised in Table 9.9.

23 Examining the Impact of Computerisation on Tax Yields

Interviewees were almost unanimous in the view that property tax revenue yields had been increasing steadily since the introduction of the Self Assessment Scheme in 2000. Their responses to questions related to the impact of the new system on property tax yields are summed up in Table 9.10.

Table 9.9 Motivations and perceptions of key institutional actors regarding the impact of technology on government-citizen relations

Institutional actor	Key motivations and perceptions
Senior BBMP officials	• Belief that successful implementation of the system would improve the BBMP image in the eyes of the public • Done to bolster official reputations as pro-active members of the government
Senior revenue officials	• Noted significant decrease in interactions with the public • Belief that overall interactions were positive as a result of computerisation
Junior revenue staff	• Noted a significant decrease in workload and interactions • Belief that positive interactions have been done away with, left with negative face-to-face tasks, although even these had become more positive in tone

Table 9.10 Motivations and perceptions of key institutional actors regarding the impact of the system on tax yields

Institutional actor	Key motivations and perceptions
Senior BBMP officials	• Increased tax yields through digitisation set as one of the primary project goals • Firm belief that this had been achieved
Senior revenue officials	• Recognition that tax yields had increased in the years following computerisation • Mixed response as to whether computerisation was in fact responsible
Junior revenue staff	• Recognition that tax yields had increased • Feeling amongst some officials that computerisation had little or no impact on the collection levels

24   ICT Platform Design: Key Actors, Moves, and Games

Interviews with key people involved with the design and implementation of the
project, conducted between 2005 and 2009, brought to light a number of games or
interactions operating at different levels or 'arenas', all of which had an impact—
direct or indirect—on the effectiveness of the system, the nature and feel of the
software platform, and its eventual performance and sustainability. These are out-
lined below:

24.1   Project Planning Committee Games

1. The eGovernment Movement
2. System Conception and Design

    (a) Formation of the Core Project Planning Group
    (b) Initial Design and Conception of the System

3. The Digital Democracy Game (Table 9.11)

Table 9.11   Project planning committee games

Games	Key players	Key objectives	Nature of moves
e-Government movement	Various current senior BBMP officials, software providers	Encourage BBMP departmental reform through the use of technology	Positive game play
System conception and design			
(c) Formation of the Core Project Planning Group	Various current senior BBMP officials, software providers	Take credit for the initial design idea and design process	Negative game play
(d) Initial design and conception of the system	BBMP officials on the project planning committee, eGovernments Foundation representatives	Design and launch a successful system	Altruistic game play
Digital democracy	Senior BBMP officials and eGovernments Foundation members	Seek to influence the design of the PTIS to support their conception of democracy	Negative game play

Source: Author Analysis (2010)

Table 9.12 BBMP revenue department games

Games	Key players	Key objectives	Nature of moves
System acceptance games	Project planning group (Senior BBMP officials, software providers, external consultants), senior and junior revenue officials	Get officials on the ground to accept and adopt the system	Positive game play
Efficiency games	Senior BBMP officials, Assistant Revenue Officers, and junior revenue staff	Hold down costs and increase tax revenues by improving efficiency	Positive game play
Management control	Senior BBMP officials, Revenue officials	Expand power and decisional control	Negative game play
Game to control petty corruption	Senior BBMP officials, Revenue officials	Reduce revenue losses from petty corruption	Negative game play
Revenue office politics	Revenue Officials, Assistant Revenue Officers, Station Managers, junior revenue staff	Assert 'superior' status, retain power and authority within the field office	Negative game play

Source: Author Analysis (2010)

24.2 BBMP Revenue Department Games

1. Games for System Acceptance
2. Efficiency Games
3. Management Control
4. Games to Control Petty Corruption
5. Revenue Office Politics (Table 9.12)

24.3 Bangalore City Games

1. Image-Building Games
2. The Tax Compliance Game (Table 9.13)

24.4 National-Level Games

1. The Innovation Game
2. Game for Business Competition (Table 9.14)

Table 9.13 Bangalore city games

Games	Key players	Key objectives	Nature of moves
Image-building game	BBMP officials, the media, citizens	Improve image of the BBMP as an accountable, modern and responsive government agency	Positive game play
Tax compliance game	BBMP officials, the media, citizens	Encourage citizens to pay taxes through a mixture of carrot and stick initiatives	Largely positive game play

Source: Author Analysis (2010)

Table 9.14 National-level games

Games	Key players	Key objectives	Nature of moves
Image-building game	BBMP officials, the media, citizens	Improve image of the BBMP as an accountable, modern and responsive government agency	Positive game play
Tax compliance game	BBMP officials, the media, citizens	Encourage citizens to pay taxes through a mixture of carrot and stick initiatives	Largely positive game play

Source: Author Analysis (2010)

In order to determine the ways in which the games played out during the reform of BBMP property tax administration system have had a significant impact on property tax yields and tax compliance policy, and the subsequent sustainability of the system itself, this chapter analyses property tax data for Bangalore city and selected wards for the tax years 1998/99 to 2007/08 obtained by this researcher from official sources. Data analysed includes the total annual revenue accrued from property tax in Bangalore city for the years under study (including expected revenue, actual revenue, and the shortfall if any), the total number of properties assessed annually for the period between 2001/02 and 2007/08, and the annual average revenue per property from 2001/02 to 2007/08; all of which have been correlated with qualitative interview data to develop a holistic understanding of the actor behaviour and subsequent project outcomes outlined above.

25 Examining Property Tax Revenue Collections and Compliance Data for Bangalore City

The performance of the revenue system was assessed against two axes, the first being defined in terms of absolute revenue collected over the 10-year period, based on figures given to this researcher by the BBMP. Property tax revenue targets were plotted for the city and for each ward, and compared to actual revenue collections over the period under study. Whilst no satisfactory definition was forthcoming from official sources regarding the precise nature of the computation, it was presumably
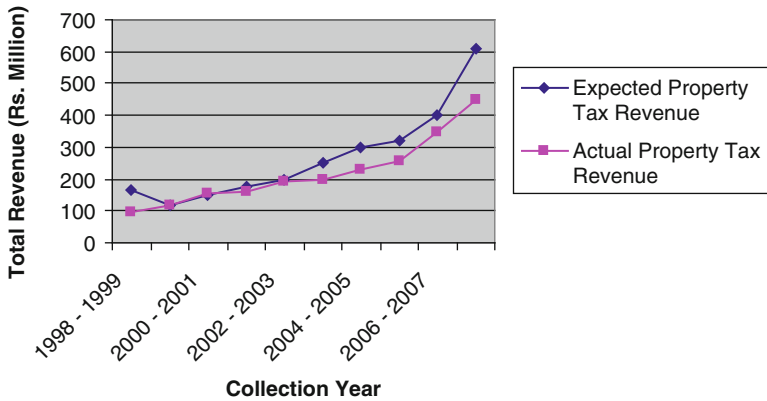
Fig. 9.1 Property tax revenue for Bangalore city (1998/99 to 2007/08) (*Source*: Author analysis, Bruhat Bengaluru Mahanagara Palike, 2009)

based on the current year's expected revenue from existing properties corrected for depreciation, plus projected revenue from new residential and commercial properties in the coming year. The second performance indicator was collection efficiency. Expressed as a percentage, the collection efficiency figure is calculated using the difference between projected and actual revenue figures, and indicates not only the percentage of projected revenue collected by the tax levying authority but also the level of tax compliance in the ward for the tax year under study.

The graphs in this section seek to analyse property tax revenues for Bangalore city as a whole. As mentioned in the previous section, prior to delimitation in 2009, the BBMP administered 100 wards (not including the outlying areas) which—according to the 2001 census—spanned an area of 211.71 km², with a population of 4,301,326 inhabitants (BBMP 2009). Figure 9.1 illustrates the total property tax revenue (expected and actual) collected for Bangalore city from 1998 to 2008. It may be seen that while both expected and actual revenue figures are rising, there is generally a shortfall between the amount of revenue expected by the tax authority and the amount actually collected.

Figure 9.2 shows the change in the number of properties brought under the tax net in Bangalore city between 1998–99 and 2007–08. Overall, the number of properties assessed for tax in Bangalore city rose from 380,956 in 1998/99 to 668,535 in 2007/08 (an increase of 75 %). A more detailed look at the figures reveals that between 1998/99 and 2000/01, prior to the introduction of the Self Assessment Scheme, the rise in the number of properties assessed was slow, increasing from 380,956 to 404,500 (a percentage increase of 6.1 %). In the years following the implementation of the SAS, from 2000/01 to 2007/08, it may be seen that there was a steady, sharper rise in the number of properties brought under the tax net: from 404,500 in 2000/01 to 547,354 in 2004/05 (an increase of 35.3 %) and then to 668,353 in 2007/08 (an increase of 22.1 %), with an overall increase of 264,036 properties assessed between 2000/01 and 2007/08.
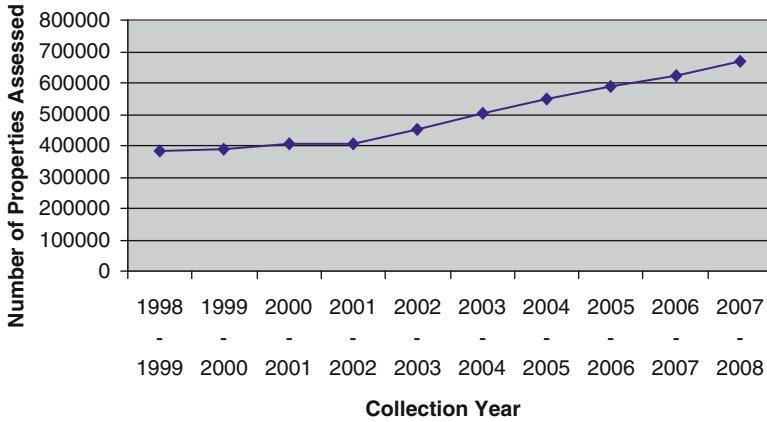
Fig. 9.2 Number of properties assessed in Bangalore city (1998/99 to 2007/08) (*Source*: Author analysis, Bruhat Bengaluru Mahanagara Palike, 2009)
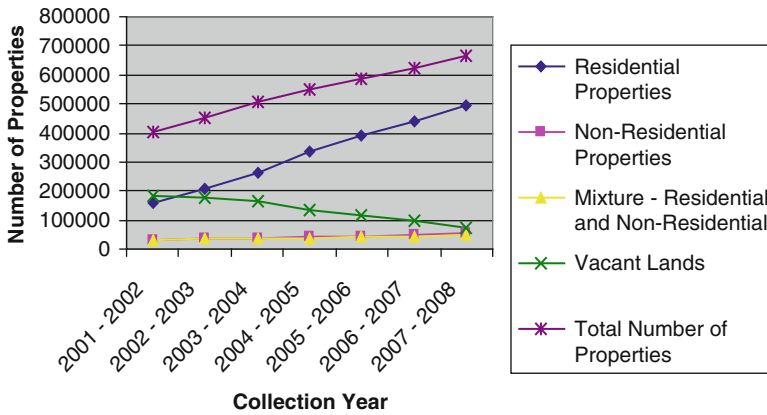

Fig. 9.3 Change in the number of properties assessed (2001/02 to 2007/08) (*Source*: Author analysis, Bruhat Bengaluru Mahanagara Palike, 2009)

Figure 9.3 shows the change in the number of properties assessed according to the nature of their use for the period 2001/02 to 2007/08. For the given period, it may be seen that overall there was an increase in the total number of properties assessed for tax purposes from 405,864 properties in 2001/02 to 668,535 properties in 2007/08—an increase of 64.7 %. A more detailed analysis reveals that the number of residential properties rose from 155,930 properties in 2001/02 to 494,658 properties in 2007/08: an increase of 217.2%!

At the same time, the number of properties used for non-residential purposes also rose, from 31,268 properties in 2001/02 to 54,950 properties in 2007/08 (a more modest, yet significant increase of 75.7%). The number of properties classed
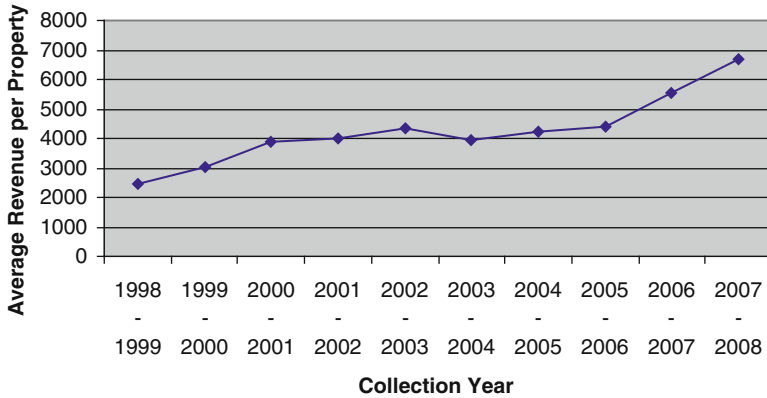
Fig. 9.4 Average revenue per property for Bangalore city (1998/99 to 2007/08) (*Source*: Author analysis, Bruhat Bengaluru Mahanagara Palike, 2009)

as 'mixed use properties' (used for both residential and non-residential purposes) increased by 41.3%: from 33,410 properties in 2001/02 to 47,233 properties in 2007/08. Simultaneous with these increases, the city saw a significant decrease in the number of vacant lands assessed, with that number dropping from 185,256 in 2001/02 to 71,694 in 2007/08, a fall of 61.3%.

Figure 9.4 illustrates the change in average revenue per property accrued to the BBMP Revenue Department from the period 1998/99 to 2007/08. For the given period, average revenue per property increased from Rs. 2,474.56 (~$50) in 1998/99 to Rs. 6,712.13 (~$135) in 2007/08; an increase of 171.24%. However, a closer look at the data reveals that there has not been a steady increase in average revenue per property for the period under study. For instance during the period 2000/01 to 2007/08 average revenue per property fluctuated, despite there being a steady rise in the number of properties assessed during the same duration. Average revenue rose from Rs. 3,893.69 (~$78) in 2000/01 to Rs. 4,326.19 (~$86) in 2002/03 before falling to Rs. 3,961.40 (~$79) the following year, after which it increased steadily from 2004/05 onward.

These findings may be further corroborated by looking at tax compliance data for Bangalore city as a whole, set out in Table 9.15. For the city overall, the data shows that whilst the number of properties brought under the tax net increased relatively steadily between 1998/99 and 2007/08, actual revenue collected by the BBMP did not increase at the rate expected—rising dramatically during the years following the introduction of the Self Assessment Scheme, then gradually falling behind the expected revenue.

Whilst the increase in the number of properties may to a large extent, be attributed to improvements in recordkeeping and information management practices stemming from the use of digital databases at the BBMP, the introduction of computers carried out between the years 2004 and 2005 does not seem to have made a significant impact on BBMP revenue collections for the city as a whole. One may

Table 9.15 Levels of tax compliance for Bangalore city between 1998 and 2008

Year	Compliance level (%)
1998–1999	57.73164309
1999–2000	97.91666667
2000–2001	105
2001–2002	92.85714286
2002–2003	97.5
2003–2004	80
2004–2005	77.31666667
2005–2006	80.65625
2006–2007	86.8125
2007–2008	73.56229508

Source: Author Analysis (2009)

conjecture, therefore, that the SAS allowed for the undervaluation of declared tax per property, possibly in collusion with tax assessors, and that such a fluctuation in revenue is indicative of poor compliance as a steadily increasing number of properties brought under the tax net should otherwise logically result in a steady increase in revenues for the government.

26 What's in a Game? Discussing e-Government Success and Failure

This chapter sought to unravel the social dynamics shaping e-government projects used to reform public sector institutions with special reference to local government in India. The main goal of this research was thus to approach the issues thrown up by the organisational and institutional transformations that occur in public administration and in attempting to answer these questions, this chapter focused on the empirical case study dealing with the design, implementation and subsequent use of an electronic property tax system based in the Revenue Department of the BBMP.

The overarching aim of the computerised system was to improve tax revenues and tax compliance through the streamlining of tax administration processes by increasing back-office efficiency, simplifying methods of tax payment, reducing the amount of money lost through petty corruption and improving tax yields and citizen compliance through the speedy detection of tax evasion. Designers of the project sought to use automation and digitisation to improve data management in the revenue offices, reduce the use of discretion by government officials in revenue-related decisions and make property tax collection processes more transparent. In particular, the system sought to increase revenues from property tax through better quality data, quicker evaluations, greater computational accuracy and positive psychological reinforcement; whilst at the same time reducing losses in revenue occurred as a result of back-office inefficiencies and fraudulent practices through the use of digital databases and GIS maps.

The eGovernments Property Tax Information System is unique in that, not only has it been for a long time one of the few e-government applications rolled out in India to reform the municipal government revenue processes, but also it is a striking example of a working partnership between federal and state government agencies, municipal government bodies and a private not-for-profit software firm. As the analysis in previous sections has shown, certain key games with local impacts get played out in different arenas between actors influenced by not only local but also national and international factors. An examination of interview data and other documents brought to light a number of games in different arenas, each involving key actors related to the project, whose interplay had a bearing on the project's eventual outcome. No single game can account for the ultimate outcome of the Revenue Department project at the time of writing, and instead the impact that the system has had on property tax administration can be best understood as an 'interacting set' or 'ecology' of games—as discussed in previous sections.

Interactions that shaped the design, development and adoption of the system appear to have been layered or 'nested', with minor games often contained within other bigger arenas (Virkar 2011). Key games found to have significantly shaped the design and outcome of the system that appear to have been played out between the different public and private partners during the initial stages of the process, either during the time of its conception (in the form of positive and negative interactions between members of the project planning committee) or at the stage of internal implementation and adoption (in the form of friction between the core project team and the intended end-users such as the field officers), thus corroborating the findings of the quantitative data analysis set out in the previous section of this chapter.

The only city-level game to make any significant impact on the project appeared to be the Tax Compliance game, stemming from interactions between revenue officials at the BBMP and the taxpayers of Bangalore, with even these moves being influenced by input from the private sector partner as the system was further honed and expanded upon. Ideological games and interactions, centred around the interplay of market forces, were also found to have a profound impact on the performance of the tax administration system and its eventual fate, particularly so as a result of prevalence of differing work cultures and organisational values amongst different members of the core project planning and software development team (Virkar 2011).

The discussion of the case study in previous sections also reveals that at the heart of each game lay a design-actuality gap, usually brought about from a power struggle stemming from a deep-seated mistrust between different actor groups. In particular, the case study demonstrates that gaps arise because those with the power and authority to take design or implementation decisions at different key stages of the process are usually unwilling to allow any initiative to go ahead that would give the other actor group(s) in the game more autonomy over the system or more control over their actions. Design-actuality gaps also arise when key actors refuse to acknowledge the impact that external factors and circumstances usually tangential to the project itself have on the construction of public digital architecture and on the shaping of decisions and government policy.

In recognising that design-actuality gaps open up and give way to unfavourable project outcomes if designers and top managers assume that localised outcomes result only from direct local influences, discounting the impact of other factors external to the project at hand, preliminary findings suggest that the project may at the time of writing be classed as a *partial failure* under Heeks' threefold categorisation. However, as evidenced by the discussion, this so-called 'failure' was neither a straightforward case of the outright inability of project managers to achieve stated objectives nor was it a so-called 'sustainability failure' given that the project continues to be in existence today and is still being used to administer tax. Causes of failure to meet stated aims manifested themselves primarily through the existence of both Hard-Soft gaps, stemming from competitive and divisive moves made by actors in key games relating to the system's design and implementation that generated conflict and disharmony in later attempts by users to adopt the system, and Private-Public gaps, rooted in fierce competition and oftentimes rivalry between key executive members on both sides of the Profit-Non Profit sectoral divide that stemmed from their differing values, work cultures and agendas.

27 Conclusion

In modern times, people and their governments have struggled to find easy, cheap and effective ways to run countries. ICT-based applications have the potential to revolutionise patterns of communication between authority and citizenry, radically restructuring politics and governance at all levels by making systems more integrated, transparent and efficient. However, the broader debate surrounding the prioritisation of issues in the setting of a policy agenda still rages in scholarly and political circles. Critics of e-government, and particularly of its introduction into a developing country context, contend that administrative reform is not an important enough issue to justify exposing cash-strapped governments to the risks and opportunity costs associated with ICT projects.

Added to this, there is a tendency for power élites to lose touch with ground realities when devising projects for their organisations as well as for their citizens, especially when planners comprise the higher echelons of government and operate within a top-down command-and-control system of management which runs contrary to their non-profit partners. There is also a danger that high-level project planners will, in looking at macro-outcomes, ignore outliers and how these may precipitate unexpected turns of events. This holds particularly true when existing patterns of communication and information exchange fail to be flexible or unable to adapt to changing situations.

PPPs are generally undertaken in an attempt to bring the benefits of technological efficiencies to a given context, taking advantage of the strengths and interests of each partner in their respective sectors and to combine the resources of government

with those of private agents (businesses or not-for-profit bodies) in order to deliver on societal and welfare goals. These sorts of collaborations give rise to a series of ideological and managerial choices, usually resulting from a difference in work cultures, agendas and institutional practices in the differing sectors. The recent upsurge in PPPs between developing country governments and private non-governmental firms has added a new dimension to the debate surrounding the value and cost-effectiveness of e-government software platforms in the ICT literature, as these collaborative projects require the involvement of individual actors, groups and firms driven by and responding to differing, sometimes conflicting, value systems and behaviour patterns.

As illustrated by the case study, widely divergent underlying motivations for the individual partners and actors identified within and across collaborating organisations can be at once greatly beneficial to government and society at large, resulting in surges of creativity and productivity in software development, and highly disruptive, giving rise to highly divisive and negative interactions and outcomes. Questions still remain unanswered as to whether these divergent motivations and interests may be aligned to ensure win-win situations for all actors concerned and to promote the long-term sustainability of such projects.

Introducing e-government initiatives into public bodies is always a tricky game to play, as computerisation alters the work-load, work profile and content of both the average public sector employee and the run-of-the-mill software engineer—impacting accountability, reducing the opportunities for exercising discretion, making performance more visible, and flattening hierarchies—often forcing both to retrain and retool and sometimes even becoming redundant. Many projects tend to face internal resistance from staff and create resentment against the private sector partner, particularly from the middle to lower levels of the civil service, as moves made to reengineer processes and effect back-end computerisation begin to have a profound effect on the way civil servants perform their duties and perceive their jobs. Very often in developing countries, it is the fear of the unknown that drives this resistance, especially if the introduction of new technology results in a change of procedures and the need for new skills. Further, in corrupt service delivery departments, there may be pressure to slow down or delay the introduction of technology-led reforms due to the impending loss of additional income.

Rapidly evolving economic and social contexts mean that political institutions and the people who constitute them cannot afford to get bogged down in traditional work practices or be impervious or resistant to change themselves. In conclusion, whilst this does not necessarily mean a wholesale rejection of what has gone before, it does mean that there needs to be a constant assessment and reassessment of workplace values and current work practices, eliminating those which result in behaviours that are detrimental to the functioning of the organisation and encouraging those that promote positive interactions within project collaborations and foster cross-sectoral collaboration and understanding.

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