Information Technology Governance and Local Public Financial Management Reform: The Case of Bangalore, India

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ABSTRACT

Decentralization policy in India has coalesced in recent years around interrelated concerns over the transparency of local government financial management and reporting systems and the capacity of urban local bodies to implement modern performance budgeting and accrual accounting structures. This dissertation examines the relationship between these policy concerns in the case of Bangalore and looks deeply into the role of information technology providers in advocating for greater local government financial transparency and accountability through financial management information system projects.

Utilizing the concept of legitimacy games I find that mechanisms to support coordination in project implementation are subject to partially predictable but ultimately uncontrollable contingent interactions of norms, values, and structural arrangements that surround government financial management information systems. The latter are largely unstable over time given frequent changes to administrative personnel and the broader authorizing environment. Consequently, coordination within information technology project implementation spurs competition in legitimacy games between information technology subcontractors and systems.

Under such conditions, forms of collective action around political accountability in urban governance spur a double movement of information democratization and information closure in entrepreneurial issue networks. As a result, the extent of effective local government financial transparency becomes increasingly dependent on the internal characteristics and relative power of information gatekeepers. The findings of the case study contribute to new knowledge on the relationship between information technology and local public financial management procedures and practices.

The notion of legitimacy games draws stark contrast to conventional assumptions surrounding competition in public sector outsourcing arrangements, namely that it is driven by the desire for larger contracts so as to maximize profits or that it bids down prices in government outsourcing. The case illustrates how behavioral incentives to link financial management information systems to public transparency and accountability mechanisms emerge in highly localized confrontations not as a concerted response to national policy. The real effect of such technologies on local state capacity has been limited in the case of Bangalore. In order to achieve more transformational impact, policymakers, public managers, and technology providers must carefully consider how to handle large volumes of financial information corresponding to irregular transactions.

Thesis Supervisor: Bishwapriya Sanyal
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Common Abbreviations

Bruhat Bengaluru Mahanagara Palike (BBMP)
Building State Capability (BSC)
Central Finance Commission (CFC)
Financial Management Information System (FMIS)
Funds Based Accounting System (FBAS)
Global Project Management System (GPMS)
Financial Management System (FMS)
Financial Management Information System (FMIS)
Indian Centre for Social Transformation (Indian CST)
Information and Communication Technology (ICT)
Integrated Financial Management System (IFMS)
Integrated Financial Management Information System (IFMIS)
Jawaharlal Nehru National Urban Renewal Mission (JNNURM)
Karnataka State Police Housing Corporation (KSPHC)
Ministry of Urban Development (MoUD)
National Municipal Accounting Manual (NMAM)
Open Source Software-as-a-Service (OpenSaaS)
Public Financial Management (PFM)
State Finance Commission (SFC)
Urban Local Body (ULB)
Chapter 1: Introduction

1.1 A New Imperative for Municipal Finance Reform in India

The quality of local budget planning and execution, expenditure tracking and revenue collection, and reporting and auditing has consequences for urban planning and the broader development trajectory of cities and urban areas in India. This is the central implication of the “basics first” paradigm (Schick 1998) in public financial management (PFM) when applied to urban governments in developing countries. Local PFM affects patterns of governance and development in cities through the traditional objective of local government policy, namely the mobilization of revenues and the allocation of financial, technological, and human resources to local development projects and services (Musgrave 1959; Oates 1972). The quality of local public financial management is a key factor contributing to the scope of urban development planning (Smoke 2017), to the integrity of local governance institutions (Yilmaz, Beris, and Serrano-Berthet 2010), and trust in the local public sector (Shah 2007).

Improvements to local public financial management may be key to sustainable urban development and more transparent and accountable urban governance, but improved local financial information is key to public financial management reform. As Rao and Bird (2010, 20) describe, “improving local finance information is not a small matter...the systematic collection, analysis, and reporting of information that can be used to verify compliance with goals and to assist future decisions are critical to successful urban development.” Yet, while studies of municipal finance reform in India frequently emphasize the challenges to urban management posed by limited local tax revenues or ambiguity in authority over local expenditure responsibilities, most of the technical, social, and political aspects of improving local finance information have been almost entirely overlooked.

This gap in the literature on reform is somewhat puzzling given three trends. First, urban local bodies (ULBs)\(^1\) around the country have attempted to shift their local accounting systems from single entry cash-based systems to double entry, fund-based structures. Such a transition implies changes to

\(^1\) Urban local bodies (ULBs) are the formal classification for general purpose urban governments in India.
financial information management practices, since double entry accounting generates different perspectives on the position of local government finances (Chan 2003). Second, national urban reform programs have increasingly bundled e-governance reforms with local budget and accounting reforms through various matching intergovernmental grants to ULBs. Many ULBs have rushed to deploy a growing array of computerized financial management information systems through national and state-level reform programs. Third, national institutions of fiscal management have failed to create strong mechanisms of vertical fiscal control (Rodden 2006; Rodden, Eskeland, and Litvack 2003) since decentralization reforms in 1992, even as levels of transfer dependency among ULBs have steadily increased. These three trends suggest an ongoing but uneven shift to financial management-led decentralization in ULBs.

Much of the recent literature on the potential of municipal finance reform urban local bodies (ULBs) to make the necessary financial, technical, and governance adjustments to effectively manage the ongoing urbanization process displays a mix of optimism and pessimism (ADB 2012; R. Bahl 2012; Mohanty 2014). The optimism can be attributed in part to the high expectations of conventional decentralization theory (Smoke 2015, 2014) and the overreliance on it by public finance specialists attempting to evaluate “what is desirable and feasible” (Smoke 2017, 153). Nearly a quarter of a century following the enshrinement of political devolution to a third-tier of government in the Indian constitution, surveys of the fiscal position of ULBs reveal cause for concern (Working Group of State Urban Development Secretaries 2013). Whether the original impetus for decentralization was to reduce the power of state governments or genuine sentiment for democratic decentralization drove the adoption of

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2 For instance, the High Powered Expert Committee’s model of the changing revenue structure of ULBs from 2010 to 2032 assumes the share of own revenues to increase from 48 percent in 2011-12 to 68.5 percent in 2021-22 and top out at 75 percent in 2031-32 (High Powered Expert Committee 2011, 156). Following the 14th Finance Commission’s assessment of ULB finances, this seems like an overly optimistic projection.
the 73rd and 74th Constitutional Amendment Acts (M. G. Rao and Singh 2007), the tenuous fiscal position of ULBs in India is brought into stark relief against the scale of India’s urban transformation.³

Although recent national urban reform programs have sought to draw closer connections between municipal finance reform and the quality of local development, political expressions of the urgency surrounding financial reform of local bodies date back to at least to 1935. At the Provincial Local Bodies conference that year in Surat, Sardar Vallabhbhai Patel, the Chairman of Ahmedabad at the time, colorfully remarked (and merits quoting at length):

It is being said that the franchise of the electorate has been enlarged and the local bodies have been given very wide powers. True, I accept it. But what good would come out of it unless and until the question of local finances is settled first. The extension of the franchise and widening the scope of duties would be like dressing a dead woman” (Government of India 1951, 1).

Nearly a century after that assessment, many of the questions surrounding the finances of urban local bodies remain unsettled. Recent estimates of urban investment needs to effectively support urbanization through 2030 range from $640.2 billion (High Powered Expert Commitee 2011) to $1.2 trillion (McKinsey Global Institute 2010). Yet, the annual revenue yield of urban local bodies (ULBs) currently amounts to just one percent of gross domestic product (GDP) (Ahluwalia, Kanbur, and Mohanty 2014). Given the scale of India’s urban transition, with projections of nearly 600 million people residing in cities by 2030, solving the question of municipal finance is one of the greatest governance challenges of the 21st century.

As the salience of urban reform has grown in recent years, public finance scholars have offered reform ideas and frameworks that might bring the finances of India’s cities to life (ADB 2012; Ahluwalia, Kanbur, and Mohanty 2014; R. Bahl 2012; High Powered Expert Commitee 2011; Mohanty 2014). These reform proposals vary in scale and scope and in the extent to which they are derived from, and seek to balance, normative fiscal decentralization theory and the political economy of urbanization in India. They

³ Even Mumbai, the best performing agglomeration of municipal corporations in the country, faces much uncertainty with the phasing out of the octroi tax following implementation of the goods and services tax (GST). The Brihanmumbai Municipal Corporation has asked the Central government to bypass the Maharashtra government by transferring compensation “in lieu of octroi” directly to the ULB and bypassing the state government.
all conclude with the necessity of seriously rethinking of the position of ULBs within India’s fiscal architecture, for instance, by devolving new taxes to ULBs, restructuring intergovernmental transfers, and investing in capacity development. They studiously avoid what Bahl (2012, 7) refers to as the inertia solution, where policymakers make policy and administration changes “around the edges” but leave the current fiscal structure alone.

While most research on municipal finance reform in India has focused on the deep structural problems in tax and expenditure assignment among ULBs, much less has focused on the political and social aspects of reform dynamics around the margins of local financial management in urban local bodies (ULBs). The continued emphasis on structural reform has resulted in a gap in research on local implementation capability. The notion that changes “around the edges” constitute a reform pathway that could be classified as “inertia” belies the reason the edges, or boundaries, exist at all. As Schönb pointed out many decades ago, a tremendous amount of work goes into maintaining a stable state (i.e. inertia) as new technologies or events push systems into sometimes chaotic, turbulent states (Schön 1971).

On a more practical level, propositions regarding structural reform derived from normative theory do not capture some of the subtler changes in the political economy of decentralization in India’s federal system. For instance, while the 13th Finance Commission (2010-15) identified the need “for a stronger incentive mechanism aimed at persuading State Governments to decentralize further” (Finance Commission 2009, 149), no such mechanism seems forthcoming. The 14th Finance Commission’s adoption of a “trust-based approach” to monitoring the use of finance commission grants to ULBs could be interpreted as abandonment of the search for such a mechanism. Instead, the 14th Finance Commission report focused more on local public financial management, specifically accounting, revenue mobilization, and auditing and the potential role of information technology to enhance these core government functions (Finance Commission 2014).

This dissertation is concerned with the design and use of information and communication technologies (ICTs) to support public financial management capability in urban local bodies and how political and social attributes of information technology projects shape the trajectory of implementation
capability. Drawing on the experience of the city of Bangalore (Bengaluru)\(^4\) from 2009-2015, the study examines the deployment of two financial management information systems (FMIS) in the Bruhat Bengaluru Mahanagara Palike (BBMP).\(^5\) The study focuses on understanding how improvements in financial information contribute to coordination, the role of financial management information systems in local political accountability, and the extent to which outsourcing the design and implementation of information systems supporting local public financial management are consistent with the public good.

The adoption of financial management information systems is being driven partly by national urban investment programs (Grant Thornton 2011; Kundu 2014) and partly by local experimentation with innovations in information technology (IT). The deployment and use of ICTs in the fiscal domain of local governments is embedded in broader technological and governance transitions in Indian cities (Datta 2015), which have led to the proliferation of institutional arrangements in core aspects of local governance.

The design of flagship urban reform schemes like the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), the 100 Smart Cities Mission, and the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) have integrated objectives around information technology and local budget execution, project monitoring, local taxation, municipal accounting, and social accountability in urban local bodies (NIUA 2015; A. Rao 2016). The main objective of the first generation of ICTs in local administration in India in the 1980s was to ensure top-down access to accurate data for rural local development planning and decision making (Madon 1993). The latest generation of ICTs in the fiscal domain of urban local bodies are far more embedded in local governance reform. Prevailing problems relate to integrating existing computer systems, linking tax services to greater transparency and

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\(^4\) The name Bengaluru dates to the 9th century, though readers will undoubtedly be more familiar with the anglicized version – Bangalore. Bangalore was the city’s official name until November 1, 2016, when the Government of India officially recognized the change that had been made years earlier by the Karnataka Legislative Assembly. Although I would prefer to use Bengaluru in the dissertation since it is the city’s official name, I will submit to the antiquated convention that applies under such conditions when official name changes are recent – ensure ease of understanding on the part of potential readers. As a result, Bangalore will be used throughout the dissertation.

\(^5\) The Bruhat Bengaluru Mahanagara Palike (BBMP) is the municipal corporation of the city of Bangalore.
accountability, and mobilizing political constituencies around local revenue administration. Drawing on new information technologies and novel delivery models, institutional entrepreneurs have been targeting diverse reform objectives connected to basic elements of public management, while enabling new forms of participation in local governance through fiscal transparency and social accountability.

Even as the breadth of local government reform issues taken up by national, regional, and local actors in India expands, the concern held in common across the political system is the capacity of urban local bodies to implement policy, to mobilize new funds, and to transparently and effectively manage the fiscal resources at their disposal (High Powered Expert Commitee 2011; Planning Commission 2008; Working Group of State Urban Development Secretaries 2013). The emerging consensus around local financial management reflects growing alarm that the material systems of day-to-day fiscal management are insufficient to match the complexity of the contemporary Indian city and the dynamic social, political, and economic processes unfolding at different territorial scales (Finance Commission 2014). In response to these concerns, departments and agencies across all three tiers of India’s federal system have been increasing investments in information and communication technology for core functions of local PFM to support the provision of efficient and transparent services to urban residents.

Can information technology improve financial management in urban local bodies (ULBs)? Like most aspects of municipal finance reform in India, there are layers of social and political complexity behind ostensibly technical questions. For if information technology can augment the financial management capabilities of ULBs, this capability will have to be acquired in the short term through external support from a diverse array of organizations and institutions. Some urban local bodies are increasingly opting to contract out public financial management responsibilities to private accounting firms on multi-year contracts (NIUA 2015). With the confluence of growing political concern over the financial management capability of ULBs and a shift in subcontracting assistance for technical administration, the question of whether or not public financial management capability can be acquired by local governments through external support is crucial to understanding the prospects of public financial management reform initiatives converging on the fiscal domain of local governments. With a growing
number of contractors, consultants, and other third-party vendors involved in the development and maintenance of internal control systems that span the technical core of local government, this study sets out to examine the implications for fiscal transparency, accountability, and the overall quality of urban governance.

1.2 Information Technology and Local Financial Management in India

Local public financial management entails a broad array of basic functions integral to urban governance such as financial accounting and reporting, cash management, procurement and corruption safeguards, debt management, internal controls and auditing, and external auditing and performance evaluation (see Shah 2007). Historically, information systems for managing public revenue have been one of the enduring characteristics of the state (Tilly 1992). Kautilya’s treatise on the state, written in the 3rd century B.C. India, outlines the structure of a public financial management system for government (Chaturvedi 2006). Developing the technical and organizational capability to impose tax obligations, account for revenue inflows, and control expenditure has been a key factor in both successful state building and the historical evolution of capitalism (Arrighi 1994).

As the information age has beset the public sector around the world (Bellamy and Taylor 1998), local governments increasingly aspire to the use of networked software and hardware configurations – commonly referred to as financial management information systems (FMIS) – to support a broad array of tasks in public sector governance. Though financial management information systems (FMIS) can be standalone applications supporting standalone functions, the nature of information technology and the implementation models through which they are delivered to local governments confer on FMIS a teleology that emphasizes the essential necessity of integration to achieve higher value and purpose. Consequently, as social and political interventions into a contentious domain of public sector reform, they are potential sites of coordination, collaboration, conflict, and resistance within and between institutions of local governance.
The growing use of FMIS in the domain of local public financial management reform in India (Rupanagunta 2006; Yashwantrao Chavan Academy of Development Administration 2009) follows patterns in public sector investment in electronic governance (e-governance) in India. E-governance is broadly defined as the use of information and communication technology (ICT) in government services (Heeks and Bailur 2007) and digital support for policy making and group work between politicians and civil servants on policy development and management (Six 2004). Government expenditures on information technology are projected to rise to $8.5 billion in 2018, with spending on software and other IT services rising to $1.2 billion in 2018 following annual growth of 15.6 percent in 2017 (Gartner 2017). One of the most comprehensive surveys of ICT use and local public financial management found that FMIS deployment is concentrated among ULBs in the south and northwestern regions of the country, particularly in the wealthier and more urbanized states of Gujarat, Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, and Kerala (Yashwantrao Chavan Academy of Development Administration 2009).

The use of ICTs in local bodies can be divided between two recent historical phases from roughly 1970-1990 and 1990 onwards (Madon 2008). The first phase focused primarily on internal government applications to meet central government administrative requirements for defense, research, economic planning, elections, the national census, and tax administration. During this period, the Computerized Rural Information System Program (CRISP), with hardware and software developed by the National Informatics Centre (NIC), was an important technical resource for development planning in district rural development agencies and as such a precursor to decentralization (Madon 1993). The second phase, marked by the formation of the National IT Task Force and numerous state-level information technology policies, expanded ICT use within a broader governance agenda to a wider range of applications in urban areas.

Among urban local bodies the e-governance reform agenda extends to property registries, online property tax payment, bulk transaction processing, global positioning system and geographic information systems for property assessment (Jain 2008), automated revenue receipts, project management, budget
control, network protocols for intergovernmental transfers, and intra-organizational communication (NIUA 2015). Objectives beyond the supply side of reform include exploiting the potential opportunities provided by the Internet to experiment with new mechanisms of fiscal transparency and accountability, such as online citizen grievance platforms and open budget data. For these reasons, among the ones mentioned in the previous section, the second phase of e-governance in India is also distinguished by deeper participation among domestic non-government and private sector organizations, international development agencies, and global policy networks (Madon 2008).

IT-based reforms deviate from conventional municipal finance policy reforms that focus on tax assignment under fiscal decentralization or modifications to the structure of local taxes and fees. First, the adoption of financial management information systems in cities invites new actors into privileged positions within the fiscal domain. Second, as a higher proportion of local government financial sub-systems become computerized, the technological and institutional foundations of local fiscal systems shift although not necessarily in an integrated, planned manner. As the evidence presented in this study shows, the range of intended and unintended consequences are both big and small. For instance, moving property tax payments to an online platform may facilitate transactions “at a distance” that otherwise would have occurred in person and therefore eliminate opportunities for petty corruption. Potentially more influential consequences extend to greater risk of large scale technology disruptions that reduce the tax yield and generate acute stress on local cash management 6, to information rents and fraud from technology or service provider lock-in, to contests over the political legitimacy of the budget position and fiscal performance reported by city government.

6 This occurred in Bangalore following the conclusion of my fieldwork for this study. A new version of the online property tax payment system, through which a substantial portion of tax receipts flow, experienced prolonged disruption and failure. Consequently, property tax payments collapsed at the beginning of the fiscal year in India. See ”BBMP property tax: “problems will be sorted out in six days.” The Hindu. 8 April 2016 (http://www.thehindu.com/news/cities/bangalore/bbmp-property-tax-problems-will-be-sorted-out-in-six-days/article8448970.ece).
1.3 The Case of Bangalore

The city of Bangalore is emblematic of the intensification of information technology in the fiscal domain of municipal government and of a growing diversity of actors in privileged positions at the technical core of the city’s financial management bureaucracy, some of the key characteristics of the second generation of e-governance reforms. In this section, I briefly review the case that is the basis for the in-depth investigation of financial management information systems (FMIS) and implementation capability in the dissertation. There are many actors in the study, but the focal player I examine most closely is the Indian Centre for Social Transformation (Indian CST). The Indian CST is a relatively new type of social enterprise that combines deep, substantive experience working in the public sector in India with information technology capabilities, particularly among young graduates of Bangalore’s many universities, whose skilled labor can be purchased at affordable rates. Before describing the Indian CST and their accomplishments in Bangalore, a review of contemporary Bangalore is needed to set the stage.

Bangalore is the third largest city in India and the largest single municipal corporation in the country by territory, with over 10 million residents spread out across 709 square kilometers. The capital of Karnataka state, the city’s large information and communication technology (ICT) sector is organized around both large transnational firms and localized small and medium-sized (SMEs) enterprises in the information and communications technology (ICT) sector (Sudhira, Ramachandra, and Subrahmanya 2007). The urban economy is starkly bifurcated between multinational corporations with strong ties to state government officials and state policy and small, labor intensive enterprises that manufacture or trade products in highly dense, centrally-located areas of the city (Solomon Benjamin 2000). The Bangalore municipal corporation (i.e. the BBMP) is the statutory local government authority and is led by a municipal commissioner who is assigned to the post by the Chief Minister of Karnataka. The mayor of the BBMP is selected annually (i.e. one-year term) by the local council and primarily serves as a political figurehead with no executive authority. An elected council serves a five year term, with work divided between twelve standing committees whose leaders are appointed by the council and serve one year terms.
The BBMP is responsible for investment and service delivery in the area of land use planning, public building construction, roads and bridges, solid waste management, storm water drainage, public health, street lighting, and poverty alleviation. In addition to the BBMP, eight additional parastatals with accountability to the state government control regional land use planning and local service delivery in specific sectors such as water. The city has a vibrant and active civil society. Elite organizations like Janagraaha and the Public Service Centre (PSC) have a long history of policy reform work with the city and state government. Resident welfare associations, neighborhood associations, slum networks, and other issue and policy communities frequently mobilize around issues of service delivery quality and accessibility (Harriss 2006; Kamath and Vijayabaskar 2014). According to the latest Karnataka Economic Survey, per capita income in Bangalore is Rs. 271,387 ($4,523) (Government of Karnataka 2016).

Table 1.1 Key Characteristics of Bangalore, India

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (2014)</td>
<td>10.1 million</td>
</tr>
<tr>
<td>Estimated Population (2031)</td>
<td>20.3 million</td>
</tr>
<tr>
<td>Area (sq. km)</td>
<td>709 sq. km.</td>
</tr>
<tr>
<td>Per capita income (2015-16)</td>
<td>Rs. 271,387</td>
</tr>
<tr>
<td>Population Density (per sq. km.) (2011)</td>
<td>11,901</td>
</tr>
<tr>
<td>Population Growth Rate (2001-11)</td>
<td>44.6</td>
</tr>
<tr>
<td>Literacy Rate (2011)</td>
<td>87.67</td>
</tr>
<tr>
<td>Road Length (sq. km)</td>
<td>13,483</td>
</tr>
</tbody>
</table>

Intergovernmental politics have been very dynamic since the turn of the century. The municipal council was led by the Janata Dal (Secular) party in the early 2000s, which struck an alliance with the India National Congress party in state government that allowed Chief Minister S.M. Krishna to initiate a sweeping set of municipal finance reforms in Bangalore. This reform initiative would last from 1999 until his replacement by Dharam Singh in the 2004 legislative assembly elections. Two years later, Chief Minister H.D. Kumaraswamy (JD(S)), gave show-cause notice to the Bruhat Mahanagara Palike (BMP) council and dissolved the governing body of the city. For the next four years, the municipal corporation of Bangalore would be led by an administrator appointed by the state government.

The purpose was to amalgamate the city corporation with 9 city municipal councils (CMC), 3 town municipal councils (TMC) and 111 villages on the periphery to form the existing corporation. Now
comprised of 198 wards and stretching across 709 sq. km., the BBMP held elections in April of 2010 where the BJP swept to power by winning 111 seats compared to 64 for the India National Congress (INC) and 15 for JD(S). From the May 2008 legislative assembly elections through the 2010 BBMP council elections to the May 2013 legislative assembly elections, the BJP controlled both the state government and Bangalore, first by administrator rule then through the BBMP council. Siddaramaiah, a Congress Party MLA, became Chief Minister of Karnataka in 2013 when the Congress Party won 122 of 224 seats. Most recently, the BJP retained control of the BBMP council in 2015, winning 100 of 198 seats to Congress Party’s 76.

Figure 1.1 is a basic schematic of the task areas in the public financial management system. Stars are used to denote the presence of a digital financial management information system over the period 2009-2015. From a technical perspective, the public financial management cycle begins with budget preparation in the upper left corner. As can be observed from the figure, certain task areas fell under a single FMIS system, while others had multiple systems operating in parallel. Still, other key task areas – like management of budget authorizations, cash and debt management, were carried out with paper-based, manual procedures. From a normative standpoint, the relative benefits and costs between software-based or paper-based public financial management systems are ambiguous. When placed into a local context, particularly like what existed in Bangalore in 2010 (e.g. partial digitalization, new jurisdictional scale, pressure to integrate peri-urban areas into new system, no local council for previous four years), the balance tended to lean in the direction of substantial costs.
Figure 1.1: Computerization of the Local Public Financial Management System in the BBMP

![Diagram of financial management processes]

*Stars represent presence of an independent financial management information system (FMIS) software system.

Following the elections to the BBMP council in 2010, the city corporation rapidly began adopting information and communication technology (ICT) systems for public financial management. From 2009-2015, the officers, engineers, and staff of the BBMP relied on at least nine ICT applications, some overlapping, but only two were “technically” integrated. There were others such as Khajane, Karnataka’s state treasury financial management information system. The ones listed in table 1.2 were locally operated and sanctioned by the BBMP head office.

Table 1.2 Main ICTs Used in Bangalore Municipal Government for Public Financial Management

<table>
<thead>
<tr>
<th>System</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBAS</td>
<td>Core accounting software system</td>
</tr>
<tr>
<td>IFMS</td>
<td>Personnel management, bill payment, receipts</td>
</tr>
<tr>
<td>GPMS</td>
<td>Online project management system; bill payment</td>
</tr>
<tr>
<td>FMS</td>
<td>Online automated receipts module; cash management; bill payment</td>
</tr>
<tr>
<td>GEPTIS</td>
<td>GIS-based property registration system</td>
</tr>
<tr>
<td>Palike 2.0</td>
<td>Online property tax payment</td>
</tr>
<tr>
<td>WhatsApp</td>
<td>Monitor the status of public investment project execution</td>
</tr>
<tr>
<td>TenderWizard</td>
<td>Electronic tendering</td>
</tr>
<tr>
<td>MS Projects/ Excel</td>
<td>Monitor projects; miscellaneous support</td>
</tr>
</tbody>
</table>

It is in this context that the Indian Center for Social Transformation approached the BBMP with the offer to develop an first an online project management system (Global Project Management System – GPMS) followed by an automated receipt and cash management system (Financial Management System –
FMS). The Indian CST is a registered public charitable trust located in Bangalore. Founded in 2009 the Indian CST is a relatively new form of non-government social enterprise that is rapidly entering into the market for e-governance services for public financial management in urban India (Rupanagunta 2006). These smaller, often non-profit organizations compete with local commercial software firms and major integrated business and consulting firms like Tata Consulting Services (TCS). Because profit in the software industry is a function of standardization and scale, smaller social enterprise firms compete on the basis of customization combined with lower prices. In many cases, they offer their software systems free of charge on a public goods basis.

This study takes this break between extant information infrastructures and the administrative structure of the local fiscal system as a baseline for analyzing how capability for public financial management is constituted through attempts to generate, distribute, and use local fiscal information and knowledge to correct a large information asymmetry embedded deeply in local management and accounting control systems. In light of these issues discussed above and the limited monitoring and oversight that remained six years after the BATF introduced structural reforms, the project management system in the BBMP continued to degrade even as the city had tripled in size and added over a thousand new engineers. As backlogs of project documentation increased, reporting delays began to extend from a week, to a month, to six months, and, at times, a full year.

The Indian CST was founded by a small group of Bangalore citizens, each with professional backgrounds in civil service, public accounting, or information technology.\(^7\) The social dimension to the organization is spelled out in its public trust deed, in which among other objectives the organization aims:

To promote democratic ideals and stakeholder management in publicly funded projects, and to enable all interested persons to provide inputs, monitor, participate, and

\(^7\) One of the founding trustees is R. Sri Kumar, had also served as Vigilance Commissioner in the Government of India’s Central Vigilance Commission (CVC). Before starting the Indian Centre for Social Transformation, he was the Chairman and Managing Director of the Karnataka State Police Housing Corporation from 2001 to 2008. It was in this position that he gained practical experience managing public sector construction projects all over Karnataka state and began to understand the real need for advanced and customizable information systems to increase the efficiency of civil engineers in the public sector and make public sector operations more transparent and accountable.
meaningfully contribute to the implementation of projects, resolve issues in implementation and to ensure that the jobs/tasks involved get done and done well.

Two other aspects of the organization distinguish it as a competitive entity in India’s software market. First, the trust deed enables the organization to “promote innovations through dedicated research and development of new thoughts, ideas and products aimed at improving the quality of life, public peace and order and protection of the environment.” Second, the strategies by which it promotes innovation entail working “to acquire, compile and store data, invest in, promote, develop and make available technological solutions for data collection, storage and analysis and to build and maintain the infrastructure required in this regard.”

Table 1.3 Characteristics of the Indian Centre for Social Transformation

<table>
<thead>
<tr>
<th>Registration</th>
<th>Public Charitable Trust</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Founded</td>
<td>2009</td>
</tr>
<tr>
<td>Main Office</td>
<td>Shivaji Nagar, Bangalore</td>
</tr>
<tr>
<td>Mission Statement</td>
<td>“To strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavor and achievement.”</td>
</tr>
<tr>
<td>Software Development Model</td>
<td>Open source, software as a service (OpenSaaS)</td>
</tr>
<tr>
<td>Employees</td>
<td>30-50 (Flexible, project-based)</td>
</tr>
</tbody>
</table>

A basic financial management information system (FMIS) project that began with the objective of centralizing project information evolved over the course of six-year period into a durable interest network connecting government officers, citizens, politicians, civil society organizations, political parties, technology organizations around local public financial management. Along the way, the FMIS systems helped improve public investment project monitoring, helped uncover a major project scam that resulted in the blacklisting of 32 contractors⁸, and helped recover more than 590 crores ($92.3 million at current exchange rate) of tax and fee revenue that officers had failed to remit to the consolidated account of the BBMP. Moreover, the FMIS were used as a political mobilization tool by the Aam Aadmi Party (AAP) by organizing local residents to conduct a social audit of public investment projects and by a member of

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⁸ See http://bangaloremirror.indiatimes.com/bangalore/civic/articleshow/49850380.cms?.

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the Rajya Sabha from Bangalore to support a public interest litigation (PIL) case against the BBMP, the Karnataka state government, and the Government of India.

What makes the case even more intriguing is the extremely low cost at which the information technology was supplied to the BBMP. While neither of the projects avoided acute and systematic design and deployment problems examined in detail in chapters five through seven, the Indian CST succeeded in delivering two FMIS modules at a total cost of 2.5 crores ($390,750 at current exchange rate) over the course of 6 years. These costs covered training and support to more than 7,500 officers, engineers, and staff spread across the head office, eight zones, 198 wards, and more than 450 city offices. Demonstrating their extraordinary commitment to reform in the BBMP, the Indian CST not only sustained but expanded the systems even at times when the BBMP failed to reimburse them for labor and bandwidth costs. Was this simply a case of solution and personality-driven change, of a charismatic institutional entrepreneur working the levers of reform? Or does the experience of the Indian Centre for Social Transformation (Indian CST) with the BBMP hold more generalizable lessons for the use of FMIS to enhance governance capacity in the fiscal domain of local governments in developing countries?

Notwithstanding the opportunity costs associated with authorizing and devoting substantial staff resources to the implementation of financial management information systems, the potential return on investment is substantial. Though the study did not set out to model the welfare gains associated with FMIS in local governments, the fact that the Indian CST was able to deliver partial automation of financial transactions in the BBMP at the cost of labor and materials is a significant development in and of itself. This success is significant given two factors: (1) the profit expectations among private sector providers of information technology (including licensing of proprietary software) and (2) the relative cost of capital to labor in the public sector. In combination, these two factors drive down the potential return on investment in FMIS from the agency perspective. Thus, the case of the Indian CST’s work with the Bangalore municipal corporation provided a useful opportunity to better understand the trajectory of social mobilization with and around financial management information systems design and deployment.
1.4 Research Problem

Even as financial management information systems (FMIS) have become more common components in the technical public financial management reform package in developing countries, research contains limited empirical examination of the implications of FMIS for government capability and wider accountability relations among local institutions of democratic governance. While the e-governance agenda among municipal governments takes different forms and directions depending on national and subnational context, two features are increasingly common: operational delegation to information technology contractors and the normative goal of information democratization. Because of limited in-house technical capacity, ICTs in public sector financial management tend to privilege outsourcing arrangements (S. Peterson 2006; S. B. Peterson 1998). Reformers are guided by the premise, increasingly central to modernization in municipal administration (Goodspeed 2014), that “more information will improve the experience of urban social life and lead to the creation of many useful and efficient services” (Rabari and Storper 2015, 32). Both of these elements are prominent in framing the discourse around FMIS in urban governments in India (Rupanagunta 2006).

The contribution of FMIS to local government capability and accountability in urban governance is therefore premised on the extent to which delegating responsibility for information technology-enabled public financial management to organizations external to the intergovernmental system is consistent with increases in the accessibility of financial information. Yet, there is very little empirical evidence to show that this is the case. In order to address this issue, it is important to first understand how financial information generated through financial management information systems contributes to coordination in local government. Doing so will also required unpacking the evolution of roles and role relations between external software providers and politicians, senior civil servants, and front line officers to assess the extent to which the externally provided software and other systems are consistent with the public good. This is particularly important as demand for local government FMIS drives up the private value of public information, expressed in changes in the supply and demand for software and system development.
contracts with local governments. Addressing these three issues in the study will provide a holistic picture of the emerging role of FMIS in the governance of local public financial management.

1.5 Theoretical Approach

This dissertation draws from the principal-agent model outlined by Andrews et al. (2016) in their volume on building state capability. The building state capability (BSC) approach is a relatively new research agenda and analytical framework that has emerged as a response to critical accounts of the failures in international development practice (Pritchett and Woolcock 2004). The research agenda and approach traces its roots to heterodox thinkers in planning and project management that emphasized experimentation, adaptation, and complexity in development projects (A. Hirschman 1958; A. O. Hirschman 1967; Lindblom 1959; Rondinelli 1983). As conveyed by its proponents, the BSC approach “seeks to bring the analysis of policy implementation dynamics in development into direct dialogue with the latest scholarly literature and hard-won experience of practitioners” (Andrews, Pritchett, and Woolcock 2016, 2). Research adopting the BSC approach has advanced novel concepts such as capability traps, isomorphic mimicry and premature loadbearing (Pritchett, Woolcock, and Andrews 2013) that are useful for examining information technology and local government capability.

The BSC approach provides a practical principal-agent model to study the interaction of technical and social attributes of financial management information systems (FMIS) projects in local government through an organizational studies lens. Rather than view successful development outcomes as the result of state capability, the BSC approach inverts the relationship by starting with implementation tasks and linking different tasks to different types of capability. The repeated conversion of task execution into successful outcomes builds state capability over time. In the BSC’s theory of change, institutional

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Though the state capability for policy implementation approach was developed in response to the historical experience of development practice in multi-lateral and bi-lateral development agencies, the dynamics captured by the model of policy implementation are not limited to the specificities of official development assistance. The model shares affinities with the principal-agent approach of public choice economics, but relies on an alternative set of concepts and premises that are beneficial to policy reform planners in developing countries. The BSC approach is particularly useful for this study’s purposes because it provides useful analytical purchase on the behavior of “organizations” and “agents” external to the intergovernmental system.
entrepreneurs wage “good struggles” that build on existing resources (“folk practices”). Success is consolidated into new practices and procedures that persist over time when policy, programs, or projects are adapted to local context by local actors and organizations (Pritchett 2013).

The BSC framework is useful to correct for the longstanding normative bias in the study of municipal finance in the context of decentralization (Smoke 2015, 2014, 2008). The BSC compensates for, on the one hand, a superficial understanding of the mechanisms behind supply-driven planning and, on the other hand, the actions and reactions of end users in the fiscal domain. Regarding the former, the BSC helps focus attention on the task environment of public financial management and unpacks the different types of individual capacity and organizational capability that are needed to pursue normative objectives of financial control, revenue mobilization, or fiscal transparency. Under conditions of weak capability, the BSC approach posits that outcomes of reform initiatives are unpredictable. Regarding the demand side, the BSC distinguishes between policy compliance and institutional entrepreneurship in settings where local actors must creatively pursue development opportunities beyond the level of resources under their control (Stevenson and Jarillo 1990). Thus, the conceptualization of policy, programs, and projects is as it is experienced by those inside the policy domain.

In doing so, the notion of administrative “modernization” is reinterpreted as an “ongoing process of discovering and encouraging which of the diverse array of context-specific institutional forms will lead to higher functionality” (Andrews, Pritchett, and Woolcock 2016, 51). As such, an important element of capability is the ability of organizations to “discover and act on a workably correct causal model of achieving the policy’s normative objective” (Andrews, Pritchett, and Woolcock 2016, 83). The state capability framework posits the existence of capability traps where local implementation is divorced from normative objectives of policies, programs, and projects.

In order to understand the relationship between information technology and state capability in the complex, dynamic, and contentious domain of local public financial management, the study needs to closely trace the tactics and strategies of different actors embedded in the process of organizing. Second, the study should evaluate the emergence of context-specific institutional forms and the extent to which
they led to higher functionality. Finally, echoing the research problem described above, the study would also need to be specific to the contextual contingencies that supported or undermined the FMIS as a workably correct causal model for the pursuit of normative objectives.

The actors who are emphasized in this study are mainly the managers and staff of the Indian CST and the changing cast of concentrated and distributed agents (additional commissioners, deputy commissioners, executive engineers, assistant revenue officers, accountants). The benefit of a single case study like this one is that it immediately draws attention away from policy elites to external agents and their interactions with senior and middle management and frontline workers. While all three external organizations that supplied the BBMP with multi-purpose FMIS system services remained constant, the composition of senior managers, engineers, and revenue officers within the bureaucracy changed substantially over time.

The BSC framework starts with the common observation that government bureaucracies are often caught in capability traps of varying degrees of severity. A capability trap refers to weak organizational performance of delegated tasks, where doing the same thing is not only not improving the situation but usually making things worse over time. Capability traps are visible where there is very little normative traction between de jure policy, program, or project design and de facto implementation. The burden of normative traction is, however, not entirely on the bureaucracy. Social institutions, such as cultural norms surrounding tax compliance, and field-level organizations within which state bureaucracies are embedded also matter. The BSC approach to local implementation aligns with the recent “governance turn” in the literature on municipal finance reform in developing countries that stresses strategic implementation (Smoke 2014), local diagnostic and evaluative work (Smoke 2015), and sensitivity to the wider field of governance actors within and beyond the intergovernmental system (Smoke 2008).

Some of the foundational concepts in the BSC approach, such as isomorphic mimicry, are rooted in the new institutionalist tradition in organizational sociology (DiMaggio and Powell 1983; Powell and DiMaggio 1991). New institutionalism stresses the analytical distinction between organizational form and function, allowing that both public and private sector organizational strategies might succumb to various
types of institutional pressures (normative, mimetic, and coercive) emanating from the social environment in which they are embedded that make them “look” successful without actually functioning successfully. Isomorphic mimicry, understood as adopting the outward forms of capability without actually performing, can lead to premature loadbearing on agents and organizations. Premature loadbearing is excessive stress placed on an organization by the practical challenges of actual performance on the ground. New roles and responsibilities overwhelm both the nominal capability of the organization on the surface, as defined by its legal responsibilities, and its latent robustness to stress.

In combination, isomorphic mimicry and premature loadbearing generate pernicious capability traps. In short, the state fails to do even the limited tasks which are required of it. While local capability in the context of decentralization has often been understood as the capacity to carry out prescribed functions (i.e. compliance) irrespective of politics or pecuniary motivations, the BSC approach does not put the consequences of low levels of normative traction (i.e. gap between de jure policy and de facto implementation) in a simple binary success/failure framework. Capability is conceptualized across a continuum from ideal capability to negative capability. In summary, policy and implementation, done in the wrong way at the wrong time, can be a net drain on state capability.

Figure 1.2 illustrates the relationship between the three levels in the BSC model and the continuum of agential and organizational strategies and system characteristics. Systems relate to the fields in which organizations and agents are embedded, which set agendas through processes that vary in the extent to which policy objectives and programmatic direction reflect factual conditions on the ground. Examples of organizations include line ministries, firms, non-government organizations, civil society organizations, and political parties. Finally, agents are divided between leaders and front-line workers. The BSC approach assumes coherence is sought between agent behavior, organizational strategies, and the systems in which the former two are embedded.

Figure 1.2: Ecosystem for Organizations
The horizon of organizational performance is understood as the extent to which the system is open to experimentation, novelty is evaluated according to functionality, organizational strategies are based on demonstrated success, and leaders structure task environments based on value creation and performance (see figure 1.2). Organizations are neither completely under the control of leaders, nor completely subject to the discretion of frontline agents (Andrews, Pritchett, and Woolcock 2016, 33). Both front-line workers and leaders in organizations choose from an array of behavioral strategies existing on a continuum.

1.6 Methodology

This dissertation is grounded in theories of state capability and focuses on issues of technology adoption, coordination, and accountability in urban governance. I employ a single, in-depth embedded case study approach method that draws on shadowing, document analysis, direct observation, and key informant interviews. The unit of analysis of my study is the municipal corporation of Bangalore (the BBMP) and the external technology vendor to the ULB, the Indian Centre for Social Transformation (Indian CST). As depicted in figure 1.3, the objective of the dissertation is to understand and document changes in local coordination and accountability (dependent variables) given the design and deployment of financial management information systems for bureaucratic functions linked to public financial management (PFM).
External technology organizations influence the planning, design, and execution of financial management information systems in ULBs in India. Digital FMIS systems are required to map onto bureaucratic tasks while also conforming to rules and regulations established in prevailing legal frameworks. The objective of the study was not to evaluate a particular reform program or project led by a particular technology organization, but rather to understand how financial management information systems support or hinder coordination and accountability in urban governance. In order to more comprehensively understand and explain the factors that affect these relationships, I focused on three intervening variables: rules/regulations, decision-making arrangements, and actor/network relationships. I was interested in comparing how these "contextual factors" mediate the process of digitizing the local PFM system on the expenditure and revenue sides of the budget. These three mediating factors are interactive, since rules and regulations are affected by actor and network relationships and implemented through decision-making processes that are dynamic at the task level of the bureaucracy. The third intervening variable – actor/network relationships – is critically important to the study because the study aimed to assess the extent to which financial MIS can support local implementation capability and recent
reviews of local performance under decentralization have concluded that building organizational capability is a highly situated, local (i.e. “on site”) phenomena (Green 2005; Smoke 2015).10

1.6.1 Fieldwork

The data and findings presented in this dissertation are the result of eleven months of fieldwork in Bangalore. Field research was carried out over two periods in Bangalore, from October 2014 to July 2015 and from September to December 2015. The original research design intended to conduct a comparative study of the determinants of implementation and use patterns at the ward level. Just short of the midway point in my fieldwork a series of political events in Bangalore interrupted the research access I had cultivated. These events included the dissolution of the BBMP council, the failure to pass legislation in state government supporting the trifurcation of the BBMP into three smaller corporations, and subsequent local elections necessitated by the legislative failure. During this four-month period, new senior officers were appointed, some middle managers were reassigned, and the local elections cast a political shade over even the most basic interview questions. As field researchers are required to do, I pivoted and did my best to study the process as it unfolded.

1.6.2 Single Case Study Design

Despite the developments that forced me to make adjustments to the original research design, I could still examine contrasting outcomes within and across functional areas of the local public financial management system holding constant the city and the external contractors. From the earliest stages of the GPMS and FMS projects, success was accompanied by disagreement, conflict, and resistance surrounding the adoption of a low-cost open source system in the BBMP. The technology never fully stabilized across the local PFM bureaucracy, helping to reveal social and political dynamics that get lost when systems achieve a taken-for-granted status. During fieldwork the financial management systems in the BBMP rose

10 This statement is not intended to deny the importance of institutional factors and incentives that are established far beyond the reach of local governments, such as the civil service pay rates, hiring restrictions, or conditions for the use of intergovernmental transfers (Green 2005). The point is that the day-to-day aspects of implementing FMIS projects, like all computerization projects in the public sector, are local and as such are heavily dependent on local actors and networks.
to full controversies played out across both executive and judicial institutions. In addition, senior managers in positions of authority at the BBMP when the two systems were introduced had retired or been transferred to different positions, providing useful intertemporal variation in independent variables like “leadership” or “political will” considered of critical importance in the extant literature. Consequently, I could compare contrasting outcomes across subsystems on the revenue and expenditure side of the local PFM system and across periods of strong and weak managerial control with respect to the systems under investigation.

A single, embedded case study approach was selected as the most suitable methodology for the project (Yin 2009). An embedded case study design would facilitate within-case comparisons. Single case studies have been shown to be valid and useful research designs to test theory, at least in the “soft sense” of testing propositions or hypotheses (Flyvbjerg 2006). The selection of Bangalore follows a theoretical sampling frame, with the intention of extending emergent theory and filling theoretical categories (Eisenhardt 1989). As denoted in the previous section, there were a set of interrelated propositions regarding information and technology derived from conventional frameworks I wished to examine in the case of Bengaluru. Because of BBMP’s history with information technology in the fiscal domain, extensive growth in parallel digital PFM information systems, and deep problems with financial control, Bangalore can be considered an “extreme case” (Yin 2009).

1.6.3 Research Questions

The research questions that guided this study were informed by the growing consensus that “there is no grand framework to systematically guide improved reform” within local government finance in developing countries (Smoke 2015, 256). Thus, the study set out to empirically examine the technical, social and political attributes of FMIS as a means for increasing the accessibility of financial information and strengthening local government financial management. The study was guided by the following primary and secondary research questions:

RQ1: How, and to what extent, do financial management information systems affect local implementation capability?
The primary research question was complimented by the following secondary questions:

RQ2: How do relevant actors mobilize and advocate for more public financial management information?

RQ3: What are the effects of their activities on accountability relations and local governance structures?

These research questions are grounded in the multiple aims of the study, which included contributing to a better understanding of how local actors organize implementation of FMIS projects on the basis of imperfect information and incomplete control and how this process motivates them in practical struggles of administrative change. These research questions originate in the limitations of dominant normative frameworks applied to the study of municipal finance in developing countries (Smoke 2015). These frameworks tend to identify categories of severe technical, organizational, and institutional “constraints” or “limitations” at the local level, while still positing a “rational,” “linear,” and/or “sequenced” pathway for governance reform in the local fiscal domain. Moreover, they tend to ignore information technology factors within the institutional context such as the co-existence of multiple parallel information and communication technology (ICT) systems.

1.6.4 Data Collection

Given the paucity of micro-level research on the governance of municipal finance reform in India, reliable information on the internal fiscal operations of urban local bodies (ULBs) in India is obviously hard to collect.11 With extremely sensitive issues at stake, data collection cannot follow the standard methods of random sampling and survey questionnaires common to social science research. Therefore, a combination of formal and informal data collection methods was required, guided by an

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11 While researchers examining local public financial management processes face well-known problems of key informant access and trust, many tax and revenue officers confront tangible threats to their personal safety. For instance, during fieldwork an additional commissioner for enforcement in the Karnataka Commercial Tax Department, who had a record of bringing tax evasion cases against real estate and sand mafias in Karnataka and winning, was found dead in his apartment. Investigators in the Karnataka government very quickly ruled the case a suicide, but public outcry forced the chief minister to refer the case to the Central Bureau of Investigation (CBI). The CBI has yet to file a final report on the case. In short, the personal and collective stakes can be extremely high.
anthropological sensibility. The analysis and findings are based on a variety of sources of information. I rely on official reports and data on local revenues and public expenditure; semi-structured interviews with government officials in the BBMP, local politicians, current and past revenue officers and engineers, staff in the Ministry of Housing and Urban Affairs in Delhi, Karnataka government officials; archival information and news reports. The remainder of this section describes the research methodology.

I relied on a range of techniques for obtaining data, including field observation, shadowing, semi-structured interviews, and archival research. The opportunity to shadow the work of the Indian Centre for Social Transformation over the course of 2015 links the study methodology to the tradition of organizational anthropology. The study draws on this tradition to conduct an ergonography, an ethnographic account of work organization (Czarniawska-Joerges 1995) or “how things work” in practice (Watson 2011). Ethnographic research approaches in public sector management are devoted to deepening our understanding of the wide variety of social and political linkages between actors, technological systems, and social institutions that span organizational boundaries and scales (Huby, Harries, and Grant 2011).

Over the year-long period I was located at the Indian CST’s office in Bangalore, the extent of my participation fluctuated. Data collection began with immediate access to the GPMS and FMS systems and the transactions stored in their databases. In addition to the information from the GPMS-FMS database, primarily the spatial and temporal flow of transaction information, the Indian CST shared with me 2,180 documents that accumulated over the course of their engagement with the BBMP. These documents included official and unofficial reports (internal and external), minutes from meetings, government orders, internal and external communication. This very large cache of archival material included

12 The study was granted exempt status by the Committee on the Use of Humans as Experimental Subjects (COUHES) at MIT.
13 Pragmatist realist principles within the anthropological approach, particularly the potential for close and intensive field observation to add relevance to the practice of management reform in complex local governance systems, provided a useful model for the study (Watson 2011). The study, however, is not an ethnography in the classic sense. While I was offered substantial research access to the Indian Centre for Social Transformation (Indian CST) I was not able to secure such immersion in the work of other organizations involved in the governance of public financial management.
information related to social factors that are often treated as important explanatory variables but typically abstracted into concepts like “participation” and “capacity development.” I constructed a detailed timeline of operations and provided an enormous amount of contextual information. Key documents, such as official ward and zonal level status reports related to project management and revenue administration, supported recall during interviews. Archival material dates back to the earliest, most tentative activities between the Indian CST and the city government.

Shadowing has been used in influential research projects in organization studies and has the benefit of allowing the researcher to see and document actual practices, while concurrently revealing shifts in perspectives as contextual dynamics change (Czarniawska 2008; Czarniawska-Joerges 2007; Watson 2011). I began shadowing by attending staff meetings at the Indian CST, accompanying software technicians and managers when they conducted training sessions and other forms of interaction with bureaucrats and officials, and observing work conducted in isolation from others. Over the course of my fieldwork, I mainly shadowed managers from the Indian CST in their day-to-day course of activities, which varied considerably on a weekly basis. A leisurely morning, suddenly punctuated by a call from an executive engineer, would give way to a rush to assemble updated figures and the most recent status reports into binders and to quickly argue the merits of different options for tailoring the Indian CST’s strategy to the inferred interests of the stakeholder we were to meet. The spontaneity surrounding organizing across the supply and demand divisions of the local fiscal domain provided considerable insight into the challenges of providing technical support to urban local bodies comprised of officials and bureaucrats that are perpetually on the move.

I conducted open-ended interviews with the leadership of the Indian CST about once a week for the entire duration of my time in Bangalore. Some weeks these interviews were more frequent, such as during periods of intense negotiation and coordination. These interviews ranged from fifteen minutes on very busy days to over two hours on slower days. While these regular interviews were framed initially around gaining access to the Indian CST and to various actors in the BBMP, they evolved over time to focus on how the Indian CST was adapting their organizational strategy to changing conditions.
I also collected data through 50 semi-structured interviews following a pre-defined interview protocol. These interviews occurred at various city government offices and departments such as accounting, revenue, and engineering. I followed a snowball sampling method similar to that adopted by Fainstein (2001), in which I gained access to key informants and other interviewees progressively over time as I became more immersed in the research setting. Such non-probabilistic sampling techniques are appropriate when more standard sampling approaches are impossible or prohibitively expensive (Handcock and Gile 2011). I purposively attempted over time to balance interviews among a wider array of actors to broaden the variety of perspectives on and experience with the research subject.

Each interview began with a description of the project and an invitation to participate, with interviewees expressing their consent to participate verbally. When possible the interviews were recorded and transcribed, although I communicated with each interviewee that recording was optional and they could refuse to participate at any time. Higher level officials seemed more inclined to allow me to record their interview. I took either hand-written or typed notes during all the semi-structured interviews. In addition to key informants who were central actors during the design, implementation, and adoption phases of the GPMS-FMS system, I interviewed end users of the system. These interviewees included engineers, revenue officers, political party activists, representatives of civil society organizations, computer technicians, and public finance experts.

The objectives of the interviews were to better understand how various actors utilized the GPMS-FMS technology and the information generated by it, how financial information was interpreted by and for bureaucrats and officials in Bangalore, and the problems associated with changes to existing information management practices. Combined with the archival information, collecting actor perspectives on these activities provided useful context for understanding how changes were made and the consequences of those changes for coordination and accountability. Through the interviews I also inquired about particular features of the social context that led various actors to use the GPMS-FMS

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14 See the appendix for the interview protocol and list of interviewees.
system in certain ways in addition to factors that discouraged them from using the technology in other ways.

In addition to interviews, I was granted direct observation access to a variety of different meetings, deliberations, and negotiations over the course of my fieldwork. Direct observations of various types of meetings provide insight the research phenomena under investigation through the diverse perspectives of highly knowledgeable participants and informants (Eisenhardt and Graebner 2007), including the use of use of discursive tactics steer the direction of change. I observed 11 meetings and group deliberations, including three review meetings by city officials (administrator/municipal commissioner) and a series of contentious negotiations between the IT providers to the city government and the Special Commissioner (Finance and IT). The meetings were not recorded with an audio device, but detailed notes were taken during the sessions, including direct quotes, and were augmented by field notes and discussions following the meetings.

Table 1.4: Direct Observation Opportunities during Fieldwork

<table>
<thead>
<tr>
<th>Meeting Type</th>
<th>Purpose</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review Meeting</td>
<td>To review the progress of implementation of the GPMS system in the BBMP</td>
<td>4</td>
</tr>
<tr>
<td>Integration</td>
<td>To demonstrate and negotiate the integration of core financial</td>
<td>2</td>
</tr>
<tr>
<td>Negotiations</td>
<td>management information systems of the BBMP</td>
<td></td>
</tr>
<tr>
<td>Strategy Meetings</td>
<td>To discuss implementation of the GPMS in the BBMP</td>
<td>3</td>
</tr>
<tr>
<td>Training Meetings</td>
<td>To review the GPMS and FMS system functions and educate BBMP staff</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>on procedures and practices</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>11</td>
</tr>
</tbody>
</table>

1.6.5 Analysis and Interpretation

The use of interpretivist framework is "to understand phenomena through accessing the meanings participants assign to them" (Orlikowski and Baroudi 1991, 5). Rather than the goal of generalization from the particular setting to a larger population, "the intent is to understand the deeper structure of a phenomenon" such that analytic generalization can be developed to inform similar work in other settings. The goal was to analyze information technology in the context of municipal finance in India in order to understand the technologies and tactics through which local technology-driven public financial
management reform ideas and actions are conceived, justified, and enacted in governance settings with high levels of institutional ambiguity.

To identify the ways in which actors appropriated the GPMS-FMS over time, I followed three stages of coding practice outlined by Strauss and Corbin (1998). In the first stage – open coding – I categorized data collected through observations, shadowing logs, interviews, and archives into groupings of similar concepts. After all the data had been analyzed in this fashion, concepts were organized by recurring theme. In the second stage – axial coding – these themes were linked by constructing subcategories that regrouped the data into clusters of similar activities. Finally, in the third stage – selective coding – I integrated all analyses for each category into a set of core findings.

The data collection strategy made rigorous triangulation a key aspect of the case analysis and interpretation (Yin 2009). Drawing from different data sources and critically reflecting on my position in relation to the case interactions helped to develop a deeper understand the multiple perspectives on financial management information systems and their effects on coordination, transparency, and accountability in local financial management reform. The substantial archival information proved useful to corroborate data collected in interviews and during observations, as I could refer to previous reports, studies, orders, notifications, and other material that was created and shared to account for the development of the financial management information systems in the BBMP. To the extent possible, the aim of triangulating data sources was to increase construct validity and strengthen the case presentation and findings of the study.

1.6.6 Limitations

There are limitations to the study that merit acknowledgement and require a brief discussion. First, the study is an in-depth examination of a single case. Though I situate the case analysis within national and state-level trends in policy reform and technical assistance related to local public financial management, there are bound to be variations in the extent to which my findings apply to other municipalities within and outside Karnataka state and to other country contexts. Quantitative fiscal indicators of urban local bodies in India are in many ways misleading. Though the rate of change in
annual revenue yields may confer on them the characteristic of commonality, in fact the third tier of
government is a world of differences. As the study will reveal, Bangalore is somewhat unique in that it is
simultaneously highly dependent on intergovernmental transfers (a representative characteristic of ULBs)
while also completely autonomous from many powerful centers of institutional authority in state
government. While these macro-institutional factors certainly played a role in how the FMIS under
examination evolved over time and are accounted for in the study, they were not the core variables of
interest for the study.

The study privileges the perspective of the Indian Centre for Social Transformation (Indian CST),
which is both a strength and weakness and perhaps limits the generalizability of the study’s conclusions.
The strength it confers on the study is based on the value of direct observations of how actors’
interpretations and ideas interact with path dependencies to affect the implementation of strategies and
practices in response to major social and political disruptions to the use of basic administrative systems
that support municipal finance performance. Such a perspective is lost with the reliance (often implicitly)
on certain assumptions that allow public finance scholars to assert interpretations of “political will” or
“capacity” on the basis of quantitative analysis of expenditure and revenue figures. I have tried to balance
this perspective with those of other actors and organizations involved in the processes under examination
through triangulating the data and interviews from other relevant stakeholders and critical interpretation.
Nevertheless, such decisions open the study up to accusations of bias stemming from research design and
my positionality as a foreign researcher (Herod 1999).

Research on municipal finance reform in India requires extensive engagement in order to build
trust with informants, as certain components of the subject matter can quickly become intensely
politcized. Focal actors in the study at times expressed suspicion in response to my requests for
municipal finance information. Some of these agents were new in their position and rightly worry (for
quite obvious reasons) they may be associated with previous performance. My information on local
expenditures and revenues, therefore, is a combination of officially reported statistics, my analysis of the
GPMS-FMS data, and reports supplied to me by local officials and other interviewees. I have done my
best to confirm the figures. Nevertheless, “discrepancies” are more the rule than the exception and I note where there is controversy surrounding the figures. While these issues complicated the research design and execution, they also served as inspiration to understand the situation better.

Consequently, scholars looking to do in-depth micro-level fieldwork on local public financial management in India must build an institutional affiliation at the local level. I was housed at the Indian CST for the duration of my fieldwork. This affiliation provided me the unique opportunity to observe in close proximity, and over an extended period of time, the work of an information technology provider to city government. While I conducted interviews independently of my interlocutors at the Indian CST, over time key informants and other interview subjects came to learn of my affiliation. This is an unavoidable consequence of the immersion process. While it is possible knowledge of this affiliation could encourage certain interviewees in my sample to distort their responses, I made diligent efforts during each interview to ensure my independence as a researcher. I began each interview by discussing my research affiliation in the United States (MIT) and India (School of Planning and Architecture, New Delhi) and would first ask about positive aspects of the interviewees experience with the subject under investigation. Finally, given that one of the major themes of the study was performance and my extended presence at the Indian CST coincided with a particularly dynamic period for the organization, I should note the possibility that my presence contributed to changes in morale and effort, and therefore shading the responses of interviewees at the organization and affecting results that otherwise would not have obtained.

1.7 Significance of the Research

Recent literature on the governance factors that influence local financial performance aims to advance the literature on municipal finance reform in developing countries beyond some of the more reductionist tendencies of normative decentralization theory (Smoke 2015, 2014). The research findings contribute to this literature. In doing so, the study also links the effects of partial devolution and the governance of financial management information systems (FMIS) to the institutions and practices of decentered governance in cities of the global South (Roy 2009). Adding to the emerging consensus on the
absence of a grand framework to “systematically guide improved reform” (Smoke 2015, 256), this dissertation reveals how policy reforms and projects in public financial management that have traditionally been framed narrowly as technical interventions are deeply social and political phenomena.

The dissertation does not develop a new theory of the fiscal bureaucracy. Instead, following Hirschman, I seek to uncover how certain “attributes of backwardness are not necessarily obstacles, but can be lived with and sometimes can be turned into positive assets” (Hirschman 1970, 339). I concede that some of the empirical observations will be familiar to policy and program practitioners working on and in local government in India. The study aims to provide motivation for seeking the causes of successful and poor results at the margins of endogenous (i.e. at the bottom of the intergovernmental system) processes of change and implementation as local governments experiment with, and strive to institutionalize, new systems of financial information management.

The core findings of the dissertation have implications at two levels. First, while scholars of decentralization and local revenue administration increasingly seek to overcome the “technical” bias in the conventional schools of public sector financial management reform, the dissertation shows how deeply political and contested technical processes of public financial management (PFM) and urban governance are on the ground. In the case of Bangalore, the situated construction of local PFM practices and associated financial information, and the cycles of local social learning during implementation, fed bureaucratic and political contestation. The types of informational and organizational reforms to support municipal finance that were under investigation are emblematic of the core digitalization problem in the smart cities literature. Advanced technologies are present yet the quest for democratization of information and transformation in urban governance takes computerization of financial management information systems (FMIS) on an uneven and, at times, tortured track.

The broader conceptual and theoretical contribution adds to the emerging critiques of how the process of devolution and the development of accountability structures and institutional capacity play out locally in cities in India. This poses implications for how change is understood and analyzed. The case study reveals the many detours on the road to devolution and the democratization of information. While
both first and second generation fiscal federalism theory view rules and norms as influential, if
individuals merely follow rules and norms they cannot be the cause of change. Even as “ideal” processes
and procedures can be inscribed in laws (e.g. right to information) and fiscal rules (e.g. medium-term
expenditure frameworks), public financial management reform is fundamentally political and ideological.
Unfolding action within even narrow areas of urban governance such as assigning unique identification
numbers to public investment projects leads to substantive dilemmas that require contingent responses
from individual agents and collective actors.

As a preview to the narrative presented in chapter six, consider automated billing and receipt
systems. These are common ingredients in the “smart cities” package offered by commercial technology
firms to cities around the world. They are also increasingly a target of e-governance and national urban
policy in India. While these technologies might indeed generate substantial efficiency gains in cities like
Amsterdam or New York by reducing billing errors between a monopoly provider (i.e. local government)
and consumers (i.e. citizens), they contributed to political contestation and the first public interest
litigation (PIL) case in India brought against, collectively, the national government, state government,
supreme audit institution (SAI), and municipal corporation on the grounds of improving public financial
management in a city.

Regarding municipal finance reform practice from the standpoint of information technology, one
implication of this study is that reformers must reconsider the appropriateness of their efforts to inculcate
change management in the fiscal domain of local government based on formal institutional channels.
When exceptions have been carved out of formal budget institutions and policies for monitoring and
evaluating local financial management as they were in Bangalore, simply engaging in formal institutional
channels may not be enough. A second implication is that more respect must be accorded to the personal
and organizational frameworks from which actors intervening in the municipal finance domain craft their
knowledge as the basis of intervention strategies. More consideration must be given to the unique ways in
which technology intermediaries participate in attempts to modify fiscal operations at the local level.
One of the more intriguing implications of the study relates to the prospects of social accountability and the form and extent of collective action necessary to resolve the “version control” problem inherent in mixed paper and electronic system. Downs (1957) pointed out that ignorance is rational when the cost of becoming informed is high, which suggests a certain paradox associated with the role of operational public financial management information. The ambiguity of the PFM information circulating in Bangalore did not discourage collective organizing for accountability. On the contrary, for the Indian CST and many others operational information incentivized regular face-to-face interaction and, over time, drew actors together in punctuated moments where controversy and other dilemmas rose to the surface of local politics. Though the Indian CST and other actors were aware that financial information available to them was not necessarily “administrative fact,” they still managed to make it useful in the context of their interests given the incentives they faced. While the prevalence of high or low-quality information does not directly trigger the functioning of transparency and accountability relations in local governance, the way different actors assemble information for their own purposes suggests actors can find creative ways to use what is available to them to circulate partial perspectives on fiscal performance even in difficult circumstances.

1.8 Chapter Previews

Chapter 2 is a review of the literature on information technology and public financial management reform. While most of the literature on financial management information systems in developing countries has focused on treasury systems in national and intermediate-level governments, I discuss the political economy dynamics surrounding the emergence of FMIS as an international best practice reform. The chapter also examines existing research related to three gaps in the limited literature on financial management information systems (FMIS), namely their relationship to coordination, accountability, and the role of the state and private actors in core areas of technical administration. I conclude that a new broader approach to information technology in the fiscal domain of local governments is needed that focuses less on normative policy justifications but rather hones in on how
local actors put information technology to use in complex environments characterized by high levels of
incomplete and asymmetric information and the various roles of new information technology actors
external to the intergovernmental system.

Chapter 3 is an historical examination of the drivers of subcontracting arrangements for technical
administration in the fiscal domain of urban local bodies in India. I argue that centripetal dynamics
drawing a multiplicity of private sector and civic-minded extra-government organizations into core
technical functions of governance can be traced to the policy design of national reforms that increasingly
incentivize the use of ICTs but provide for limited intergovernmental monitoring and oversight. As the
largest federal country in the world, ULBs in India are extremely heterogeneous and no single analysis
can capture the immense variation across and within states. However, the explanation offered is more
generally valid in the sense that it reveals the cause of structural constraints on implementation capability
at the local level. While some urban governance scholars have traced this phenomenon to class interests
(Benjamin 2008; Kamath and Vijayabaskar 2009), I break new ground in linking it to the clash of
conflicting design principles expressed in the intergovernmental system.

Chapter 4 investigates the proposition that better financial information leads to better
coordination. To do so, I analyze changes in the task environment of public financial management in
Bangalore to understand changes in management relations. I trace these changes to similar patterns in the
expenditure and revenue subsystems newly covered by financial management information systems, such
as sizable reductions in the cost of verifying administrative fact. In doing so, I show that coordination
accompanies competition among the different institutional configurations for outsourcing information
technology services. The combination of competition amidst coordination decentered the governance of
public financial management in the city corporation.

Chapter 5 aims to understand the consequences of decentered governance for local actors,
examining the significance of polycentrism in the PFM system for the construction of legitimacy and as
mediator of accounting and social auditing practices within and beyond local government. To do so, I
examine two concomitant processes that were sparked by the abrupt dissolution of the BBMP council
following a show-cause order by the Chief Minister of Karnataka in March of 2015. I balance the emphasis of the analysis between the institutional environment and the communicative structures (Black 2008) through which legitimacy within government is constructed and social accountability is pursued. The contribution of this chapter is a deeper understanding of the constraints and opportunities to information democratization posed by polycentric regulatory arrangements.

Chapter 6 examines the extent to which FMIS deployment contributed to public accountability, in particular changes in compact and/or changes in politics. The chapter compares two positive outcomes that would, on the surface, seem to be consistent with conventional technical notions of performance and accountability. The first outcome was the remittance of “floating funds” that were not being transferred to the central account of the BBMP. The second outcome was the filing of a public interest litigation against the Government of India, the State of Karnataka, and the BBMP for gross negligence in financial management. Upon deeper examination, the two outcomes present a paradox: are internal audits inconsistent with revenue mobilization? The public interest litigation provides empirical evidence for growing social ties between local financial management and urban governance reform. The discussion that follows the presentation addresses the third proposition under investigation in the study on whether or not information technology improves accountability.

Chapter 7 concludes the dissertation with a summary of the results of the study and implications for future research.
Chapter 2: Government Information Technology Projects and Public Financial Management Reform: A Review of the Literature

2.1 Introduction

Given the array of information problems in local governments reported in case studies and reviews of municipal finance reform in developing countries (R. W. Bahl and Linn 1992; Devas 2003; Smoke 2008, 1993), the prospects for reform driven by improved information technology continue to push expectations in many development policy circles. Does technology make financial management reform easier or harder for municipal governments? Most studies on computerization and tax administration conclude that IT projects are risky, complex initiatives that frequently exceed the implementation capability of tax bureaus in both developed and developing countries. In one of the earlier reviews of technology and tax administration in developing countries, Glenn Jenkins concluded that “if we want to avoid the cycle of unfulfilled expectations, we need to have a clear strategy for administrative reform, which is much broader and more sophisticated than one which simply implements information technology” (G. Jenkins 1996, 13).

Most studies that have set out to understand what might constitute a broader and more sophisticated strategy than one which “simply implements information technology” focus almost exclusively on central and/or intermediate-level governments (i.e. state/province) (see Bird and Zolt 2008 for a review; Dener, Watkins, and Dorotinsky 2011; Dhillon and Bouwer 2005). Local governments are mostly overlooked. A survey of the existing literature reveals a series of concerns. First, conceptual and analytical approaches have tended to be framed in overly standardized and fragmented ways, focusing on the functional areas of tax administration that are amenable to computerization and various technical considerations associated with reform. There is a clear tendency to evaluate cases in a binary

15 There is another angle to this question that is beyond the scope of this study. By altering the economy, technological change alters the tax base and therefore has implications for the overall design of national and subnational tax systems. For instance, some studies have analyzed how growth in electronic commerce might shift levels of dependence between consumption and income taxes (Ainsworth 2013). This issue is discussed thoroughly in the context of transnational, national government, and regional government tax systems, but much less so for local tax system design (Graetz 2000). Because this is not the focus of the current study, this literature is not reviewed here.
success/failure framework, even though public sector IT projects are more appropriately thought of as a “winding journey” rather than a “specific destination” (Heeks and Stanforth 2007). Consequently, social and political attributes of IT-projects, or how technical design decisions interact with changes to social and political conditions in the context of implementation, are less well understood. Second, broad structural variables relating to state performance, such as organizational change, administrative capacity, and political will, are often treated in a perfunctory manner. Third, because of the standardized and fragmented approach in the literature, studies sometimes suffer from omitted variable bias. Fundamental changes in hardware and software design, and the diversity of institutional arrangements these factors open up for the production of public financial management, often remain unexplored.

These characteristics of extant studies point to major gaps in the literature on technology and municipal finance reform. First, there has been little discussion of the important political economy factors driving the rapid growth of IT-projects for public financial management in municipal governments. Second, the highly technical framing of relevant issues overly simplifies the diversity of perspectives and interests among and between a wide range of actors on the meaning and use of information technology. Third, the conceptual boundaries between the intended purposes and objectives of IT-projects and the functional areas of public financial management, while serving a clear analytical purpose, cannot be so clearly enforced in the practical setting of implementation. Information technology, as distinct from other forms of production technology, has the intrinsic characteristic of “drift” (Ciborra and Associates 2000).

Some even argue that growth in the number of programming languages and the overall complexity of

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16 Peterson (2006) advances a similar argument. While it is obvious that information technology is not an integral component of public finance knowledge, public financial management cannot avoid the gales of global digitalization in the information technology revolution. There is a clear need in the literature on municipal finance reform to take seriously the theoretical significance of the IT artifact (Orlikowski and Iacono 2001) in addition to the context in which is introduced or the underlying dependent variables IT adoption is intended to affect.

17 After two decades of remote computing via desktop personal computers (PCs), virtualization and cloud computing herald a return to mainframe computing. With the expansion of virtual data centers that pool storage, networking, and computing resources and dynamically allocate them on-demand, conventional limitations of public sector ICTs related from average and marginal costs of technology to institutional ownership of software and control over its design and deployment are lifted for a wider range of municipal governments in poor countries.

18 We do not have to go to the far side of postmodernism to recognize that information technology is increasingly embedded in an complex ecosystem of technical, social, and political relations that makes it for more editable, reprogrammable, and distributable (Kallinikos, Aaltonen, and Marton 2013) than in recent decades.
software systems (i.e. lines of code for a given system to be sustained over time) has far exceeded technical and organizational capabilities in both the public and private sector (Peled 2000). Modern software systems evolve over time, have a tendency to grow beyond their original objectives and design purposes. What are the implications for public financial management reform in municipal government?

The aim of this literature review is to broaden the debates on information technology and financial management in municipal government and provide a theoretical foundation for the study. An interdisciplinary perspective is needed since the technology question applied to local public financial management has not received consistent attention in the applied field of municipal finance reform in developing countries. Broadening the scope of the debates is also merited by the evident imbrication of global smart city movement (Glasmeier and Christopherson 2015), which thrives on a set of presuppositions related to the effectiveness of information technology applications for urban development, and national urban policy in India with the Prime Minister Narendra Modi’s Smart Cities Mission (Rao 2016). In order to broaden the debate, I organize this review of the social and political attributes of IT into three areas of concern variably shared by policymakers, bureaucrats, civil society organizations, private sector firms (technology, accounting), and citizens: efficiency and coordination in bureaucratic functions, fiscal transparency and accountability, and the role of the state and private sector in outsourcing arrangements for public financial management services.

2.2 Public Financial Management and Information Technology

Public financial management is an umbrella construct that cuts across the conventional divisions of fiscal administration, encompassing information, processes, and rules that support both fiscal policymaking and the instruments for its implementation (Budina et al. 2013). Public financial management practice is deeply embedded in the ascent of new public management in development policy

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19 It should be noted that among the many advisors to Prime Minister Narendra Modi’s Smart Cities Mission was Bloomberg Philanthropies, the charitable arm of Bloomberg L.P., which leveraged “its expertise in designing large scale competition for cities and its deep urban policy expertise and network to support the success of the Smart Cities Mission.”
circles, though the field remains a “work in progress.” The field is subject to ongoing debates about how to define and measure success and failure, confusion over government roles, focus, and the relevance of different budget formats for different development outcomes (Peterson 2014). Modern perspectives on PFM, however, can be traced to the debate in the 1970s on federal government budget reform in the United States (Schick 1966; Wildavsky 1978) and the rapid spread of program and performance budgeting in the guise of “international best practice” in new public management (Andrews 2006).

PFM also encompasses the implications of financial management procedures and practices in local governments for political, social, and economic development. The various functions of local PFM are distributed vertically within a national political system, from apex judicial institutions like courts down to frontline workers in local government. PFM functions are also distributed horizontally across government departments and civil society (Andrews et al. 2014). Public financial management practices are embedded in overlapping processes, systems, and institutions of state and society including the legal frameworks that empower government to collect and spend tax revenue, political and technical decisions related to budget design and execution, and the routine tax and fee transactions between the state, firms, and citizens.

The past three decades have seen public financial management in developing countries increasingly fashioned into a sector that deploys information and communication technologies (ICT) for a growing array of purposes. What started out with a fairly limited scope in the 1980s as a tool for rural development planning and urban land registration systems (Cohen 2001), frequently delivered to poor countries through official development assistance, has now transformed into a global industry. The variety of hardware and software systems to support public financial management in developing countries has grown rapidly. For instance, radio frequency identification (RFID) tolling systems are now used on

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20 Peterson (2014) identifies control, management, and planning with roles; inputs, outputs, and outcomes with focus; and line item, performance, and program with budget format.

21 Among prominent public finance advisors in development policy circles, the debate was refashioned into a “basics first” school and a “performance based” school (Schick 1998). The “basics” of PFM include a reliable annual budget, cash-based budgeting, itemized control of expenditures, while performance-oriented PFM entails medium-term fiscal frameworks, accrual accounting, and budgeting for outputs and outcomes (Caiden 2010).
roads throughout the developing world. Web-enabled property tax portals have proliferated in city
governments across Asia and Africa.

Two characteristics of local governments in developing countries help to problematize the
technical perspective on public financial management. First, the incentives that influence bureaucrats and
politicians in and around local government authorities are heavily influenced by the extent and quality of
decentralization policy implementation. As decentralization is related to but distinct from public financial
management, coordination between the actors and institutions that influence the adoption of changes to
local financial procedures and practices is important (Fedelino and Smoke 2013). Sound public financial
management practices are an essential ingredient to generating the long-term benefits of decentralization
reform. Yet, uneven and partial implementation of decentralization policy that constrains the fiscal
autonomy and accountability of local governments leaves them with few resources, and fewer good
reasons, to support or sanction frontline PFM officers to enforce national PFM reform principles and
objectives (Fedelino and Smoke 2013). As the lowest unit in the intergovernmental system, local
governments are frequently forced to make do with competing and conflicting incentives between public
financial management and devolution policy.

Second, for much of the recent period during which public financial management has emerged as
a distinct field, local governments in both developed and developing countries have operated under major
“soft budget” conditions. As such the budget process “masks the real distribution and spending...all the
actors, from civil society, government, and donors seem aware that many of their statements and actions
have little bearing on actual distribution of resources. Yet, all stakeholders ‘act’ strategically as if the
budget planning and formulation will actually have a bearing on the actual implementation and
distribution of resources” (Rakner et al. 2004). In other words, the budget is a myth and the budget
process is theater. In such a setting, the budget is not a collection of hard facts or what Schumpeter
referred to as the “skeleton of the state stripped of all misleading ideologies” (Schumpeter 1918, 100).

Conventional municipal finance theory derived from the normative decentralization theory
perspective assumes the presence of a social mechanism to discipline local government performance,
either through voice (i.e. elections) or mobility (i.e. exit) (Cheema and Rondinelli 2007; Tiebout 1956). The extent to which local governments or other service delivery organizations respond in practice to the expression of public interests, however, depends critically on the structure and exercise of local political power. In the context of public financial management, local elections are a blunt and therefore weak instrument of accountability. This is case, in part, because local taxation simply has not made it onto the public political agenda in the global South (Moore 2004b). Consequently, the literature on decentralization and municipal finance reform in developing countries has been focusing more on local institutions of financial management and accounting control (Baltaci and Yilmaz 2007, 2006; Yilmaz, Beris, and Serrano-Berthet 2010).

2.2.1 Financial Management Information Systems (FMIS) as the Rise of a Global Best Practice

Financial management information systems (FMIS) are perceived as a compelling public management tool to address fragmented financial management systems that inhibit information sharing and knowledge management capabilities in financial administration (Diamond and Khemani 2005; S. Peterson 2015). FMIS are intended to support diverse objectives for financial administration, control, reporting, and auditing. The broad scope and functionality of IFMIS make them complex boundary objects (Bowker and Star 1999) among the multiple actors involved in coupling local fiscal policy to evidence and the broader trajectory of public financial management reform. As technical interventions, FMIS are multi-year development projects that typically exceed the tenures of both elected officials and senior and mid-level managers.

The World Bank and International Monetary Fund began incorporating integrated financial management information systems (IFMIS) into the standard public financial management reform package for middle and low-income countries in the early 1990s (Andrews et al. 2014; Dener, Watkins, and Dorotinsky 2011). In an examination of national PFM reforms in Africa, Andrews (2010, 43) found that performance reports in 20 of 31 countries “refer explicitly to FMIS/IFMS or some form of computerization in budget execution especially (and another 10 refer to the need for this).” From 1984 to 2009, the World Bank financed 87 financial management information systems projects totaling $2.2
billion, of which $938 million was for information and communication technology (ICT) (Dener et al. 2011). The rapid growth in PFM inputs in development assistance to national governments culminated with FMIS becoming “gold standards” in operational lending and technical assistance among the donor community (Dener, Watkins, and Dorotinsky 2011; Hove and Wynne 2010).

The deployment of information and communication technologies (ICTs) can be seen within a broader evolution of the discourse on government finance in developing countries to create reciprocal benefits between democratic governance and market transactions and to improve the supply of financial and other accounting information to monitor and enforce economic, social, and political contracts (Chan 2003). These shifts are promoted, in part, by the World Bank and International Monetary Fund (IMF) as part of their lending and program support for public financial management reforms (Dener, Watkins, and Dorotinsky 2011; Diamond and Khemani 2005; A. Khan and Pessoa 2010; Lewis 2009).22 The ascent of business principles in the public sector as a result of the New Public Management (NPM) agenda and notions of technological determinism attached to e-government projects (Muid 1994; Reschenthaler and Thompson 1996) has also contributed to the trend. Major private sector financial and consulting firms have also accelerated growth in the market for ICTs in financial administration by linking them with structural adjustment and economic growth in developing countries. They promote ICTs to drive the standardization of public management reforms – such as medium-term expenditure frameworks and FMIS (Fyson 2009; Schiavo-Campo 2009).

Various themes related to the political economy of decentralization, such as the tradeoffs between central oversight and local autonomy, are noted in technical publications on IFMIS. For instance, Hashim (2014, 83) observes that local governments prefer “to be able to control payments without reference to a functionary at the center.” It is argued that central government FMIS can successfully alleviate some of the technical capacity constraints observed in local governments if “the system is provided as a service

22 In a review of the first generation of World Bank urban assistance projects, Cohen (2001) concludes that there are few instances where urban land registration systems can be shown to have increased property tax revenue.
rather than an attempt to control local government budget execution by the center” (Ibid.: 83).

Subnational considerations include whether an FMIS designed for a central government has relevance to local government’s fiscal management and the logistical issues with extending network functionality to hundreds or thousands of subnational government units distributed across a large national territory.

There are concerns among development practitioners that FMIS applications, as one product in the larger suite of information and communication technologies for development (ICT4D), are simply a solution in search of problem (Choudhuri 2012). The critique is that they are inappropriate for a developing country context and serve, in the final analysis, to reinforce conditions that sustain the budget institutions of the state as “theater” (Hove and Wynne 2010; Rakner et al. 2004). Despite the rapid expansion and penetration of cellular technology into poor areas in developing countries, the “digital divide” between rich and poor in developing countries persists (James 2004). This divide calls into question the extent of effective, broad-based demand among the poor for these particular technology applications in government.

As large, multinational software companies and accounting firms turned their attention to public financial management in the late 1990s, global diffusion patterns were driven by commercial off-the-shelf (COTS) integrated IFMIS systems. The business case for COTS was straightforward. Commercial applications were considered more sustainable and avoided technology lock-in to obsolete standards or protocols since commercial firms could be relied upon to update technology (Bird and Zolt 2008). With some support from new public management that stressed the potential for electronic government to support business process reengineering, a new reform discourse emerged that stressed the potential for FMIS to drive public financial management reform. The global diffusion of FMIS was further shaped by the conjunction of two phenomena. First, private financial and accounting consultancy firms gained influence in national public financial management in the wake of the Asian Financial Crisis. Second, public financial management (PFM) began a rapid and deep colonization of official development assistance (ODA).
In practice, as the ratio of successful IFMIS projects to partial or complete failures began to skew in the direction of the latter, ideas drawn from the “basics first” debate seeped into the growing but still limited literature on the computerization of public financial management (Peterson 2006). The hegemonic perspective on the value of large, integrated systems developed by the global technology firms gained a competing perspective that argued for incremental computerization starting with core budget control and payment/receipt processing functions. After these “basics” had been mastered first, then governments could move on to performance budgeting. This alternative position was informed by evidence from e-governance studies on the technical parameters of successful information and communication technology projects in developing countries. These empirical studies concluded that digital information systems software are powerful technical inscriptions that frequently do not conform to procedures and social relations embedded in local contexts and that adjustment of systems purposefully designed for private sector firms or those imported from the West was insufficient to close the design-reality gap (Heeks 2002).

The current debate over appropriate technology in the limited research is framed between commercial off-the-shelf integrated applications or the local development of customized, “bespoke” software applications (S. Peterson 2006; Prichard 2014). Conceptually, there is a strong case that because information technology is not their operational core, local government information technology capacity is likely to be low and therefore they should rely on COTS software (Bird and Zolt 2008). On the other hand, COTS have particular risks for local governments. They lock the public sector into proprietary software distributed in expensive per seat licenses. They require extensive customization and can be designed in ways that are inappropriately configured for rapidly urbanizing cities in developing countries. In contrast, locally developed software applications that are modular can support incremental changes in organizational structures and administrative procedures.

23 While early guidelines on public financial management reform did stress that governments should not go for an integrated financial management information system until basic double-entry, accrual accounting reforms had stabilized (World Bank 1998), these standards were not followed in practice.
Countries like India present a unique political economy context for some of these debates. The
country is no longer dependent on international donor assistance. It occupies a dominant position in
global information technology markets, led by regional software industries such as Bangalore and
Hyderabad while smaller but no less dynamic local markets sprout up across national landscape. The
information and communication technology sector, spanning health care, education, and online
government services among other public and private sector domains, is a major pillar of the country’s
national development strategy.

2.3 Information Technology and Coordination

Fostering effective horizontal and vertical coordination is a central concern of public finance and
development administration among municipal governments, though most of the research on coordination
mechanisms in the fiscal domain of developing countries has focused on central or intermediate-level
(state/province) governments. Research on local user committees as mechanisms for connecting and
coordinating citizens and local government service delivery has shown them to be effective in some
localities, while being used to bypass poor residents altogether in others (Manor 2004). The literature on
national fiscal reforms and public financial management has examined the effectiveness of various formal
coordination mechanisms. Much of the literature has focused on new organizational structures such as
semi-autonomous revenue authorities (SARAs) (Fjeldstad and Moore 2009) or interagency committees
(Budina et al. 2013). Bahl (1999, 15) envisioned a “fiscal analysis unit” in national governments that
would supervise and improve intergovernmental financial flows. A fiscal analysis unit provides an
essential monitoring feature by assessing the effectiveness of grant programs in meeting objectives,
including simulating the potential impacts of alternative transfer formulae. Perhaps the most common
coordination mechanism over the past 10 or 15 years has been the adoption of medium-term expenditure
frameworks (MTEF) (Brumby and Hemming 2013; Le Houerou and Taliercio 2002). MTEF have
encouraged inter-ministerial coordination, particularly as line ministries and agencies become more
involved in expenditure projections (Schiavo-Campo 2009).
Coordination is a central concept in theories of public administration and management. Early research on public administration and management reform in developing countries focused primarily on unpacking the conceptual dimensions of coordination and operationalizing it in the public sector in both developed and developing countries. Caiden and Wildavksy (1974) found four distinct connotations to the concept of coordination in their examination of planning and budgeting in developing countries, which are at times contradictory. They argue coordination means achieving efficiency, reliability, coercion and consent (Caiden and Wildavksy 1974, 278). Coordination can be understood as collective attempts to improve the consistency and coherence between and among political decisions and the implementation of policies, programs, and projects (Wollmann 2003). Coordination has both a procedural and substantive dimensions (Simon 1945). Procedural coordination refers to lines of authority and the domain of activities for managers and other bureaucrats. Substantive coordination refers to the content of the work.

As a basic starting proposition, obtaining coordination in a decentralized bureaucratic environment is more difficult than in a highly centralized structure (Peters 2014). When FMIS are provided by external software development organizations, the organizational context FMIS transforms beyond just a multi-unit setting into a multi-organizational environment. Information technology increases shared responsibility for pieces of work in public financial management. Therefore, FMIS projects require managers to balance the prospect of efficiency gains through centralization with responsiveness to the requirements of sub-units of public financial management. On the one hand, FMIS implies that the highest returns to administrative efficiency can be achieved through standardization based on common, integrated software that crosses department and unit boundaries. The limited research on FMIS in developing countries has suggested that integrated approaches require coordination, but this does not necessarily imply restricting use to a single IT system (Wescott and Schiavo-Campo 1999). On the other hand, they must meet the expectations of heterogeneous end users of the FMIS – politicians, engineers, revenue officers, accountants, and other front-line bureaucrats – which do not share the same incentives, knowledge, and exposure to information technology.
While municipal governments are constantly balancing tensions between bureaucratic discretion, organizational autonomy, and institutional control, such multi-organizational project development and delivery arrangements create structural barriers to the alignment of goals and activities between central and sub-unit actors. In classic public administration theory, decision-making and reporting relationships are asymmetrically divided between the external contractor, senior bureaucratic officers, and unit-level staff (Peled 2000). Yet, these divisions often inhibit communication and collaboration between the actors responsible for system design and development and those who will be expected to use the system. When coordination fails to occur or is otherwise blocked, a number of problems can occur that increase the costs of FMIS, reduce the benefits, or threaten the overall adoption of the system. For instance, a lack of coordination can result in unnecessary duplication of training activities at too small of scales that delay implementation. Inefficiency and ineffectiveness can set in from the implementation of technology incompatible with the local context. Limited returns on investment might occur because of failure to move highly decentralized spending or service delivery units onto the FMIS.

The failure to effectively coordinate can result in diseconomies of scale, technological and/or vendor lock-in, degrading of operational capacity, wasted resources, unnecessary complexity, reduction in accountability, and an increase in rent seeking opportunities (Prichard 2014). The development of coordination mechanisms is therefore needed in order to manage many of the risks associated with FMIS projects but also to make use of new information that is generated in the FMIS application. The former relates to the sustainability of the system, while the latter relates to the productive use of the technology to achieve broader goals of public financial management. While the two can be distinguished for analytical purposes, in practice they are interdependent.

2.3.1 Coordination among Concentrated and Deconcentrated Actors

Studies of public financial management (PFM) reform have focused on how the transaction intensive, highly distributed nature of public financial management systems increases the complexity and difficulty of reform implementation and creates a wide range of obstacles to coordination. Drawing from a survey of public sector accountants, Andrews argues this is the case because deconcentrated agents are
more likely than concentrated agents to support existing institutional arrangements, question reform alternatives, and be less engaged in reform design (2014, 3). Deconcentrated agents include those bureaucrats involved in budgeting, accounting, transaction execution, and extending to citizens (Andrews 2010). Andrews (2014, 2) describes these as the “day-to-day end users of the systems and the key transactors in such.” On the opposite end are those actors most heavily involved with elite policy services and decision making – elites and senior bureaucrats – who are far more embedded in prevailing institutional orders than distributed agents. Their position endows them with substantial resources for enacting reform, but also cautions against risking their resources by disrupting institutional structures that benefit them. In contrast, distributed agents located towards the frontlines are the least embedded. Their position makes them aware of potential alternatives but they lack the minimal level of resources necessary to address prevailing problems (Maguire 2007).

The central proposition in public financial management reform studies is that concentrated and distributed agents are embedded in different institutional fields and are unlikely to share similar incentives or interests related to reforms (Andrews 2011, 2010; de Renzio, Andrews, and Mills 2010; Glynn 2008). Consequently, asymmetries in the interests of central and distributed agents engender inter-institutional conflicts related to the legitimacy of changes and the process by which reforms are implemented. Andrews (2014, 7–8) outlines four conditions that are predictive of the degree of change to incumbent institutions. First, a disruption must cause agents to question incumbent institutions. The second condition is the degree to which concentrated and distributed agents judge differently the legitimacy of incumbent institutions. The third condition is the degree to which concentrated and distributed agents judge differently the legitimacy of alternatives. The fourth condition is the degree to which distributed agents are engaged in the design and implementation of reforms.

Studies of public financial management reform in developing countries increasingly focus on the latter condition. The bourgeoning literature on public financial management has yet to qualify how information technology, as distinct from other reform mechanisms such as rules or management, cuts across the concentrated-distributed divide. Drawing on new institutionalism (Greenwood, Hinings, and
Suddaby 2002; Whittle, Suhomlinova, and Mueller 2010) they stress the centrality of fostering broad engagement with distributed agents through problem-driven, bottom-up iterations of ideas and experiments to increase support for and the legitimacy of changes to bureaucratic routines (Andrews 2015; Andrews, Pritchett, and Woolcock 2013; Pritchett, Woolcock, and Andrews 2013). In principle, ongoing participation by distributed agents in decisions about organizational procedures and routines is assumed to align incentives and interests. In practice, front-line workers in large, distributed bureaucracies co-inhabit multiple institutional fields that fashion heterogeneous interests and perceptions towards the reform of administrative procedures and work routines (Lipsky 2010). Similarly, senior managers and other elite actors can simultaneously hold a multiplicity of interests, not simply responding mindlessly to macro-level external incentives encapsulated by conventional notions of the state, market, or society (Sanyal 1994).

Even in local contexts where all local actors with stakes in the direction of change are in agreement on goals, coordination problems can arise from more mundane change management issues like synchronization, design fit, assignment, realization, and problems associated with the discrete attributes of innovation (Dunleavy et al. 2006). All of these issues make predicting outcomes difficult and subject to the nature and extent of interactions between government, organizations, and citizens each confronting different incentives. This implies positive returns from coordination between concentrated actors working in close functional proximity. Turning from the emphasis on the coordination between concentrated and deconcentrated agents, a relevant question is who coordinates the coordinators? Can transparency sought through FMIS technologies and delivered in outsourcing arrangements inadvertently add impenetrable layers of bureaucratic organization to the local context and thus reduce accountability?

2.4 Information Technology and Accountability

Transparency is often perceived as a precondition for political accountability since holding civil servants and elected officials begins with information on their actions (Meijer 2009). With the broadening of the e-governance reform agenda in many countries, the prevailing discourse around public sector IT
projects treats them as a mechanism to simultaneously promote efficiency and transparency (Von Haldenwang 2004). Information technology, however, is not in principle a part of the foundational accountability equation in society (Heeks 1998). Information, not technology, is essential to accountability. When technology is forced into the accountability equation, the operative question becomes “who is accountable when computerized information systems in the public sector are involved in decisions and subsequent actions that are judged to be substandard?” (Heeks 1998). Nevertheless, as interest in public sector accountability has grown over the past decade, research on public sector ICTs and research on transparency and accountability have begun to converge on the role and prospects of information technology.

Comparative studies have identified a number of social and institutional determinants of fiscal transparency in local governments. Some studies have shown that macro-variables like the presence of democratic institutions, competitive elections, and country income explain variation in the level of fiscal transparency across countries (Esteller-Moré and Polo Otero 2012). At the local level, the size of the urban jurisdiction affects the extent to which financial reporting is accessible in US municipalities (Styles and Tennyson 2007). Esteller and Polo-Otero (2012) add that the size and growth of municipal debt increases the transparency of local government financial reports, likely because of an increase in reporting requirements to more diverse actors. Most of this literature has tended to adopt standardized financial reporting or open budgets (Harrison et al. 2012) among local governments in Western countries as the research subject, such as local governments in the United States (Justice, Melitski, and Smith 2006) and Spain (Rodriguez Bolivar, Caba Perez, and Lopez Hernandez 2007).

Transparency is difficult to define and measure directly. At a fundamental level, transparency implies accessibility to information. Research has added an array of qualitative conditions to the baseline definition. Some studies emphasize the “timeliness” of fiscal information and whether disclosure to the public is proactive or demand-driven. Fox classifies two types of transparency: clear and opaque (Fox 2007). The distinction is important because simple notions of transparency do not account for the potential responses from the targets of transparency demands. Opaque (fuzzy) transparency, therefore,
refers to information that does not reveal how institutions operate in practice. Clear transparency refers to both information access and the performance of institutions, particularly the relationship between the flow of public funds and the performance of elected and/or appointed officials.

Efforts to increase public sector transparency have led to new institutions of accountability. Such transparency and accountability initiatives (TAIs) (Gaventa and McGee 2013; Joshi and Houtzager 2012) often begin at the subnational level, where the salience of financial management is better understood and information more accessible. Paradigmatic cases of demands for transparency that led over time to political movements include the work of the Mazdoor Kisan Shakti Sangathan (MKSS), a worker’s rights movement in Rajasthan state, that led to the Right to Information Act in India (Goetz and Jenkins 2001). Demand-led initiatives by citizens often are fundamentally linked to government accounting, as gaining access to information on public sector financial flows is perceived as a basic precondition for combating corruption through stronger demands for accountability (Jenkins and Goetz 1999).

On the other hand, increases in the availability of information through transparency and accountability initiatives can have unintended consequences, particularly when information and communication technologies (ICTs) generate rapid and sustained increases in the production and circulation of financial information. Feldman and March (1981, 171) noticed long ago that “organizations systematically gather more information than they use, yet continue to ask for more.” Information overload can cause confusion, limiting the possibility action in response to information gathered locally by actors. Tsoukas (1997) refers to this phenomenon as the “tyranny of light.” The information society is full of temptations, based on the notion that more information and more knowledge will lead to improvements in social regulation and rational management. Instead, more information implies a rise in mediated interactions and mediated quasi-interactions within society as a result of greater dependence on transmission of information through technological mediums.

Greater transparency, paradoxically, can lead to demobilization of the “demos” through resignation, rather than enhancing accountability through the popular expression of “indignation” (Bauhr and Grimes 2014). Such a conceptual argument, put into practice, points to the roles and actions of
various actors involved in transparency and accountability initiatives. However, few empirical studies have looked at how networks of actors form around demands for fiscal transparency and the effects of their actions on local government accountability (Gaventa and McGee 2013). In a meta-analysis of the literature, Fox (2015) argues for a new analytical distinction between tactical and strategic approaches to enhancing the influence of citizen voice to public sector performance. Tactical approaches are information-led and exclusively located on the “demand side” of reform. Strategic approaches, in contrast, embed information access in changes to the enabling environment. Doing so enables initiatives to achieve scale and coordinate efforts at greater information accessibility with supply-oriented reforms that promote responsiveness of the public sector to the expression of citizen voice.

The numerous ways transparency can be qualified allude to tensions in the relationship between transparency and accountability. They also point to a gap in the literature connected to the treatment of micro-context (Joshi 2014) and how information accessibility is enacted in complex settings. For instance, Darch and Underwood (2010) argue that financial information is not just abstract and technical but is also politically salient. The timeliness of information might affect transparency when judged in a normative framework. However, in practice, public sector information that was irrelevant in the past might gain political salience, and therefore, an effect at some point in the future. Such a perspective complicates the assumption that straightforward incentives to collect, maintain, and manage financial information can simply be given top-down through law and codified in policy frameworks.

2.5 Information Technology and the Role of the State

Having reviewed the literature on coordination and accountability that can be associated with information technology in the public sector, the issue of the supply and availability of skilled human capital for such technology systems to be deployed and function properly must be considered. While information technology applications can be mapped onto discrete components of the budget and accounting process, how this is achieved in a transitional environment characterized by high levels of incomplete information between senior officers and frontline staff complicates standardized conceptual
divisions in project proposals. These attributes of FMIS projects complicate determining the role of the public and private sector in IT-based PFM reform projects. The stakes are potentially high, given how social and economic changes have driven up the private value of public information.

One of the enduring findings of research on municipal finance reform in developing countries is that local governments in low and middle-income countries have limited capacity to manage the reform process. Capacity is typically defined in technical terms, though the literature registers persistent deficits in capacity at the individual, organizational, and institutional scale. Bardhan (2002) attributes the problem of local knowledge and skill deficiencies for basic tasks like accounting and record keeping to agglomeration economies that concentrate skilled labor in central bureaucracies in capital cities. A common factor across emerging economies is the persistently large wage differential for skilled labor between private firms and the public sector, which often saps technical capacity from the public financial management sector by incentivizing bureaucrats trained on-the-job in government to transition into the private sector. Regarding organizational dynamics, other scholars note how expertise on decentralization is often fragmented across different departments and agencies and that this fragmentation can impede implementation (Smoke 2015, 257).

Few would deny the spillover potential from software applications developed by private sector technology firms, particularly for local governments that normally have little control over hiring and broader civil service under decentralization (Green 2005). Debates over the role of the public and private sector in tax administration are not new. With respect to information and communication technology (ICT), there is a continuum of institutional arrangements ranging from complete privatization (i.e. full assignment) of responsibilities to subcontracting specific tasks. However, as the previous two sections described, there are multiple perspectives and objectives associated with information technology for public financial management. When reform goals are broad and service conditions are highly variable (as they are in local government bureaucracies in developing countries), what government wants the external contracting organization to do is often difficult to narrowly define.
2.5.1 The Comparative Advantage of Private Technology Firms

The presence of external contractors, consultants, and vendors in core areas of local public financial management in India only partially reflects the traditional economic justification for contracting out urban service delivery. Though municipal governments in India run budget deficits financed by public bank loans and transfers from intermediate (state/provincial) governments, it is not the case that their fiscal position has rapidly deteriorated as was the case when privatization became popular in the industrial countries in the 1970s-80s (Ferris and Grady 1986). Rather, the prevailing discourse centers on perceptions of persistent deficits in execution capacity within urban local bodies (ULBs) and belief that private sector companies are more efficient and effective than existing management and operations in municipal governments.

Normative theory suggests that, where possible, local public financial management should be structured to achieve three objectives – minimize costs, exploit economies of scale, and overcome local capacity constraints. These objectives can be achieved by contracting out a portion or all of PFM responsibilities on the basis of technical specialization and comparative advantage. For instance, local governments can hire private mass appraisal firms to manage property assessment, drawing on the technical expertise, experience, and scale of a specialized firm (Mikesell 2007). Outsourcing allows local governments to concentrate scarce human and financial resources on other elements of public financial management.

Yet, contracting out requires monitoring and oversight mechanisms, often of a different nature than under public provision. There are two main concerns. First, private provision can convert service contracts into commodities with substantial value among networks of bureaucrats, local politicians, and contractors. If the purpose of privatization was to circumvent corruption between taxpayers and the state, the effect was to shift the locus of corruption to the state-contractor nexus (Iversen et al. 2006). Though formal, standardized, and transparent rules and operating procedures can be initiated, they are often difficult to enforce over long periods of time. Consequently, the new chain of delegation encompassing private firms falls back into patterns of behavior based on vested interests and pre-existing social relations.
(Fjeldstad 2006). As an alternative, a local government could enter into joint outsourcing agreements, in which multiple local governments enter into a contract with a single organization to achieve economies of scale and reduce their average monitoring and oversight costs.

Second, as described in the previous section, financial management information has dimensions of political salience and personal privacy. The research on privacy has documented an array of potential abuses of information access by government officials and non-governmental organizations. Some research on the institutional arrangements for urban service delivery has noted the use of extensive confidentiality clauses in commercial firms that curtail information democratization. Confidentiality clauses are a standard operating procedure in the private sector and likely a necessary condition for market formation over the long run. However, the combination of strict confidentiality clauses in contracts and clauses that call for the contracted firm to “cooperate with the government and the corporations in the implementation of the communications program designed to inform people about the demonstration project” complicates the achievement of full transparency (Sangameswaran, Madhav, and D’ Rozario 2008, 64).

2.5.2 Public Financial Management as State Building

The recent emphasis on the potential benefits of relying on local software developers for financial management information systems shifts the emphasis away from techno-determinism of “global best practices” or “software solutions” imported from distant markets and puts it squarely back on the role of the state. While market conservatives in public management have argued for some time now that very little about the state is sacred, traditional statists argue that reliance on external agents for public financial management capacity is no shortcut to developing state capability. Such a historical process of repetition and reinforcement of institutional reforms puts the burden of change on actors within the intergovernmental system and the incentives that shape their behavior within bureaucratic cultures.

Drawing on as exchange-based theories of the state, fiscal sociologists argue taxation (and public financial management) is a core state function which must remain internal to the state apparatus (Brautigam, Fjeldstad, and Moore 2008; Joshi and Ayee 2008; Moore 2007; Timmons 2005). Quite apart
from short-term efficiency gains (or losses) from specialization and delegation on the basis of comparative advantage, this literature emphasizes the long run issue of the relationship between fiscal administration and the quality of governance (Brautigam, Fjeldstad, and Moore 2008; Moore 2007, 2004a). For instance, the argument against outsourcing tax collection is based on both the interests vested in private sector actors and the overall sustainability of the arrangement. With the objective of maximizing revenues, private contractors are liable to engage in coercive means at their disposal to augment the revenue yield in any way possible. Coercive methods exacerbate tensions between the state and citizens and, over the long run, limits the development of effective local bureaucracies (Monkam and Moore 2015).

Successfully insulating revenue administration from either direct political interference or the straightjacket of antiquated civil service systems is not a panacea. Even with independent authority to set and maintain comparatively higher salaries and performance incentives, administrative reforms might, as was concluded in the case of Tanzania, “leave behind them not only a highly paid, but also highly corrupt civil servants” (Fjeldstad 2003, 173). A growing body of research focusing on the relationship between revenue administration and the quality of governance has highlighted the influence of situated social relations and vested interests in reversing or otherwise circumventing the procedural and organizational recommendations in normative decentralization theory (Fjeldstad, Chambas, and Brun 2014).

The tradeoff seems to be between consolidation within the intergovernmental system and organizational autonomy with the real challenge being how to thread the labyrinth of overlapping individual, organizational, and political networks. The literature suggests various degrees of organizational externalization, determined by local conditions. Extreme externalization run amok, such as in the case of donor assistance to district governments, can increase tax effort but at the expense of local accountability and democratic consolidation. In an examination for why revenue performance differs between local authorities in Tanzania, the presence of donors was found to induce tax effort but at the expense of local accountability and democratic consolidation (Fjeldstad 2001). Donors operated as
principals encouraged greater tax effort among local authorities ("agents") but in doing so sidelined elected councilors.

2.6 Conclusion: A Broader Approach to Information Technology and Local Public Financial Management

This chapter has identified knowledge gaps in the literature on public sector financial management information systems and reviewed studies on coordination, accountability, and the role of state and private actors in IT-driven public sector reform. Three major knowledge gaps with particular relevance to municipal government can be identified. These gaps are the relationship between computer-based FMIS and procedural coordination, accountability, and the role of state and non-state actors. These gaps can be organized according to process, outcome, and values of FMIS projects in municipal governments. The limited but growing literature on information technology and public financial management now argues that IT should “support, not drive, public financial management reform” (Peterson 2006, 4 emphasis original). Rather than technology-driven change, it is argued that financial reform should be led first by strategic changes to financial procedures. In particular, the fundamental decision relates to either the improvement or replacement of existing procedures. Once a new system of procedures is established, a strategy of automation can be determined and mapped onto a policy framework characterized by stable and integrated budget, accounting, reporting, and auditing practices. Following the stabilization and institutionalization of new financial procedures, the key decisions related to reform are the determination of which procedures are to be left manual, which are to be automated, and of the manual and automated procedures which are to be integrated (Peterson 2006).

While these normative debates about the benefits and risks of FMIS design and its relationship to financial management reform are conceptually relevant to municipal finance, there are important differences between PFM reform in national and local governments that are missing in the literature. As both managerial and legal instruments, IFMIS must conform to budget laws, public finance rules and restrictions, accounting rules and reporting requirements (USAID 2008). Yet, decentralization studies over the past two decades have largely confirmed that devolution does not necessarily generate common
budget, accounting, and reporting institutions shared across local jurisdictions (Cheema and Rondinelli 2007; Poteete and Ribot 2011; Smoke 2015). Planning studies demonstrate that local governments within the same country devise various structures and procedures to handle their internal and external financial information flows. Moreover, most local governments operate under scarce human and financial resources and confront various incentives located both within the intergovernmental system and locally, which influence how financial flows and associated information are managed and communicated across the boundaries of the complex, multi-actor and multi-level governance system in which they are embedded.

While the policy regime that structures the public financial management domain may outline financial procedures and delegate responsibility for them, it is an axiom that PFM policy frameworks lag behind the pace of technological change in the case of local governments located at the bottom of the intergovernmental system. From the perspective of local planners and public managers in devolved settings, there is little incentive to wait for new procedures to solve the acute information problems that affect their capability to execute financial management functions and thus cannot wait for new procedures. Policy coordination between decentralization and public financial management reforms is rare (Fedelino and Smoke 2013) While this creates an environment that encourages pragmatic experimentation to solve practical problems, it also leaves local government managers discretion to interpret an array of policy signals that can either align or be at odds with the goals of central or state-level departments and agencies. As the tool-based view of technology (Orlikowski and Iacono 2001) becomes more widely accepted among civil servants and skilled middle managers who are responsible for executing financial management tasks in local governments, these interpretations are likely to increasingly include some technology component. This will be particularly true in countries like India, where software development markets are mature, capital costs are relatively low compared to labor costs, and national policies strongly frame e-government as a public good and therefore irrespective of rates of success or failure.
On the one hand, there is consensus that the present state of material systems that support local public financial management are inconsistent with the pace and quality of urbanization and social change in cities. Yet, for a variety of reasons, most local governments have insufficient internal organizational and technical capacity to design and deploy new systems. The puzzle relates to the role and effectiveness of external agents in supporting reforms to local public financial management and how this process unfolds through the interactions of technical and social attributes of ICT projects as they extend into the foundational systems required for efficient, transparent, and accountable urban development planning and management.

Despite growing interest and emphasis on the dynamics of implementation (R. Bahl and Martinez-Vazquez 2006; Eaton, Kaiser, and Smoke 2011; Smoke 2015, 2010; World Bank 2008), limited research has examined the role of locally-embedded technology organizations and the support they provide to an array of local government managers and frontline agents aiming to introduce and institutionalize changes to the rules of the game in the fiscal domain. The extant literature on local financial reform in a decentralizing context has thoroughly identified the challenges and obstacles to bridging the supply and demand side of the reform equation at the local level. The challenge now is to understand which resources are available in the immediate operational and political setting of FMIS projects and how local actors draw on them to forge stronger connections between the demand and supply side of local reform. How do localities, situated as they are below layers of political and institutional complexity within the intergovernmental system, acquire the capability to implement local public financial management policy? To what extent can success or failure be attributed to local agents that are external to the intergovernmental system? How do FMIS projects affect, and come to be affected by, bureaucratic politics, inter-organizational relations, and extant financial administration practices in urban local bodies?

A growing body of literature draws on theories of fiscal exchange to examine the effects of official development assistance on domestic taxation and governance (Brautigam, Fjeldstad, and Moore 2008; Fjeldstad 2014; Moore 2004a).
Chapter 3: Bit by Bit: Information Technology and the Transition to Financial Management-Led Decentralization in India

"We are of the opinion that proper accounts are the starting point for financial accountability. Non-maintenance or delayed compilation of annual accounts means compromised accountability. It also implies that reliable financial data for determining the need for resources for local bodies is not available. We observe that it has been more than twenty years that municipalities and panchayats were sought to be empowered, through a Constitutional amendment, to act as institutions of local self-governance and also to provide certain basic services to citizens. It is inconceivable, and certainly not desirable, that local bodies seek an ever increasing share of public moneys and yet continue to keep themselves beyond the ambit of accountability and responsibility for the public money placed with them."
- The Fourteenth Finance Commission of India
February 24, 2015.

3.1 Introduction

This chapter reviews changes in the political economy of decentralization in order to understand where information technology fits in the current policy formula for municipal finance reform in India. The prevailing ideas and values held by national government policymakers on how to pursue decentralization can be significant for the incentives experienced by bureaucrats in local government, particularly in how they interact with domestic and external political and economic dynamics (Eaton, Kaiser, and Smoke 2011; Smoke 2015). The design of flagship national urban reform programs and changes adopted by successive Finance Commissions suggest decentralization is increasingly viewed through a financial management lens. As this perspective has emerged as dominant, however, it has not been accompanied by a substantive push for more central control and local fiscal discipline.

On the contrary, recent policy developments indicate a shift in regulatory authority downwards to state governments and outwards to private actors.25 This arrangement partially reflects the assignment of urban local bodies as an exclusive function of the states in the Indian constitution and a continuation of privatization following the balance of payments crisis in the early 1990s. It is also the case that central ministries and agencies have not made significant efforts to build the mechanisms of monitoring, oversight, and control that are associated with policy ideas and perspectives that frame decentralization in PFM terms (Rodden 2002; Rodden, Eskeland, and Litvack 2003). Against this backdrop in shifting

25 For instance, despite recognition of information problems within the intergovernmental system, the national government has left basic regulatory functions such as monitoring the fiscal position of municipalities to private credit ratings agencies.
federal relations, municipal governments are adopting diverse information technology applications for an array of public financial management functions.

The concerns with local financial management expressed in the quote by the 14th Finance Commission reflect a natural progression within the broader landscape of municipal finance reform in India, but also a growing imbalance in the coordination between public financial management and decentralization reform. Since the turn of the century, the country's urban governments shifted to a fund-based accounting structure upon which double-entry, accrual procedures and practices could be built. While reports have noted the substantial efforts of state governments and ULBs to begin the transition, there has been no systematic assessment of how many cities have successfully completed a full transition as defined by removal of old single-entry systems that continue to operate in parallel. The rapid adoption of new digital financial management information systems to support financial management is less acknowledged, though no less substantive. Though there exists a strong conceptual relationship between these institutional and technological transitions, their connection in practice has been limited.26

What are the implications of these shifts for the governance of local public financial management? The current political economy of intergovernmental relations sustains two institutional voids in ULBs: financial information and regulatory control. While conventional decentralization theory treats these institutional voids (Khanna and Palepu 2010) as problems to be “fixed” through policy reform, local private sector entrepreneurs in cities perceive them as opportunities for experimentation in support of local government reform. Thus, the current setup generates centripetal institutional forces that pull in an array of new extra-governmental actors into the technical core of ULBs. While some studies have noted an uptick in private sector participation in technical aspects of urban planning (Baindur and Kamath 2009) the involvement of extra-governmental actors (e.g. commercial firms, nonprofit

26 Urban local bodies in the state of Tamil Nadu are, for many reasons, an exception. Municipal corporations, including Chennai, had strong support from the state government and sustained assistance over the course of a decade from the World Bank, the Asian Development Bank, the USAID (INDO-US FIRE project), and the Housing and Urban Development Corporation (HUDCO) (see Das 2008). They also had largely completed their budget and accounting reforms before major computerization initiatives.
organizations) in core public financial management functions has been largely overlooked in the literature on municipal finance reform in India. I develop this argument with evidence from the design and implementation of flagship national urban reform schemes, the evolution of finance commission transfers to ULBs, and changes in local government accounting and budgeting policy in states.

The remainder of this chapter proceeds as follows. In the second section, I briefly review the current status of decentralization to ULBs across administrative, fiscal, and political dimensions. The review is necessarily high level and therefore cannot account for all state-level and local variation across India’s large federal territory. In the third section, I examine the extent to which the design of large national urban reform programs and intergovernmental transfers are consistent with the regulatory mechanisms and practices that are required to achieve their objectives. I focus specifically on the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and grants-in-aid to ULBs from the 11th to the 14th Central Finance Commissions. In the fourth section, I review changes in budget and accounting policy in ULBs, focusing in particular on Karnataka state. In the fifth section, I describe how these institutional voids have been addressed in Bangalore since the early 2000s. This final section sets the stage for the analysis presented in chapters five through seven.

3.2 Stalled Devolution to Urban Local Bodies

While state governments exhibit variations in the extent and quality of administrative, fiscal, and political devolution to urban local bodies, the overall process of devolution to municipal governments envisaged in the 74th Constitutional Amendment Act has stalled. As the next sections will demonstrate, the level of autonomy exercised by municipal governments from states has largely remained the same since the early 1990s. A number of factors explain the failure to realize the spirit and letter of the 74th Constitutional Amendment Act. Liberalization of the economy, which kicked in right as decentralization reforms were adopted, empowered state governments far more than local governments. State legislative assemblies have also avoided strengthening the state finance commissions by various means, such as limiting their staffing resources or outright ignoring their recommendations. This section paints a broad
picture of the stalled devolution agenda in order to set up the following section's analysis of monitoring and oversight mechanisms in national and state-level urban reform initiatives. A central contention of this chapter is that the absence of robust monitoring and enforcement mechanisms over time have created institutional dynamics whereby a broader array of technology actors are being drawn into core aspects of technical financial management. In short, the reform agenda centered on devolution that emerged through the Congress Party's efforts in the early 1990s has given way to an idea of decentralization as financial management reform in India's urban local bodies.

3.2.1 Administrative Dimension

Schedule 12 of the 74th Constitutional Amendment Act outlines 18 functions that state governments are supposed to devolve to urban local bodies (ULBs) (see table 3.1 below). Though the 74th CAA placed urban local bodies (ULBs) to the “exclusive list” of responsibilities for the states, the expectation was that by including functions in Schedule 12 that fell under the concurrent list (i.e. shared by Union and state governments) the national government would retain a lever to influence states to fully devolve responsibilities to ULBs. As analysts of urban governance in India regularly note, many of the functions in Schedule 12 are taken up by parastatal bodies whose recognition in state constitutions predates the 74th CAA (S. Benjamin and Bhuvaneshwari 2006). However, the compromise made to get the states to sign on to the 74th CAA was that expenditure responsibilities assigned to parastatals in state constitutions would be gradually transferred to ULBs over time.

<table>
<thead>
<tr>
<th></th>
<th>Urban planning and town planning</th>
<th>Urban forestry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regulation of land-use and construction of buildings</td>
<td>Safeguarding the interests of the weaker sections</td>
</tr>
<tr>
<td>2</td>
<td>Planning for economic and social development</td>
<td>Provision of urban amenities and facilities</td>
</tr>
<tr>
<td>3</td>
<td>Roads and bridges</td>
<td>Promotion of cultural, educational, and aesthetic aspects</td>
</tr>
<tr>
<td>4</td>
<td>Water supply for domestic, industrial and commercial purposes</td>
<td>Burials and burial grounds</td>
</tr>
<tr>
<td>5</td>
<td>Slum improvement and upgrading</td>
<td>Cattle pounds; prevention of cruelty to animals</td>
</tr>
<tr>
<td>6</td>
<td>Public health, sanitation conservancy and solid waste management</td>
<td>Vital statistics</td>
</tr>
</tbody>
</table>
Consequently, states vary in the extent to which they have fully devolved the 18 functions listed in the 12th Schedule. For instance, Kerala has assigned 165 functions to ULBs divided between three categories – mandatory, sector, and general functions. Karnataka argues it has transferred 14 functions to ULBs, while two are administered concurrently (urban forests and slum upgrading) and two more are retained by the state (urban planning and fire services). However, in Bangalore water is provided by the Bangalore Water Supply and Sewerage Board (BWSSB). Even within states, the devolution of functions to urban local bodies is uneven. Bandyopadhyay and Bohra (2010) found in Jharkhand that only 8 ULBs were performing urban planning functions, while 23 were performing building plan approvals and 27 were performing functions related to slum development.

State governments frequently argue that access to finance to cover the cost the 18 functions remains a major constraint to devolving full responsibilities for the 18 functions. The most recent estimates on the cost of the 18 functions outlined in Schedule 12 by the High Powered Expert Committee noted that most ULBs do not meet even minimum levels of outlays on basic services (High Powered Expert Committee 2011). Mohanty et al. (2007) examine local spending in 30 municipal corporations by adopting the Zakaria Committee expenditure norms, which were formulated in 1963 to prescribe minimum expenditure levels on basic services like water and sanitation. Updating the Zakaria norms to 1997 prices, they show that from 1999-00 to 2003-04 municipal corporations averaged levels of capital investment that were 76% below the 1963 norms. Underspending has historically been associated with the limited tax base assigned to ULBs.

3.2.2 Fiscal Dimension

Surveying the literature on municipal finance reform in India, no issue seems as urgent as revenue mobilization in ULBs. Since the first attempt at constitutional decentralization reform in 1989, the share of municipal receipts in the combined revenue of central and state governments has declined from 3.71%
in 1990, to 2.43% in 2000-01, to less than 2% in 2014 (Mohanty 2014, 120). Notwithstanding the vibrancy and churn of local politics, civil society, and commercial interests in Indian cities (Solomon Benjamin 2008), a narrow reading of the fiscal statistics might suggest that India, at least in its cities, has been on a decades long journey of centralization. The 13th Finance Commission reported that the share of own revenue to total revenue is also declining. From 2002-03 to 2007-08, the share dropped from 63 to 53%. The High Powered Expert Committee updated this figure as lower, at 48%, as of 2011-12 (High Powered Expert Committee 2011). As this proportion has continued to drop, many states and some federal grant schemes have loosened restrictions and guidelines that allow the funds to be spent on local salaries. Along the fiscal dimension of decentralization, many ULBs have completely lost their identity as the third and lowest tier of government.

Studies frequently link the municipal revenue problem to the difficulties of property tax administration in rapidly urbanizing localities (ADB 2012; Sahasranaman 2012) and to the historical absence of performance standards on either side of the municipal budget (Working Group of State Urban Development Secretaries 2013). This absence leads to two particularly negative consequences. First, urban local bodies have no hard incentive to formulate plans to reduce internal inefficiencies in revenue mobilization and broader resource management. Second, with no performance standards, it is very difficult to hold them to a hard budget constraint. Others advance an explanation for the revenue problem that is much simpler, given the limited number of municipalities that actually generate own source revenues reasonably equivalent to their tax capacity. What generally explains better performance is simply permission to levy octroi (High Powered Expert Committee 2011, 125), which was limited of late to ULBs in the state of Maharashtra and Gujarat.27

27 Here, the mandatory requirement in JNNURM to withdraw it seems counterproductive. The decision to include the revocation of the Octroi tax as a mandatory reform was not taken in consultation with participating urban local bodies (ULBs); there were limited consultations with ULBs in general on the design of JNNURM. ULBs that still levied the tax had limited opportunities to prepare a transition plan or strategy. The Surat Municipal Corporation shifted a portion of the revenue burden onto betterment charges and impact fees for new construction, but total revenues had not recovered to their trend growth rates by the end of the JNNURM program period even accounting for untied state compensation grants “in lieu of Octroi” (Cook and Chu 2018). In short, under JNNURM the
In order to close the vertical gap, the 74th CAA had introduced the state finance commissions in Article 243(Y) (every five years) to make recommendations on taxes and other revenues, shared tax revenue, and grants-in-aid and Article 280(3)(c) requiring the Finance Commission to “augment” the Consolidated fund on the basis of state finance commission recommendations. The 14th Finance Commission broke from previous central finance commissions by reinterpreting the constitutional role of the Finance Commission relative to ULBs. Rather than allocating transfers to ULBs as a share of the divisible pool, they converted the transfer to a grant-in-aid. They increased the transfer to ULBs to 87,144 crores ($13.6 billion), three times higher than the 13th Finance Commission. The amount still only represents around 1% of total income and other taxes collected by the federal government.

With the recent introduction of the Goods and Services Tax (GST) the tax instruments available to municipal corporations are likely to shrink further. The GST will replace the entertainment tax, octroi tax, and any remaining cities that receive the proceeds of stamp duty on real estate transactions. Local revenue autonomy and local representation simply has fallen out of vogue among national policymakers, even as the urgency to “transform” the finances of ULBs grows. In the push for enhance the creditworthiness of ULBs and lower borrowing costs, some states have even signed off on escrowing constitutionally-guaranteed transfers to urban local bodies (Seddon 2014). Given the fungibility of revenue, escrowing constitutionally-guaranteed transfers to ULBs reduces public control over intergovernmental finance.

3.2.3 Political Dimension

Among the questions surrounding political institutions in urban local bodies, the still unresolved issue of the structure and functioning of metropolitan governance looms large (Sivaramakrishnan 2013). The limited existence of wards committees, intended by the 74th Constitutional Amendment Act to be the lowest unit of self-governance in municipal corporations, is also a source of concern (Sivaramakrishnan Government of India was asking local bodies to restructure both their finances and administration simultaneously, failing to acknowledge that restructuring their finances might limit their capability to restructure administration.
2006). Recent literature on the political economy of urban governance in India documents substantial differentiation in the approaches taken by interest groups to gain access to resources within the local state (Chatterjee 2004). Comparing across fragmented geographic and bureaucratic subunits of urban governance structure, this research has demonstrated the porousness of the local state both in terms of the composition of services and in local government performance at the point of service delivery. Some scholars have tended to attribute patterns associated with these tactics to relatively homogeneous class interests, such as elite multi-national (Ghosh 2005), middle-class (Harriss 2007; Kamath and Vijayabaskar 2009) and the urban poor (Solomon Benjamin 2014). Other studies have documented convergence among tactics of collective action between middle-class and slum-based associations in Bangalore (Kamath and Vijayabaskar 2014).

What has replaced local autonomy, which although muted as a value by the compromises of the 74th Constitutional Amendment Act (CAA), was a prominent objective in the earliest days of devolution reform? Even as structural aspects of administrative, fiscal, and political devolution have followed the trends described above, a phenomenon far less documented in studies of local finance in India has been the rise of field-level consultants, commercial entities as nodal firms with reform responsibilities, and software development companies in core areas of technical administration of local public finance (Rupanagunta 2006). The intensification of participation by these actors external to the intergovernmental system has been driven, in part, by policy design within intergovernmental finance to ULBs. As local revenue autonomy stagnates and dependence on intergovernmental transfers grows, the outsized influence of certain design elements of national urban policy and intergovernmental transfers on the governance of public financial management in ULBs becomes more evident.

3.3 National Reform Institutions

This section analyzes the institutional reforms attempted over the past two decades within the intergovernmental system aimed at incentivizing improvements to the “maintenance of accounts, their audit and disclosure” in ULBs (Finance Commission 2014, 110). The first subsection focuses on the work
by the Ministry of Urban Development, particularly in the design and enforcement of national urban governance reform schemes. The second subsection turns attention to the Finance Commission and their relationship to ULBs. Examining the experience of these two apex bodies helps to understand to what extent these agencies have been successful and the implications of these changes for patterns of institutional change in public financial management among urban local bodies.

While apex ministries and agencies in the national government have combined historically unprecedented amounts of public finance with a defined policy reform agenda in ULBs, there has been limited effort to substantively strengthen mechanisms of upward accountability in the intergovernmental system. The latest shift in national urban policy, from the Jawaharlal Nehru National Urban Renewal Mission to the more recent Smart Cities Mission, is set to further push local PFM systems in the direction of electronic government while reducing national-level controls and restrictions on grant transfers. This is happening under Prime Minister Modi’s stated intention of initiating a new paradigm in Indian federalism based on both cooperative and competitive principles in order to achieve “less government, more governance.”

3.3.1 Ministry of Urban Development

The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) was the Government of India’s flagship urban finance and reform program from 2006 to 2012. Following a series of centrally-sponsored conditional transfer schemes targeting urban governance reforms in large metropolitan cities, JNNURM emerged out of the desire to advance a central-local partnership model within the development policy platform of the United Progressive Alliance (UPA) coalition government, called the Common Minimum Program (CMP). In the urban sector, the CMP sought to implement a comprehensive urban renewal program focused on increasing public and private investment in all areas of basic urban infrastructure and slum upgrading. The purpose of this section is not to make an assessment of JNNURM, which can be found in Sivaramakrishnan (2011) and Grant Thornton (2011). Rather, I identify the dissonance between the design of JNNURM and the regulatory mechanisms necessary to monitor enforce the program.
Designed by Congress Party planners with clear inspiration from the World Bank’s structural adjustment programs in the 1990s, the reform program combined matching grants with a large menu of “mandatory” and “optional” reforms. JNNURM is a variant of performance-based grant systems (PBGSs) but with allocations linked to subnational reforms instead of minimum standards of service delivery (Steffensen 2010). The program sought the use of conditional matching grant transfers for urban infrastructure and basic housing for the urban poor to pursue five major urban reform objectives.28

Attaching conditions to fiscal assistance to states and local governments was not new. What was unique about JNNURM was the opportunity to test the capability of the Government of India to use its fiscal and regulatory powers to shape the direction of reform in cities, given the scale of public funds made available and the breadth and depth of the reform package. Table 3.2 lists the set of mandatory and optional reforms assigned to state and municipal governments.

Table 3.2 Reforms under JNNURM Program

<table>
<thead>
<tr>
<th>State Government</th>
<th>Optional Reforms</th>
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<tbody>
<tr>
<td>Mandatory Reforms</td>
<td>Introduction of property title certification system in ULBs</td>
</tr>
<tr>
<td>• Implementation of all decentralization measures in 74th Constitutional Amendment (CAA)</td>
<td>• Revision of building bylaws to streamline approval process</td>
</tr>
<tr>
<td>• Repeal of Urban Land Ceiling and Regulation Act (ULCRA)</td>
<td>• Revision of building bye-laws to make rain water harvesting mandatory</td>
</tr>
<tr>
<td>• Reform of rent control laws</td>
<td>• Earmarking at least 20-25% of the developed land in all the housing projects (both public and private) for low-income groups</td>
</tr>
<tr>
<td>• Reduction of stamp duty to less than 5%</td>
<td>• Simplification of legal and procedural frameworks for conversion of agricultural land</td>
</tr>
<tr>
<td>• Enactment of Community Participation Law</td>
<td>• Introduction of computerized process of registration of land and property</td>
</tr>
<tr>
<td>• Enactment of Public Disclosure Law</td>
<td>• Bylaws of reuse of recycled water</td>
</tr>
<tr>
<td>• Assignment of city planning functions to ULBs</td>
<td>• Administrative reforms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Urban Local Body</th>
<th>Structural reforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory Reforms</td>
<td>Introduction of computerized process of registration of land and property</td>
</tr>
<tr>
<td>• Accrual-based double entry accounting</td>
<td>• Bylaws of reuse of recycled water</td>
</tr>
<tr>
<td>• E-governance (geographic information systems, management information systems for services)</td>
<td>• Administrative reforms</td>
</tr>
<tr>
<td>• Property tax (collection rate at 85%)</td>
<td>• Structural reforms</td>
</tr>
<tr>
<td>• Complete cost recovery through</td>
<td></td>
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</tbody>
</table>

28 Those five major objectives were (1) establishment of city-wide framework for planning and governance; (2) modern and transparent budgeting, accounting, and financial management systems; (3) financial sustainability for municipalities and service delivery institutions; (4) transparency and accountability in service delivery and management; and (5) universal access to a minimum level of services.
The areas of ULB management that were targeted by the e-governance reforms advanced by JNNURM were extensive. Eight basic services were prioritized: (1) vital registration and issue of birth and death certificate; (2) payment of property tax and utility bills; (3) citizen grievances; (4) building plan approvals; (5) electronic procurement and project monitoring; (6) health and solid waste management licenses; (7) municipal accounting system; and (8) personnel information systems (Kundu 2014). In total, 37 cities completed all 8 e-governance reforms during JNNURM. In Maharashtra, the Navi Mumbai municipal corporation used JNNURM funds to further develop or introduce 17 e-governance modules. Nagpur municipal corporation introduced 11 modules under JNNURM, covering all areas of reform under JNNURM including the accounting and financial management modules. For 35 mission cities, a study found that the number of e-governance reforms for accounting had increased from 16 cities to 20 cities from 2006-2009. For project management information systems, the number increased from 12 cities to 17 cities, and citizen grievance portals increased from 11 to 17.

Existing criticisms of JNNURM have focused on different aspects of the scheme. For instance, there was a big-city bias in the design of the program. Some of the ULB-level reforms required state action, so were beyond their control of local governments, despite their contributions of between 10-25% of the matched funding for public investment projects (Khan 2014; Kundu and Samanta 2011). Mismatches in project implementation capability and policy reform created significant confusion around whether or not the reforms and project funding were actually related in practice. Other criticism has focused on the manner by which state governments ignored directives to avoid using JNNURM funds for projects executed by parastatal agencies (Baindur and Kamath 2009).

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29 Total costs were 1,344.82 lakhs. Cost sharing between national, state, and local government was 50% (672.2 lakhs), 20% (269.05 lakhs), and 30% (403.57 lakhs), respectively. See http://icrier.org/pdf/maharashtra_oct2012.pdf.
The inclusion of mandatory reforms alongside optional reforms stemmed from a compromise within the Union government. On the basis of the vertical fiscal gap, the case for the largest federal budget appropriation for urban investment in the history of post-independence to plug the urban output gap was compelling. It is on this point that Sivaramakrishnan (2011, xxiii) relays a common assessment of JNNURM, “that it has done no harm.” Nevertheless, on the basis of federal politics, the national government could not give the funds away for free without asking for something in return. More importantly, with such a historically large appropriation for urban investment, there were concerns that the national government would be perceived as trying to bypass the state governments and create a direct and permanent link with ULB governments. In addition, the position among the Planning Commission and Ministry of Finance was that the scheme had to be both conditional and time-bound or the national government might undermine its policy position demanding fiscal probity in the urban sector.

The impermanency of the incentive, combined with a lack of local capacity to implement large infrastructure projects, led to issues with project quality and stalled implementation (See HPEC Report, Grant Thornton Report). Most studies of JNNURM have attributed this problem to the technical capacity of ULBs. Few analysts of JNNURM have acknowledged the complete absence of vertical control (i.e. upward accountability) within the program and the extent to which low levels of central capacity severely curtailed the anticipated benefits of the program. The apex institution at the top of the regulatory structure overseeing JNNURM implementation in the national government was the Central Sanctioning and Monitoring Committee (CSMC). The CSMC was delegated responsibility to sanction the transfer of funds to states and ULBs and monitor compliance. In such a high-profile investment and reform scheme, the CSMC would certainly anticipate political pressure to disburse grants quickly. Yet, the apex body was

31 The Urban Development Secretary made this much clear in his speech at the launch of the program: “I wish to emphasize...that JNNURM is merely a platform being provided by the Central Government to the States and Urban Local Bodies (ULBs) for improving the urban infrastructure. Therefore, active involvement and support of the State governments and ULBs is essential in this endeavour. Only through a combined effort of all of us, will it be possible to achieve this gigantic task” (emphasis added).
unprepared for the tasks assigned to them. As a member of the CSMC from the Planning Commission described:

*When they [state governments and ULBs] came to CSMC, the CSMC was overwhelmed because it had no wherewithal to check so many projects. See out of the seven years you have planned 2,834 projects, now look at 2,834 project presentations on each. So there was lot of effort by both the municipal bodies as well as the state government to get the project sanctioned...And since there is hurry to get and grab as many projects as possible so the state government gave answers whatever the consultant told them and the entire process remained completely unplanned.*

When mismatches immediately opened up between the timing of fund disbursements and reform implementation, the response by the CSMC was to introduce an entirely new framework for evaluating the extent of reform progress that would qualify ULBs for release of later tranches of matching funds. The idea was by introducing a flexible scoring system, they could give minimal space to subnational governments without appearing as if they were overstepping constitutional limitations on interactions between the national government and ULBs. In short, the CSMC assumed what was missing were more transparent and credible signals to serve as incentives for state governments and ULBs to fulfill their commitments. They devised a scoring system whereby the CSMC would rank progress on each reform to generate a cumulative score, granting flexibility to state and local governments to pursue certain non-complex reforms more fully while partial progress on other reforms did not hamper project implementation. This also granted the CSMC discretion to interpret the meaningfulness of reform efforts on the ground, which they did often by comparing reform proposals to the reform primers and templates that had been created by the Ministry of Urban Development (now Ministry of Housing and Urban Affairs). The CSMC divided reforms into two categories: complex and non-complex and assigned points to each reform. If a city or state scored higher than 71.5 on non-complex reforms, the second or third tranche of central assistance was released.

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32 Cited in Cook (2012).
Table 3.3 Regulatory Mechanisms in National Urban Reform Programs

<table>
<thead>
<tr>
<th>Regulatory Agencies</th>
<th>Monitoring/Sanctioning Mechanism</th>
<th>Information Sharing Mechanism</th>
</tr>
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<tbody>
<tr>
<td><strong>JNNURM Reforms</strong></td>
<td>Central Sanctioning and Monitoring Committee (CSMC) State-Level Nodal Agency (SLNA)</td>
<td>Reform progress scores</td>
</tr>
<tr>
<td><strong>JNNURM Projects</strong></td>
<td>Central Sanctioning and Monitoring Committee (CSMC) State-Level Nodal Agency (SLNA)</td>
<td>Service-level benchmarks</td>
</tr>
</tbody>
</table>

Any delays in the transfer of funds to cities were made on the basis of omitted or ambiguous details contained in project reports submitted to the CSMC. The system for evaluating reform progress the CSMC devised might have looked flexible on paper, but it simply failed in practice given the complexity of the reforms. For instance, the CSMC included e-governance, accrual based double entry accounting, 85% property tax coverage, and 90% collection efficiency within the “non-complex” category of reforms. As the following chapters will show, e-governance reforms are anything but “non-complex.” Yet, even the complexity and difficulty of e-governance reforms do not compare to accrual based double entry accounting. While many ULBs have adopted an accrual based double entry accounting structure, most still rely in practice on parallel single-entry accounting systems on a day-to-day basis.

Without a robust oversight and monitoring structure and a meaningful threat of sanctions, there was simply no way for the CSMC to confirm or disconfirm whether or not the ULB had successfully implemented the reforms. International experience suggests that such a mechanism would require vertically integrated information reporting structures spanning from national to municipal government. Such mechanisms are characterized by tight feedback loops that transfer information upward from local agencies and trigger automatic sanctions and responses from central authorities transferring funds to local government authorities. For the threat of sanction connected to the misallocation of project funds or failure to meet timelines to be credible, the range of potential scenarios and associated consequences must

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33 In a review of accrual accounting in industrial country national governments, Torres (2004) finds that true accrual accounting is difficult for even high capacity national government ministries and agencies.
be specified in advance and communicated transparently to participating governments. This essential characteristic of conditional grant transfer schemes was entirely missing from JNNURM.

On the project side, the CSMC progressively introduced service-level benchmarks into the project sanctioning process beginning in 2009. There is some evidence in the minutes of CSMC minutes that they used the service-level benchmarks, which prescribed universal coverage in water, solid waste management, and storm drainage, as a standard to judge the beneficiary projections in JNNURM project proposals. If the CSMC perceived that the project beneficiary projections as described in detailed project reports submitted by participating cities were too conservative relative to benchmarks of universal coverage, they might delay the initial fund release. At other times, they used the service-level benchmarks to threaten the release of second and third tranches of funding. However, by not transparently and consistently linking the release of central government funds to achievement of development targets outlined in the city development plan (CDP) for each participating city, the CSMC was left without concrete commitments to which they could hold participating ULBs accountable.34

3.3.2 Central Finance Commission

The Central Finance Commission (CFC), which convenes every five years, has been progressively elevating financial information management for the past two decades. The first CFC to substantively address both municipal accounting and the issue of computerized financial management information systems (FMIS) was the 11th CFC. The computerization of municipal accounts was such a priority to the 11th CFC that they ranked the “maintenance of accounts and audit” and the “development of [local] financial database” above core service delivery for the use of CFC grants to ULBs. Though the 11th CFC allocated 200 crore rupees (approx. US $44.4 million) for the creation of local financial

34 The absence of a functional sanctioning mechanism created problems for ensuring that disbursed funds from the national government were utilized to complete public investment projects. For instance, the Comptroller and Auditor General (C&AG) found that the Bangalore city government failed to complete their JNNURM projects within the seven-year timeline stipulated by JNNURM rules, but only drew down 70-75% of project funds from the central and state government.
databases, only 98.6 crores were actually utilized from 2000-2005. Moreover, only 113 crore of 483 crore allocated to maintenance of accounts were utilized (Finance Commission 2004, 153).

The development and adoption of financial information systems was also covered by the Twelfth Finance Commission, which declared that “municipalities should give high priority to expenditure on creation of database and maintenance of accounts through the use of modern technology and management systems, wherever possible” (Finance Commission 2004, 154). The Thirteenth Finance Commission took up the topic by reporting that “additional investments necessary for improving the accounting system, computerization of operations, tax administration, and project monitoring” had contributed to increasing the expenditures of local bodies (Finance Commission 2009, 155). Consultations with local body representatives resulted in two main recommendations: first that “the Finance Commission should support the establishment of a geographic information system (GIS)-based property tax system for all local bodies aimed at strengthening their revenues” and second that “funds should be earmarked for creation of databases at the level of local bodies while providing the flexibility to hire or outsource specialized manpower to undertake this” (Finance Commission 2009, 157). The 14th CFC also prioritized the maintenance of ULB accounts, their audit, and disclosure above revenue mobilization and local expenditure on basic services. The latter followed consultations with state governments, state finance commissions, and ULBs. Each requested funds for “preparation of simple accounts and data formats” (Finance Commission 2014, 103).35

Table 3.4 summarizes the assistance provided to ULBs for computerizing their accounting systems from the 11th Finance Commission to the 14th Finance Commission. Two things are important to note. The first is that while each CFC has prioritized computerization and auditing of ULBs, the

35 The 14th Finance Commission claimed that “in our view, a common issue that emerges from SFC reports is the need to have reliable data on the finances of local bodies in order to enable all stakeholders to make informed decisions. For this, the compilation of accounts and their audit assumes importance. Another common issue is that the local bodies need to be encouraged to generate own revenues and to improve the quality of basic services they deliver” (Finance Commission 2014, 107).
regulatory mechanisms that would serve to feed information up from ULBs to the national government and “discipline” downwards have been progressively offloaded and weakened.

Oversight has been offloaded to the Comptroller and Auditor General (C&AG), beginning with the 11th CFC. During this period, the Comptroller and Auditor General developed the oversight modality of “technical guidance and supervision.” Technical guidance and supervision includes four elements: (1) setting audit standards and audit planning; (2) adoption of improved audit methodologies; (3) training in audit and accounts; and (4) annual transactions audit by random selection and supplementary audit of institutions audited by the State Director of Local Fund Audit. While these functions are certainly critical to a supreme audit institution, they do not include any disciplinary mechanism to compel ULBs into compliance. The CFC’s have encouraged state governments to adopt laws that would require C&AG compliance and performance audits of ULBs to be tabled in state legislatures, however not all states have done so and many states have simply ignored the requirement. More importantly, the intervals between C&AG audits stretch between 3-5 years and at most they target specific departments or specific types of transactions. They are never comprehensive audits of ULB accounts.

Table 3.4 Central Finance Commission Grants for ULB Financial Management Information Systems

<table>
<thead>
<tr>
<th>Priorities</th>
<th>Funding</th>
<th>Regulatory Mechanism (Incentive System)</th>
<th>Enforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Development of [local] financial database</td>
<td>- Nine conditions fulfilled each year to qualify for performance grant</td>
<td>(“Technical Guidance &amp; Supervision”)</td>
</tr>
<tr>
<td></td>
<td>483 crore (113 crore utilized)</td>
<td></td>
<td>- State governments</td>
</tr>
<tr>
<td></td>
<td>Earmarks from total grants-in-aid to consolidated fund of the states</td>
<td></td>
<td>(“Technical Guidance &amp; Supervision”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- State governments</td>
</tr>
<tr>
<td><strong>13th Central</strong></td>
<td>Strengthen local</td>
<td>Earmarks from total</td>
<td>- CAG must be given</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Comptroller</td>
</tr>
</tbody>
</table>
| Finance Commission (2010-2015) | fund audit departments through capacity development and personnel | grants-in-aid to consolidated fund of the states | TG&S responsibilities by state governments  
- Independent local body ombudsmen  
- System to electronically transfer local body grants  
- Maintain accounts based on national municipal accounts manual (referred to as prudential conditions rather than output-based – a gateway to performance grants) | and Auditor General (CAG)  
- State governments (local fund audit department)  
- ULB self-certification |
|---|---|---|---|
| 14th Central Finance Commission (2015-2020) | • Make available reliable data on local bodies’ receipt and expenditure through audited accounts  
• Improve in own revenues | Performance grant = 8,000 crore  
Earmarks from performance grant to consolidated fund of the states | • Submit one year of audited accounts of preceding two years from performance grant claim  
• Show increase in own revenue during preceding year (excluding octroi and entry tax)  
• Publish service level benchmarks for each year of award  
• Supplement document to state budgets | • Comptroller and Auditor General (CAG)  
• State Government  
• State Finance Commission |


The other important point is that, even as the central agencies have “offloaded” oversight responsibility to the C&AG, enforcement (sanctioning) responsibilities have been shifted downward to state governments. The 13th Central Finance Commission emphasized the role of the local fund audit department in state governments. The 13th Central Finance Commission adopted the principle of “prudential” conditions, seeing the establishment of minimum expectations for accessing grant funding as a “gateway” to the performance grants. For the 13th CFC performance grant, ULBs were required to
submit current coverage levels and targets for the following year at the same time. However, demonstrating progress or achievement was not required to continue accessing funds (Working Group of State Urban Development Secretaries 2013).

Assessing the experience of the previous three CFCs, the 14th CFC settled on three conditions to access the performance grant funding: (1) submission of a single-year accounts audit within two years preceding the grant claim; (2) show an increase in own revenue during the preceding year (excluding income from octroi and entry taxes); and (3) publish service level benchmarks for devolved functions. The 14th Central Finance Commission (CFC) introduced a “trust-based approach” to monitoring and compliance putting the onus of responsibility for monitoring and sanctioning on state governments and essentially removing all conditions and restrictions imposed by the central government for release of funds. In terms of sanctions, the 14th CFC recommended that “stern action should be ensured if irregularities in the application of funds are noticed or pointed out” (Finance Commission 2014). The shift to a trust-based approach to the release of grants follows Prime Minister Modi’s political reform project to convert India’s federal system to a new, hybrid mix of cooperative and competitive federalism.

While the 13th Central Finance Commission argued that stronger consideration was merited for a mechanism that could force states to devolve the Schedule 12 functions in the 74th Constitutional Amendment Act, any mechanism that could accomplish such an objective would have to be based on better information and stronger intergovernmental regulations and enforcement. However, as the previous sections have demonstrated, these two building blocks of a stronger devolution mechanism remain institutional voids (Khanna and Palepu 2010) in India’s fiscal federal system. The report of the 14th Finance Commission issued in 2015 capped a remarkable 20-year transition within the apex national public finance institution towards formally acknowledging and prioritizing problems of basic financial information management in urban local bodies. The 14th Finance Commission’s statement on the linkages between fiscal management, transparency, and democratic local governance, however, expose the growing rift between strong vertical mechanisms to monitor and sanction local public financial
management procedures and the willingness and ability of the Government of India to carry through with constitutional commitments made in the 74th Amendment Act.

3.4 The Emergence of Fund-Based Accounting Structures in State Reforms

The most significant institutional change in local public financial management in India is the coordinated shift, beginning around the turn of the century, in national government agencies pushing double entry, accrual accounting in ULBs through the adoption of a standardized funds structure for municipal accounts. Different agencies and institutions have contributed to the structural change in national policy, including the Finance Commission, the Ministry of Urban Development, and the Comptroller and Auditor General (C&AG). State governments have eschewed modifying their general purpose municipal acts, instead opting to issue local fund authority “rules” that outline fund-based accounting standards and their implications for budget structure (e.g. chart of accounts) and function. While international agencies like the World Bank noted as far back as a decade ago that audit functions would need to be redesigned in light of prevailing computerization trends to allow for concurrent audit in a computerized environment (World Bank 2007), there has been limited substantive regulatory changes at the national level reflecting the increased dependency of ULBs on digital financial management information systems to maintain ULB accounts. Some states, particularly those that successfully initiated accounting reforms prior to large scale computerization such as Tamil Nadu, have handled the transition better than others.

Following the completion of the National Municipal Accounts Manual in 2004, the national government ordered state governments to produce their own state-level accounts manuals but did not provide much direction beyond the order. While some state-level technical guidelines and handbooks on municipal budgeting and accounting have captured the complexities of transitioning to a funds-based

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36 Through project lending and technical assistance to various states, the World Bank and Asian Development Bank have developed a limited number of municipal budgeting, accounting, and auditing manuals. Most of this work, however, falls under the Financial Institution Reform and Expansion (FIRE) Project, financed and coordinated by the United States Agency for International Development (USAID) since the early 1990s.
double entry accrual accounting system, there has been little substantive regulatory reform reflecting the growing use of digital financial management information systems to maintain ULB accounts. State government municipal accounting manuals tend to be comprehensive, covering both general and specific-purpose accounting procedures in manual environments. The Bihar Municipal Accounting Manual is 834 pages long. The Orissa Municipal Accounting Manual is 455. However, despite the transition to computerized operating environments, these manuals make limited reference to budgeting and accounting in *hybrid* paper-based and digital systems.

Recognizing the extensive use of paper-based procedures, these manuals have only intimated that the budget classification structures and chart of accounts are amendable to computerization. That is to say, they all concede that changes to guidelines for formats and procedures may be necessary in an information technology environment. Yet, as recently as 2012, the Kerala Government published a Municipal Financial Audit Manual (released by Local Self Government Department with assistance from the Asian Development Bank). The manual, unlike the municipal accounts manuals, is much shorter at 72 pages. The manual only includes a 3-page section on auditing in a computerized environment, focusing on computer-assisted audit techniques. What is completely absent from the manuals are guidelines, procedures, and directions for the transition to digital FMIS.

The Karnataka Municipalities Accounting and Budgeting Rules (2006) contains one page out of 92 on computerized accounting and budgeting (in Part E Misc. of Chapter 25). The section outlines who is responsible for ensuring “that appropriate controls and procedures are exercised for the integrity and security of the data files and programs and storage of backup of this data and its retrieval” (2006, 89). The Karnataka Municipalities Accounting and Budgeting Rules (2006) assign that responsibility to either the Municipal Commissioner or the Director of Municipal Administration (who leads the Directorate of Municipal Administration in state government). The KMAB rules allow for the director of municipal administration to modify the information requirements prescribed in KMF forms in the case that this information is already collected in other software systems and therefore available for reporting. The KMAB Rules (2006) nominally empower the director of municipal administration as the authority to
submit requests to the state government to discontinue manual accounting (i.e. manual maintenance of forms and registers) in a given ULB. While the KMAB Rules ensures ex post control over the division of accounting between digital and manual systems, there are no ex ante controls in place to circumscribe or control the growth of digital FMIS in ULBs.

State governments have been reticent to modify municipal acts that govern urban local bodies in light of the substantial shift in national urban policy and programs that have encouraged the transition away from old institutions of public financial management. For instance, most municipal acts still reference public financial management practices based on handwritten, paper-based processes, even as ULBs across the country have adopted computer-based information systems. While many have been updated to include concepts like double-entry accounting or references to the national municipal accounts manual, computerization and its associated implications are still conspicuously absent following nearly a decade of initiatives to introduce digital information systems in core accounting processes.

Instead, state governments have tended to rely on rules and bylaws to address the issue of computerization in ULB budgeting and accounting. Table 3.5 lists references to computerization in the various acts and rules that structure the financial management domain of urban local bodies in Karnataka. Some states have developed dedicated support divisions that provide specialized consultancy services to ULBs related to software and hardware implementation for local public financial management. These are subsumed under larger e-governance agencies, for instance, the Municipal Reforms Cell (MRC) which is the state-level nodal agency for implementing computerization and other reforms in ULBs under the directorate of municipal administration in Karnataka state. However, without systematic capacity development initiatives for councils and other legislative bodies that intervene in urban governance, the extent to which these rules and bylaws are subject to ongoing enforcement is limited.

<table>
<thead>
<tr>
<th>Key Legislation (Date)</th>
<th>Reference to Computerization of Budgeting and Accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangalore</td>
<td>Recognizes FBAS as accounting information system in BBMP.</td>
</tr>
</tbody>
</table>
| **Mahanagara Palike (Accounts) Regulations, 2001** | Section 3 (6) - The Medium Term Fiscal Plan shall have a functional focus and provide for backend modalities such as fund based accounting system (FBAS), computerisation and a realistic and transparent budgeting process.  
Section 6 (10) – “The local fund authority shall introduce and strengthen appropriate internal audit measures and a sustainable computerization programme using appropriate technology.” |
| **Karnataka Local Fund Authorities Fiscal Responsibility Act (2003)** |  |
| **National Municipal Accounts Manual (2004)** | “The codification structure and input forms recommended are amenable to computerisation also. However, the registers are designed keeping in mind that ULBs will be implementing the recommended system mostly in a manual environment to begin with. Changes to the formats may be required for IT enablement (p.9).” |
| **Karnataka Municipalities Accounting and Budgeting Rules (2006)** | Section 136: Computerized Accounting |
| **Karnataka Municipal Accounts Audit Manual** | Drafted but has not received state government approval. |

Two of the twenty principles of financial management outlined in the Karnataka Local Fund Authorities Fiscal Responsibility Act (2003) contain references to transparency – “ensuring transparency at all stages of policy making and implementation” and “disclosing sufficient information to allow the public to scrutinize the conduct of fiscal policy and the state of local fund authority finances.” The problem continues to be one of coordination. In Karnataka state, the State Accounts Department is the authority that is given power to enforce compliance with the Karnataka Local Fund Authorities Fiscal Responsibility Act (2003). However, the separate Directorate of Municipal Administration is the technical support agency for developing capacity and ensuring that technical systems in ULBs correspond to the principles and design parameters established in the Karnataka Municipal Accounts Manual. What this section has demonstrated is the near complete absence of resources for municipalities that will, for the foreseeable future, operate in a hybrid “computerizing” environment. This oversight is particularly troubling, given the limited existence and reach of intergovernmental monitoring and accountability mechanisms.
3.6 Locked in Place: Public Financial Management in Bangalore

The material, social, and institutional entanglement of digital information technologies, local public financial management systems, and political organizing around municipal finance reform and urban governance in Bangalore can be traced back almost two decades. Bangalore was one of the first cities in India to combine both local tax and accounting reforms with local information technology design and development. The turn of the century in Bangalore saw an ambitious reform agenda advanced by Chief Minister S.M. Krishna and implemented under the aegis of the Bangalore Agenda Task Force (BATF). The reforms included a unit area value (UAV) property tax system based on self-assessment (SAS scheme) and the introduction of a double-entry accrual municipal accounting framework called the funds based accounting system. The latter was supported with a custom digital PFM information system that shared the same name - FBAS.

Along with Chennai the municipal finance reform experience in Bangalore at the turn of the century has done more to shape the design of national urban policy than any other city in the country. Chief Minister S.M. Krishna’s sweeping financial reform agenda was designed and implemented by the Bangalore Agenda Task Force (BATF), a committee of chief executives from information technology firms in Bangalore and elite civil servants. In a time span of three years, the municipal corporation changed the property tax structure to a unit area value (UAV) system based on self-assessment; abolished the 2% stamp duty charge; changed the Karnataka Municipal Law to make it easier to borrow funds from private lending institutions; introduced a funds-based, double entry accounting structure; and developed and implemented a financial management information system (FMIS) referred to as the Funds Based Accounting System (FBAS).

Whether the BATF constituted a traditional or unconventional public private partnership has been debated (Ghosh 2005; Paul 2005), but reliance on elite executives from private technology firms to coordinate and execute local finance reforms was novel for the time. The philanthropic organization of the former founder and CEO of Infosys, Nandan Nilekani, covered the software development costs of FBAS. The software was developed by the local software company, CrossDomains. When S.M. Krishna
lost the state elections in 2004, the BATF was removed from power and a retainer contract was signed between the city corporation and Management and Governance Consulting (MaGC), a private consulting firm in Bangalore that specialized in business advisory, public sector governance and public finance, information technology, training, and research.

With tremendous investments in time and resources provided by the Bangalore Agenda Task Force, the accounting reforms were made to be initially successful. The city designed the new accounting structure around corporate accounting institutions. The BATF succeeded in publishing the first asset registry for the city in 2003 with the completion of the FBAS software system. They redesigned the chart of accounts for revenue and expenditure in the local budget. More importantly, the system was organized around a unique 14-digit public investment project ID, called the work code, issued by the head financial officer located in the zones: the assistant controller finance (ACF). The idea was that the city government should be able to trace and account for expenditures down to a lightbulb installed in a streetlight on a back alley in any of the 100 wards of the city. FBAS was designed that way because the city was shifting to an area-based contracting model, where construction firms and other contractors would bid for multiple sector projects within a defined area of the city.

By delegating authority to issue work codes to the Assistant Controller Finance (ACF) in the zone, incentives would be more aligned and decisions could be more easily audited. Nevertheless, the Bangalore Agenda Task Force was skeptical of delegating information oversight and monitoring to the zones, so they located the FBAS system on a local area network solely within the FBAS Cell in the head office. Such an organizational design required project files to be transported daily (either on paper or floppy disk) from the zone, division, and ward offices to be entered ex post by operators in the FBAS cell.

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37 These reforms were lauded, both domestically and globally, as the future of urban reform in India. For many reasons, including the access enjoyed by members of the Bangalore Agenda Task Force to powerful Congress Party politicians in the national government, the reform template tested in Bangalore was taken up by national urban policy makers (Baindur 2017, 127). However, as will be described in later chapters, while these reforms conformed to a standard normative vision of municipal finance they were inappropriately sequenced and little effort was made to develop support structures to ensure they would be nurtured over time. Indeed, one can tie the design and implementation of the reform package to the weak and unsustainable financial position of the current BBMP.
Though paid for by the BATF, the software code was proprietary to CrossDomains, the local software development firm.

The BATF’s reform package generated immediate increases in annual revenue yields from the property tax and, to a lesser extent, efficiency gains in project control and management. The net revenue effect was likely still limited, because of the loss of income from the 2% stamp duty surcharge that was transferred directly from the state government to the city corporation. Of more long-term relevance, the BBMP never took full ownership of the FBAS system nor the accrual accounting reforms. No study has offered a definitive explanation as to why, but the sheer breadth of the reforms, qualifying as a “big bang” approach, likely far exceeded the organizational and institutional capacity of the city government’s existing bureaucratic institutions. After three to four years devoted to massive structural reforms in Bangalore, it was not difficult for S.M. Krishna’s opponents to frame his tenure as Chief Minister in terms of systematic neglect of rural areas in Karnataka. He was removed as Chief Minister in the 2004 elections.

The city of Bangalore, however, was entering an inescapable period of growth. Sensing an opportunity to pull forward the financial and economic benefits of urban growth, the new state government delivered show-cause notice to the 100 members of the city council that the state government was moving to dissolve the Bangalore Mahanagara Palike. The BMP would be merged with nine city municipal councils, three town municipal councils and 111 villages on the periphery to form the Bruhat Bengaluru Mahanagara Palike (BBMP). Appointing an administrator to oversee local government, it took the state government four years to amalgamate the jurisdictions into a new city with 198 wards spread across 709 square kilometers as it now currently exists. As an outcome of the amalgamation of jurisdictions, the official population of Bangalore grew considerably during this transition period beginning in 2006-07 as noted in figure 3.1.
Due to the rapid expansion of the city, the new chain of delegation for expenditure management and revenue administration was long, fragmented, and geographically dispersed. Residents could enter one of 260 revenue department help centers, 10 citizen service centers, 68 sub-division offices, and 198 ward offices, or online for the property tax. Payment by cash, check, demand draft, or pay-order had to be accepted and documented which included handwriting the transaction in the collection register and, until the introduction of the Financial Management System (FMS) was introduced, handwriting a paper receipt.

As I stated earlier, the FBAS unit was housed in the head office of the BBMP. The initial management team that had developed the system and helped deploy it in the BBMP was forced out of the project when S.M. Krishna was voted out and the new Chief Minister arrived. CrossDomain, the local software company that developed the FBAS software, failed to transfer the source code to the city during the political transition. They would later argue that because the system was developed under a freeware agreement they were under no obligation to supply the code. FBAS was developed on Delphi 5 (1999)
with an Oracle 8i database, which means by 2007 when the city began amalgamation the software and hardware were seven and four versions old, respectively. MaGC coped with the obsolescence of FBAS by developing Excel-based spreadsheet “modules” that supported budget, projects, and payment reporting. FBAS however could not keep up with the pace of change in the BBMP.38

The BBMP had not had an integrated approach to the use of financial management information systems since 2004 with the BATF. Without an integrated approach and political oversight following the dissolution of the BBMP council in 2006, engineers and project officers across the zone, division, sub-division, and ward had enjoyed substantial discretion to develop their own procedures. This put executive engineers firmly in control over the flow of project information within the BBMP. A summary of the status of the BBMP’s financial position in 2011-12 in table 3.6 helps describe just how much slack had entered the system a full decade after the BATF set out to remake the municipal finance system.

Table 3.6 Expenditure and Revenue Management in the BBMP (2011-12)

<table>
<thead>
<tr>
<th>Income Heads</th>
<th>Expected (Rs. 100,000)</th>
<th>Actual (Rs. 100,000)</th>
<th>Gap (Rs. 100,000)</th>
<th>Gap (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Income (3 Sept 2011)</td>
<td>931,580.00</td>
<td>407,599.05</td>
<td>524,020.94</td>
<td>56.25</td>
</tr>
<tr>
<td>Estimated Expenditure (3 Sept 2011)</td>
<td>939,855.00</td>
<td>392,700.03</td>
<td>547,154.97</td>
<td>58.21</td>
</tr>
<tr>
<td>Finance and Accounts</td>
<td>215,233.00</td>
<td>125,495.95</td>
<td>89,737.05</td>
<td>41.69</td>
</tr>
<tr>
<td>Revenue</td>
<td>273,675.00</td>
<td>131,146.00</td>
<td>141,529.00</td>
<td>51.71</td>
</tr>
<tr>
<td>Markets</td>
<td>5,662.00</td>
<td>2,046.14</td>
<td>3,615.86</td>
<td>65.86</td>
</tr>
<tr>
<td>Advertisements</td>
<td>19,800.00</td>
<td>3,042.67</td>
<td>16,757.33</td>
<td>84.63</td>
</tr>
<tr>
<td>Town Planning</td>
<td>111,640.00</td>
<td>21,597.58</td>
<td>90,042.42</td>
<td>80.65</td>
</tr>
<tr>
<td>Public Works Department</td>
<td>135,391.00</td>
<td>25,065.18</td>
<td>110,325.82</td>
<td>81.49</td>
</tr>
</tbody>
</table>

Source: Bruhat Bengaluru Mahanagara Palike (BBMP) Audit Report for FY 2011-12

Though it is impossible to trace the factors that led to the dissolution of internal control following the removal of BATF and strong state government oversight, by 2009 public financial management in Bangalore appeared to be “imaginary” (Bruhat Bengaluru Mahanagara Palike 2016, 11). The revenue and expenditure estimates for budget formation were inflated by more than 100 percent. The revenue

38 The system suffered from four major problems. First, many transactions had to be entered from the backend of the system which is neither secure nor safe. Second, the system is not web-enabled so it cannot be integrated with any other FMIS or ICT system in the BBMP. More importantly, it has a hard limit to the volume of transactions it can handle which was exceeded during the amalgamation. Third, the structure of the accounting system, include the budget and accounting codes, was not compliant with the National Municipal Accounting Manual (NMAM). Because the source code was lost, no changes could be made to bring it into compliance.
department, which oversees property taxation, collected just half of what it projected it would that year. As a result, the BBMP began to rely heavily on long-term loans from public and private banks. Long-term debt obligations held by the BBMP increased 292% in four years, from Rs. 887.64 crore ($221.01 million) in FY 2007-08 to Rs. 3,476.13 crore ($692.45 million) (Bruhat Bengaluru Mahanagara Palike 2016).39

The rapid expansion of the city’s territorial jurisdiction combined with the incompatibility between the core BMP zones and the new areas combined into the BBMP put enormous pressure on the BBMP’s existing structures for public financial management. During the period, the number of bank accounts authorized to receive deposits and issue payments for the BBMP increased by the hundreds. The number of bank accounts had grown from around 300, registered when FBAS was developed (Ramesh and Murali 2006), to over 900. Moreover, in the six years of operation, the FBAS system did not supplant other legacy programs within the public financial management system but instead operated in parallel. Nor did the double-entry accrual accounting system fully displace the previous single-entry system.

The other major information management problem related to control over project files (tappal). Project files contained the measurement book and any supporting documentation for public investment projects, such as tender agreements, intermediate bills to contractors, and letters of credit. The measurement book was a handwritten book registering the different steps of the construction process, the materials and quantities used, and the rates for physical inputs and labor. It described implementation across the entire project cycle and was a source of project-level accountability because the input rates recorded in the measurement book are to match the final estimates before project approval. Following amalgamation of the BMP into the BBMP, project files remained with contractors from the date of submission of project estimates until the final clearance of contractor bills.40

39 To calculate the value in US dollars, I use the monthly average exchange rates for the final month of the fiscal year (March) in both 2008 and 2012.
High population growth rates, continuous expansion in the supply of private vehicles, and unplanned development on public land has put enormous strain on the city’s financial information management systems. Existing civil service rules and regulations set restrictive limitations on hiring and firing permanent workers. According to interviewees, the city also tends to have relatively higher turnover rates for senior managers deputed to Bengaluru on rotation by the Karnataka Administrative Service (KAS). According to the Engineer-in-Chief, it had been difficult to recruit, hire, and train enough skilled labor since the BMP transitioned to the BBMP. The engineer-in-chief described the state of the engineering bureaucracy:

*Day to day we are being stressed getting information, divulging information, and reports are taking too much to handle. We are at extreme stress beyond our capacity. They are paying us only to negotiate the stress, not to do the work. When there is a deficiency in the system we make engineers run behind it.*

There is a generalized staff shortage of around 35% from the level sanctioned by law and no systematic induction program that covers task-specific training for new hires (BBMP Restructuring Committee 2015).

Two key institutional factors bear on the relationship between information technology and public financial management in the BBMP. First, there is a complete absence of a dedicated state-level policy framework related to information technology in the local fiscal domain. Neither the Karnataka Municipal Corporation Act nor the Karnataka Municipalities Accounting and Budgeting Rules (2006) list specific requirements for information technology use in urban governance (see previous section). Second, the low level of institutional capacity related to information technology in the local fiscal domain led to heavy use of different information technology over time. Following amalgamation parallel expenditure and revenue management applications were allowed to continue operating at different locations across the extended public financial management bureaucracy of the BBMP. The FBAS system had been designed to introduce Bangalore to double-entry accrual, but instead municipal accounts continued to be prepared on

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*Interview, 11 December 2015.*
a single-entry cash based system. This failed transition was reflected in the Comptroller and Auditor General of India’s 2015 report on municipal governments in Karnataka state:

The Annual Accounts of BBMP were not prepared and certified within the stipulated dates. The ledger accounts prepared under FBAS were not properly balanced at the end of each financial year. The bank accounts were not reconciled periodically. Cash books, grant registers and records envisaged in fund based accounting manual for recording the transactions out of borrowings were not maintained. Internal audit system was not in existence in BBMP. These deficiencies in maintenance of books of accounts and absence of internal audit system indicated that the internal control was not effective in BBMP. This meant that receipts (income) and expenses were recorded when they were actually received. While the BATF had worked to establish an asset registry, the failure of FBAS meant that the full picture of performance and the overall financial position of the BBMP could not be ascertained. Rather, the proliferation of digital PFM information systems in the BBMP was leading towards more and more “stovepipe” or partial perspectives. The BBMP had no medium-term or unified information technology strategy nor a focus on ensuring high quality and competent staff looked at the existing problems and sought solutions on an ongoing basis. Instead, the absence of a policy framework for information technology in the fiscal domain created conditions where senior and mid-level managers continuously opted for new solutions.

3.7 Conclusion: Institutional Voids in Underdeveloped Organizational Fields

This chapter contributes to the literature on municipal finance reform by linking evidence of centripetal institutional dynamics in urban governance to forces within national policy and intergovernmental relations. Considering these institutional dynamics in light of the distinct aspects of information technology projects in local government and characteristics of the information technology industry in India points to parameters of a policy formula that would be beneficial to ULBs. These parameters must eventually deal with information and upward accountability within the intergovernmental system if the national government is going to continue funding the computerization of

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financial management systems in municipal corporations. Given the structure of India’s information technology industry, particularly the relatively low cost of external labor to develop information systems, such institutional supports would provide boundaries and accountability for the many external organizations being drawn into core areas of financial management thus limiting the institutional risks associated with strong centripetal forces in ULBs.

Yet, after two decades of attempts in India by central and state government departments and agencies to increase the availability of local fiscal information and improve the functioning of management and accounting systems within both city governments and intergovernmental transfer systems, the results range from mixed to complete failure. National urban policy and other apex institutions of intergovernmental finance like the central finance commission have pursued different approaches to accelerating local reforms. What has generally been missing is strengthening upward accountability between ULBs, state governments, and the national government. Even as model policies and laws are released at the national level to encourage convergence of policy frameworks across the states, regulation and information continue to be institutional voids in the local public financial management system. The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and Smart Cities Missions in the Ministry of Urban Development have deepened the opportunities for organizations external to ULBs to assert authority over decision-making at the technical core.

This follows a continuing shift in national approach to incentivizing/disciplining local reform patterns by moving the locus of responsibility for implementation to special purpose vehicles. Combined with a shift in monitoring, oversight, and auditing responsibility to the Comptroller and Auditor General from the 13th Finance Commission onwards, centripetal forces encouraging more extra-government participation in core technical administration of public financial management will overrun the vertical oversight mechanisms in intergovernmental relations. The long-term outcome is likely to be a polycentric regulatory system for local PFM, distributed unevenly within and between dominant institutions of urban governance. Without strengthening upward monitoring and evaluation mechanisms, the transition to
digital financial management information systems in ULBs will likely generate structural barriers to
deepen democratic control and levels of local transparency and accountability.

Concerns about administrative and fiscal devolution to urban local bodies as outlined in the 74th
Constitutional Amendment Act, dominated as they have been over the past decade on the abolition of
octroi tax and stamp duty, are increasingly supplanted by concerns of basic financial management in
ULBs. As the 14th Finance Commission recently argued, it is “inconceivable, and certainly not desirable,
that local bodies seek an ever increasing share of public moneys and yet continue to keep themselves
beyond the ambit of accountability and responsibility for the public money placed with them” (Finance
Commission 2014, 110). Urban management and finance reforms are increasingly entangled with the
deployment of networked information technology. On a general level, the growth of ICTs in the fiscal
domain of local government can be traced to a combination of factors. At the national and state-
government levels, apex policy and public finance institutions have included more and more e-
governance elements in urban reform schemes (Grant Thornton 2011; NIUA 2015). The World Bank,
USAID, and Asian Development Bank have included them in urban loans (Abraham 2013; USAID
2005).

Tracing Bangalore from the turn of the century through the conclusion of the Administrator
period in 2010 following amalgamation reveals a city in what the building state capability (BSC)
approach refers to as a “second jump circumstance” (Andrews, Pritchett, and Woolcock 2016, 74). Rather
than economies of scale, the transformation of the BMP to BBMP had led to organizational disability.
Local public financial management capability was retrogressing; senior managers could not enforce even
desirable regulation. When a new Karnataka Administrative Services (KAS) officer, deputed to the
position of Special Commissioner (Projects), asked upon arrival, “how many public investment projects
am I responsible for?” the response was, simply, “no one knows.” Yet, to paraphrase Marc Andreessen,
an American software engineer and entrepreneur, software was eating the fiscal domain of Bangalore’s
city government. As a result of this transition and as the next chapters will show, more than just bits and bytes are encroaching on the manual systems of financial information management in ULBs.

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Chapter 4: Asymmetric Implementation: Between Coordination and Competition in the Quest for Integration

4.1 Introduction

One of the defining aspects of information technology is its configurability in context, both in technical terms and interpretive meaning (Heeks and Stanforth 2007; Orlikowski 2005). Financial management information systems (FMIS) need to adapt over time to connect and integrate with other digital and paper-based components of the public financial management system and respond to changes in the administrative and political context. Theory suggests that this process happens successfully through various coordination mechanisms, such as rules, programs, hierarchy, orders, or targets that match the information requirements of organizational tasks with the information processing capability of the organization (Galbraith 1974). In short, the production and circulation of improved financial information is an essential resource for coordination in complex environments characterized by high levels of incomplete information.

Depending on the capacity of agents and available resources, connecting different tasks within public financial management to relevant technical systems through coordination is important when levels of organizational capability are retrogressing or extremely low. Success doing so often depends on an array of factors, including the type and amount of information and degree of planning. In the classic model of contracting out in public administration, there is a clear division of labor between government and external vendor. That is to say, there is a strong relational asymmetry in roles between principles (the bureaucrat) and agents (the vendor). Political models of outsourcing distinguish between the political clout of vendors and the technical proficiency of bureaucrats (Peled 2000).

Drawing on the relationship between capability and accountability elements in the building state capability framework, I examine two interrelated processes to understand the extent to which information generated through the Global Project Management System (GPMS) and Financial Management System (FMS) affected coordination. The first is the trajectory of the GPMS and FMS systems deployments in the Bangalore municipal corporation and the second is changes in the distribution of tasks between the
Indian CST and their BBMP counterparts. The latter helps understand shifts in vendor responsibility and management action by examining how the planning functions of bureaucrats intersect with the execution tasks of contractors in the settings in which they operate (Peled 2000). Rather than integration in hierarchical command structures, the patterns of information production, circulation, and coordination among actors that emerged followed a quasi-market structure. I trace the emergence of patterns of quasi-market competition to three main factors: (1) the pursuit of asymmetric integration by the Indian Centre for Social Transformation (Indian CST), (2) rapid declines in the verification costs of financial information (i.e. administrative facts), and (3) finally the co-location of competing outsourcing arrangements.

4.2 The Global Project Management System

4.2.1 The Challenge of Incomplete Information

As the previous chapter described, the amalgamation of the Bangalore municipal corporation with peri-urban jurisdictions had substantially increased the level of slack in the financial information management systems. A new Special Commissioner (Projects) was deputed through the Karnataka Administrative Services (KAS) to the BBMP. With responsibility for managing the portfolio of public investment projects in the BBMP, the Special Commissioner (Projects) initially requested detailed information on the portfolio of projects from the Funds Based Accounting System (FBAS) cell in the head office. Requests to the FBAS unit for various spending reports of aggregate projects took six months to fulfill, making the information supplied in them more or less useless for strategic planning decisions. Performance assessments of the work of engineers was impossible. More importantly, the FBAS system only covered 100 of the 198 wards but the office of special commissioner (projects) now had responsibility for monitoring construction and broader project execution across an additional 98 wards (450 square kilometers) that were effectively outside the official accounting information system of the BBMP. Centralizing project information would be necessary to building closer relationships with the engineers in zone, division, and ward offices that were newly a part of the BBMP.
The BBMP had become too big with too many projects and too many parallel systems. Initially, the main challenge was determining what to do with the existing information systems architecture and the institutional incumbents that supported its maintenance. While the municipal commissioner was supportive of introducing a new management information system for projects, no high-level political support for decommissioning and replacing the FBAS system would be forthcoming. Though FBAS was obsolete and crippled by the transaction volume of the new BBMP, it served a vital purpose as custodian of the BBMP’s accounting information. Were the city to be audited by the Comptroller and Auditor General (C&AG) or the Karnataka State Accounts Department, the information would have to come from FBAS because it was the official system used to assemble annual budget proposals.

The BBMP had been approached by the former director of the Karnataka State Police Housing Corporation (KSPHC) to offer a web-based project management system (WBPMS), which had been developed to support the KSPHC’s work constructing infrastructure and housing for the Karnataka state police. The KSPHC’s headquarters were in Bangalore, but the public corporation had projects spread throughout the state. The parastatal had successfully transitioned to a new project management system and the director had aimed to get the expanded BBMP to adopt the system to increase the legitimacy of the project information system and in doing so reinforce its legitimacy within the KSPHC. The KSPHC offered their online project management system for free.44

During the initial feasibility assessment for adopting the WBPMS in the BBMP, the KSPHC team tasked with transferring the technology discovered two problems. First, when the state government amalgamated the area around the periphery of the Bangalore, they did so under the misguided assumption that those towns and villages had already transitioned to a similar funds based accounting structure at the BBMP. Second, in discussions with the FBAS cell, they learned that the source code to the software had been lost during the administrative transition from Chief Minister S.M. Krishna to Dharam Singh following the elections in 2004. Consequently, any significant business process reengineering would be

44 Because the KSPHC was a public corporation under the Government of Karnataka, the technology transfer was conducted under memorandum of understanding (MoU) agreement.
too costly and likely to fail, since there were now no available options for decommissioning the FBAS software.

The team from the KSPHC and special commissioner (projects) concluded that the main objective of the WBPMS would be to channel the flow of project information up to senior managers in the BBMP. The KSPHC team convinced the BBMP commissioner that once the new system had sufficiently centralized project information and contributed to incremental improvements in expenditure control, the FBAS system could be slowly phased out. The transfer of the WBPMS system used in the KSPHC could be made relatively smoothly to the BBMP. All that was required were modifications to the project entry screens to match the BBMP project cycle, limited additional investment servers and other hardware, and training to educate engineers and project management consultants on the new system. The number of personnel in the BBMP’s engineering department had grown by a third after amalgamation, but no one was certain how many public investment projects had fallen under the BBMP’s jurisdiction. These issues helped justify the need for a new project management system, but also meant that the transfer from the KSPHC to the BBMP would need to be efficient and effective given variation in levels technology exposure among engineers.

As the project team began to deploy the WBPMS in the BBMP during the summer of 2009, the implementation was being closely monitored in daily review meetings by the municipal commissioner. The project ran into three initial problems. First, the KSPHC was expected to post a dedicated technical officer inside the BBMP to oversee coordination, but staff shortages forced them to send different officers on a rotating basis. Second, the municipal commissioner had requested that the WBPMS be integrated with the city’s new human resource information system referred to as the integrated financial management system (IFMS). IFMS had been configured to electronically process salaries and adding contractor bill payment would be relatively easy. The IFMS team, however, had been reluctant to
coordinate resulting in delays in linking the two systems. Third, the project team had underestimated some of the hardware specifications required to effectively transfer the system from KSPHC to the BBMP. Connectivity in wards on the periphery of the city that had recently joined the BBMP were not as dependable as anticipated. Basic end user problems like delays to loading the project entry webpage were an inconvenience to engineers who were often on the move between project sites and division, sub-division, and ward offices.

The biggest challenge, however, was determining how to respond to the rapid increase in the number of registered projects in the new system (see table 4.1). With the objective of quickly gaining spending control in the engineering division, project entries were being added to the system by teams following training in both the head office and division offices. Senior managers in the BBMP had anticipated an increase from what was reported in FBAS, but could only guess at the total figure. As engineers and the Indian CST began entering project information into the WBPMS system, the rate of increase and the absolute number far exceeded their initial estimates. Between November and December alone, the number of projects in the system increased from 3,098 to 20,000.

Table 4.1: Distribution of GPMS Projects by Zone (2009)

<table>
<thead>
<tr>
<th>Zone</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Zone</td>
<td>470</td>
<td>4,111</td>
</tr>
<tr>
<td>West Zone</td>
<td>448</td>
<td>2,607</td>
</tr>
<tr>
<td>South Zone</td>
<td>547</td>
<td>3,165</td>
</tr>
<tr>
<td>Rajarajeshwaringar</td>
<td>59</td>
<td>1,821</td>
</tr>
<tr>
<td>Bommanahalli</td>
<td>595</td>
<td>1,526</td>
</tr>
<tr>
<td>Yelahanka</td>
<td>154</td>
<td>1,865</td>
</tr>
<tr>
<td>Dasarahalli</td>
<td>157</td>
<td>1,324</td>
</tr>
<tr>
<td>Mahadevapura</td>
<td>238</td>
<td>1,499</td>
</tr>
<tr>
<td>Head Office</td>
<td>232</td>
<td>1,843</td>
</tr>
<tr>
<td>Total Projects*</td>
<td>3,098</td>
<td>20,000</td>
</tr>
</tbody>
</table>

*Includes projects entered without a zone.
Source: Indian CST

45 The KSPHC team had contracted a local technology firm, Business Intelligence Technologies, to provide technical support to the transfer.
The WBPMS project team and the special commissioner were caught off guard. The immediate challenges presented by such a high number of projects began to shape how the special commissioner (projects) understood the problem he confronted:

See when we started work in 2009, the number of projects we found actually were much more than what we thought. Then the gap was as much as 7 times our initially thought of 2,000 to 3,000. Then the projects crossed 20,000 and then more. So then the next question immediately was how to meet the expenditure related to those projects.46

The authorizing environment surrounding the WBPMS project was shaped primarily by the day-to-day needs of senior project managers in the BBMP. There were ongoing information management problems with ownership over project files that were left unresolved during the administrator period when no BBMP council existed. Amalgamation of the small jurisdictions in the peri-urban areas of Bangalore was exacerbating the shortcomings of the existing institutional arrangements for financial management. Bill payment was delinked from project management. The chief accounts officer was responsible for issuing payments to contractors, contingent on approval from executive engineers and review by project management consultants. During the administrator period with no local council, much of the financial discipline that had been gained during S.M. Krishna’s tenure as chief minister was lost. A considerable portion of public financial management was conducted through informal channels:

Someone at the BBMP makes a plain call to bank and whatever the bank says they right down that figure. And only then do they issue outstanding checks [payments] to contractors. They were not doing accounting, they were not doing auditing. It was all by word of mouth.47

The steep increase in registered projects provoked a reconsideration of the original plan. Over the course of the next three months, the WPMS project team and the special commissioner investigated alternatives.

4.2.2 Reframing the Problem and the Design of a New Model

Even as the number of projects were rapidly increasing, there were concerns about how the system would be transferred to the BBMP. Given the amount of time it was taking to transfer the

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46 Interview, 3 July 2015.
47 Interview, 15 December 2015.
WBPMs to the BBMP, the KSPHC was reluctant to commit scarce resources to a long-term project that could fail. Though the web-based project management system had features that were advantageous to centralizing project management in the BBMP, the implementation model could not scale to the needs of the BBMP. Following a series of review meetings between the municipal commissioner, the special commissioner, KSPHC officers, and the WBPMS implementation team, the municipal commissioner concluded that the WBPMS would not be appropriate for the BBMP’s needs. The decision was to transition Business Intelligence Technologies into a registered public trust – the Indian Centre for Social Transformation – that could support the BBMP with innovative technology delivered through an alternative social outsourcing model.

Given permission by the municipal commissioner, the newly constituted Indian Centre for Social Transformation (Indian CST) set out to conduct a more thorough assessment of the opportunities and risks associated with a range of potential system designs. The Indian CST held focus group discussions with engineers and other BBMP staff to solicit ideas and end user needs.

_We came on the scene as system designers to look at the process and obviously the legacy systems were engrained in powerful stakeholders so they wouldn’t allow us to change it. So you capture the data and try to replicate the same process for them._

Rather than displacing existing systems, duplication of existing procedures seemed to be the only pathway forward. Increasing redundancy in the system was perceived as a potential benefit given the high number of choke points to the flow of information inside the BBMP. Control over key pieces of project information remained widely distributed throughout the project management system. Contractors, engineers, project management consultants, and the finance department all had various levels of veto power over any structural reform to internal governance. Engineers still filled out project records manually in the maintenance book. Contractors held onto project files until completion of project quality reviews by project management consultants.

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[48 Interview, 30 July 2015.](#)
Locating the Funds Based Accounting System in the head office required project files to be physically transferred from division, sub-division, and ward offices to the FBAS cell in the head office. The existing workflow in the engineering department thus introduced a structural barrier to promoting accountability in internal governance. The necessary reform was decentralizing project information management in the BBMP. The system that would replace the WBPMS would have to enable the full delegation of project information management responsibilities to the zones. As the experience introducing the WBPMS made clear, centralization of project information was only a means to an end.

The core software design principle that emerged from the assessment by the Indian CST related to adaptability of the system. The basic idea was that the system would need to be:

Flexible by ensuring we capture the inputs completely and put in a process to validate them completely. Capture as much data as possible and ensure the purity. It is not in changing the business process you are concentrating on. It is data you are concentrating on.49

Considering the previous four years of governance in Bangalore and the observations from the internal assessment of the BBMP, the Indian CST concluded that the traditional model of private sector software development was not appropriate. Two factors influenced their thinking. First, traditional in-seat licensing with proprietary software had substantial cost implications for an urban local body that was growing and would clearly require higher capital investment in information technology over time. Second, hosting the software system on internal BBMP servers increased dependence on information technology staff that was stretched thin by the amalgamation and generally struggled with high staff turnover rates. A system that could be jointly hosted on servers both inside and outside the BBMP and run non-proprietary code would be resilient to hardware failure and more adaptive to organizational stress resulting from changes to administration, politics, and policies. The Indian CST offered to develop an open source project management system hosted on a cloud computing platform and delivered to the BBMP on a Software as a Service (OpenSaaS) model.

49 Interview, 30 July 2015.
Compared to traditional public private partnership (PPP) models for e-governance in India, the OpenSaaS model had features that were tailored to the BBMP’s needs and consistent with the direction of various national policies regarding information technology governance in the public sector. The OpenSaaS model allowed the system to be hosted on both internal BBMP and remote servers. As a public trust interested in governance reform, the Indian CST would not charge the BBMP for the product. The premise supporting such a move was that it would help limit any opportunities for bribery or other forms of contracting corruption. Consistent with the Software as a Service (SaaS) business model, the Indian CST’s public trust did permit compensation for services rendered. The Indian CST informed the BBMP that if they were pleased with the services provided that the Indian CST would accept payment only to cover the cost of labor and the remote servers.

The special commissioner (projects) and the Indian CST concluded the OpenSaaS model would provide the strongest opportunity to succeed in delegating end-to-end responsibility for project information management to the zones. Consequently, the objectives of the IT-project had expanded to encompass a double move: initial centralization of updated project information in the special commissioner’s office and delegation of project entry responsibility to the zones. Under such conditions, the special commissioner (projects) could then make better decisions related to improving management control over the 198 wards of the new BBMP.

Figure 4.1 is a schematic representation of the proposed changes. The downward blue arrow represents the assignment of responsibility for data entry into the Global Project Management System. At the time, the FBAS cell was recognized not only as the formal accounting agency within the BBMP but was assigned responsibility for data entry. The upward black arrow represents the flow of information that GPMS would have to enable. The BBMP was simply too large a jurisdiction to continue with the highly centralized FBAS model. The special commissioner (projects) and the Indian CST agreed they must insist that transaction information and other information related to project execution be entered in the zones and divisions at the point of transaction.

Figure 4.1 The Proposed Reforms through GPMS
The front end of the global project management system (GPMS) software could be developed and deployed immediately, even if new server capacity or desktop terminals would need to be purchased over time. Server capacity could be added to the system on demand. The OpenSaaS cloud-based model would allow a form of joint ownership and control over the code, where both the BBMP and the Indian CST could continuously make system upgrades and updates while not being solely dependent on a single actor. As open source software, the data would be “owned” by the public. The system would have all the characteristics of adaptable and agile public financial management technology: robust to changes in policy, politics, timelines; limited switching costs and vendor lock-in risk; ability to downscale and upscale on demand; while allowing for rapid design iteration at the lowest cost (Peterson 2006).

The results of the business process assessment conducted by the Indian CST encouraged the selection of an open front-end design that would aim to capture as much project information as possible. Because the GPMS would be hosted on an OpenSaaS cloud-based architecture, the BBMP and Indian CST did not have to build an integrated system from the outset. They could adopt a modular approach starting with project management system, while waiting for the right opportunities to expand system functionality with additional features or entirely separate modules linked to the same relational database.
The implementation strategy was based on achieving “plateaus,” instead of “summits of international best practice (S. Peterson 2011). As a not-for-profit organization, the Indian CST avoided the logics of standardization and over-specification among commercial software companies.

Table 4.2 lists the most important project information captured on the project entry page. The first version of the GPMS system contained 60 entry fields with the objective of sweeping up as much information as possible.\(^50\) The work code was the 14-digit numeric code generated by the finance department that served as the project-level identifier. The work code formed the basis of the Funds Based Accounting System (FBAS). The project code corresponded to the major head codes of the municipal budget.

Table 4.2 – Project Information in GPMS

<table>
<thead>
<tr>
<th>Project Details</th>
<th>Location Details</th>
<th>Approval Details</th>
<th>Stakeholder Details</th>
<th>Work Status Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Work Code</td>
<td>• District</td>
<td>• Approved By</td>
<td>• Zone Engineer</td>
<td>• Agreement Date</td>
</tr>
<tr>
<td>• Project Name</td>
<td>• Zone</td>
<td>• Budget Head</td>
<td>(Chief Engineer)</td>
<td>• Commencement Date</td>
</tr>
<tr>
<td>• Project Code</td>
<td>• Division</td>
<td>• Scheme</td>
<td>Division Engineer</td>
<td>• Scheduled</td>
</tr>
<tr>
<td>• Estimated Cost</td>
<td>• Sub-Division</td>
<td></td>
<td>(Executive Engineer)</td>
<td>• Contract</td>
</tr>
<tr>
<td>• Approved Cost</td>
<td>• Ward</td>
<td></td>
<td>Sub-Division</td>
<td>Completion Date</td>
</tr>
<tr>
<td>• Expenditure Incurred</td>
<td>• Area</td>
<td></td>
<td>Engineer</td>
<td>Work Status</td>
</tr>
<tr>
<td></td>
<td>• Assembly</td>
<td></td>
<td>(Assistant</td>
<td>• Anticipated Date</td>
</tr>
<tr>
<td></td>
<td>Constituency</td>
<td></td>
<td>Executive Engineer)</td>
<td>of Completion</td>
</tr>
<tr>
<td></td>
<td>• Department</td>
<td></td>
<td>Ward Engineer</td>
<td>• Actual Date</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Assistant Engineer)</td>
<td>of Completion</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Contractor Name</td>
<td>• Uploaded Photos</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Contractor Class</td>
<td></td>
</tr>
</tbody>
</table>

In addition to the project management system, one additional module was of strategic importance to the Indian CST from the outset. As a mission city in the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), the BBMP was expected to implement an online citizen complaint (grievance) system.

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\(^{50}\) In addition to the entry fields, the system could also store scanned project documentation such as copies of tender agreements, contractor bills, the measurement book, and any other project execution reports.
system under the mandatory e-governance reform for urban local bodies (ULBs). Most online citizen grievance platforms in ULBs simply provide a space for residents to enter complaints. The OpenSaas architecture of the GPMS system went a step further by linking the citizen grievance site to the public investment project database (see figure 4.2). Anyone could use a computer or any mobile device that had access to the Internet upload information to the complaint module, so the Indian CST integrated it with the project management system.

Figure 4.2 Simplified Schematic of GPMS-FMS Software and Hardware Configuration

Acknowledging the tenuous condition of public financial management in the BBMP, the Indian CST perceived the citizen complaint module to be equal parts helpful and risky. On the one hand, if the application became popular among the public it could potentially compensate for the negative effects of internal resistance to the system that are felt most acutely in the basic steps of capturing project

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51 The e-governance reforms encompassed eight functional areas of local government: property tax, accounting, water supply and other utilities, birth and death certificate, citizen grievance monitoring, personnel management system, building plan approval, health programmes.

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information. Because information technology was woven into the fabric of the city’s identity, the Indian CST perceived that potentially:

> Huge numbers of stakeholders in the chain of delegation located in different departments and different locations. Public stakeholders are many, so if the engineer is not giving information take it from somewhere else. Capture is most difficult and biggest hurdle because BBMP is dependent on engineer.\(^{52}\)

Still, the Indian CST was concerned about being associated with the software system that gave citizens the opportunity to lodge complaints against the BBMP. This could put the organizational into an antagonistic relationship with BBMP employees, arguably the most important end users of the system they were designing. If the complaints were too critical and too numerous for the BBMP’s staff to address, they might overload the initial capacity to adopt to the system. The Indian CST decided to leave the first version of the citizen complaint module untouched and would focus their resources on updating the project management module as they moved forward. Consequently, the complaint system suffered from some serious design shortcomings in the user interface, but it did enable citizens to upload grievances and service requests to the BBMP and link them to particular projects. This latter feature was used less extensively. Initially, BBMP engineers and staff responded to complaints on a voluntary basis, though the complaints became politically useful down the road (see chapter 5).

The initial goal of the GPMS application was not to replace FBAS, but rather to continue to centralize project information in order to introduce minimal project execution and payment control and, over time, increase public transparency. That the FBAS system would remain in the BBMP even though it only covered 100 wards presented an acute problem in information system design called the single version of truth (SVOT). The SVOT is a data governance problem, referring to the need to have non-redundant information storage to streamline management decisions and limit confusion and conflict. In the context of public financial management, the SVOT problem applies to having a common source of information on the budget position, resource availability, and unit performance. The budget and accounts of the BBMP were prepared according to the *Bangalore Mahanagara Palike (Accounts) Regulation, 2001*.

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\(^{52}\) Interview, 4 June 2015.
which was drafted in tandem with the design and development of the FBAS accounting information system. This coupling of the accounting information system with regulations, combined with the loss of the FBAS software code, ensured that the new project management system would not initially share the same database. The Indian CST would have to turn to an alternative mechanism for the SVOT problem.

The Indian CST’s solution to the SVOT problem came in the final step of the initial system design. The Indian CST devised a framework for ensuring that the project and transaction information processed in the GPMS would have a clear interpretive frame applied to it in order to define its meaning to an array of end users. Drawing on principles of financial auditing, the Indian CST developed an internal data management framework they referred to as CVCMARK (see table 4.3). The use of preventive controls was not an initial option, given that the GPMS was not going to immediately replace the FBAS system. Nevertheless, internal governance and decision making could potentially benefit from a data management framework based on detective controls.

The Indian CST devised a data management framework divided into seven steps: capture, validate, correlate, measure, analyze, report, and key performance indicators. The first element in the framework required unit officers (engineers, revenue officers, hospital staff, etc.) to be responsible for the entry of information at the point of transaction. Parts of the user interface would be automated, while others would remain manual. This initial requirement would at least create nominal lines of accountability back to the officer responsible for the task. The remaining elements of the framework are described in table 4.3.

Table 4.3 CVCMARK Framework

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Capture</td>
<td>The initial step of information entry into the financial management information system.</td>
<td>Unit officer (point of transaction); public</td>
</tr>
<tr>
<td>2 Validate</td>
<td>Validate relates to internal software design elements that restrict information entry against a second variable to limit discretion and ensure the veracity of the information. Validate is an internal process.</td>
<td>Internal software feature (BBMP/Indian CST)</td>
</tr>
<tr>
<td>3 Correlate</td>
<td>Associate one form of information with another (tax payment with bank deposit; site photo with project entry)</td>
<td>Internal software feature (BBMP/Indian CST)</td>
</tr>
</tbody>
</table>
Steps one through five constituted a cycle that repeats over time as new information flowed into the system. Reports were progressively brought online to meet the needs of the moment and avoid overwhelming the system with features that were unnecessary given the level of system adoption. The usefulness of the CVCMARK was that by encompassing both human procedures and automated technology it standardized the treatment of different types of PFM information collected in different locations, and of different quality within the same framework. If full automation is not achieved, the steps can be supported by human actors. For instance, while the PFM information system can automate validation and correlation, the measurement and analysis steps might require consistent human intervention.53

4.2.3 Piloting the Global Project Management System

Data entry in the FBAS system was conducted in the FBAS cell in the head office. Zone, division, sub-division, and ward offices would send project files (digital and paper) but most engineers were not expected to enter information. These features of the existing system provoked the Indian CST to solicit another round of end user feedback on the GPMS system. The new system would require engineers and other BBMP employees to directly input information into the system. While it was true that another software system would initially complicate lines of accountability and be the direct cause of internal

53 It is common in local governments for bureaucrats to enter information with slight discrepancies – entries that contain small differences – which are often rejected in other systems as unacceptable entries. Each step can be progressively introduced to an implementation process.
confusion in such a large, bureaucracy distributed across 709 square kilometers, the FBAS system was obsolete and sunk deeply into the formative context of information and communication technologies (ICT) in the BBMP.

As the GPMS software began to take shape, the Indian CST was eager to pilot it. The special commissioner projects held meetings with joint commissioners and chief engineers, who are the senior executives of the zonal offices and oversee project management at the sub-division and ward offices. The joint commissioner from the west zone expressed the most enthusiasm for the project, so the initial pilot was conducted there. Executive engineers and assistant executive engineers were reluctant to adopt the system during the pilot. The immediate response was that the project entry pages were too extensive and therefore far too time intensive for engineers. As one engineer in the roads division expressed:

_The BBMP had thousands and thousands of projects...and there were too many fields [in the GPMS] and engineers wanted to go back to the manual way of managing._

The Indian CST responded by limiting the number of mandatory fields required for completion, but because the rollout would require substantial technical assistance the Indian CST thought they could use the additional labor to augment the data entry done by engineers. As a result, they left the project entry page as it was originally designed.

While the user interface was a primary concern for the Indian CST, internally the concern centered on overcoming the internal divisions between senior officers and senior engineers in the zones. Historically, chief engineers that oversaw project management in the zones were posted on deputation through the Karnataka Administrative Services (KAS). However, changes in state regulations had allowed for regular BBMP employees to be promoted to the position on the basis that it was impossible to hold external officers from the KAS accountable. Still, salary differences and strong social ties to local BBMP council members and political officials in state government contributed to stark divisions between the special commissioner (projects) and the chief engineers who would be essential to asserting authority in the zones.

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54 Interview, 9 December 2015.
The special commissioner (projects) had little to offer as incentive to adopt the system. The GPMS team considered building support to approach the state government to request the employee guidelines for the BBMP be revised to reference the GPMS system. This would take considerable time and ultimately require support from the Karnataka Legislative Assembly (KLA). With a new BBMP council following four years of administrator rule, the corporation was just beginning to build working relationships with new councilors. Thus, the project team was left to motivating the engineering department with the promise of time savings from entering the project information in the GPMS system, framing the requirement for engineers to repeatedly hand write copies of project documentation as both a nuisance and bottleneck to improved project execution.

Having gone through two rounds of diagnostic assessments of the public financial management system in the BBMP, the Indian CST and special commissioner (projects) devised a strategic implementation plan that was endorsed by the municipal commissioner. As the piloting phase came to an end in the West Zone, the Indian CST subcontracted with the Project Management Institute in Bangalore to implement a large-scale training program. Maintaining a staff of fifty employees (many part-time), it was necessary to subcontract support from the Project Management Institute. Doing so allowed the PMI to gain exposure to the Indian CST’s technology, while also drawing on the expertise of the PMI staff.

Figure 4.3 GPMS Training Sessions at the BBMP

Source: Indian CST
Because existing projects were still being added to the BBMP’s expanding project registry almost a year after the initial project management system adoption, engineers were instructed to bring any project documentation connected to ongoing projects. The training sessions combined directions on how to use the system with data entry in small work groups. At each session, engineers were instructed to form groups of three or four each from different divisions or zones. As a group, they would monitor the entry process and then each engineer was requested to present to the entire group a summary of the project and how she would use the information stored in the GPMS. Having watched data entry, the other members of the group were asked to confirm the veracity of the information in the system and of the engineer’s presentation to the larger group. The trainings were designed in such a way as to socialize the system within the engineering ranks, while developing a collective appreciation for the system.

4.2.4 Centralizing Information and Coordinating Delegation for Information Management

As the GPMS system rolled out completely in the fall of 2010, the BBMP was confronting major cash management problems compounded by a backlog of projects carried over from previous years. The fragmentation across the BBMP’s public financial management system and the obsolescence of the FBAS system were contributing to a payment crisis among contractors who had come to rely on seniority to secure lead access to the BBMP’s unpredictable cash flows.

"Many people were creating issues like contractors saying they were not being paid; that seniority was being overruled. At the time, these contractors used to turn to dharnas. Whenever there was a delay to bill payment, they would form a group, stop work and create problems in BBMP. They go to the district in-charge Minister. They used to operate through the mayor and then with their henchman, they used to get things done. They were bypassing commissioners and special commissioners."  

Pressure was mounting on the Indian CST to bring the system up to full coverage across the BBMP’s 198 wards. New coordination mechanisms were established to support the rollout. Every week an implementation review meeting between the Indian CST and special commissioner (projects) was held to

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55 Interview, 8 December 2015.
assess problems with the deployment such as offices that did not have enough computer terminals or issues with Internet connectivity.

A second type of meeting—performance reviews—were held weekly between the special commissioner, Indian CST, chief engineers from the zones, and executive engineers. These meetings focused on system performance, reporting, and collective learning. Questions addressed during these meetings included login patterns among BBMP engineers, data missing from certain zones, and how the chief engineers were providing support to lower level staff in divisional, sub-divisional, and ward offices. BBMP employees were allowed input into these meetings to help the Indian CST to monitor problems among end users. Finally, the Indian CST circulated a standardized feedback form that BBMP staff could complete to describe features they wanted or had problems using. To sustain the tight feedback loop between end users and senior managers, comments and suggestions were tabled and the municipal commissioner would take a decision during the performance review.

Still even as these new coordination mechanisms were improving deployment, the patterns of adoption remained uneven across the zones. The problem was one of imposing a technical system onto a highly informal structure of local accountability relations in management. The implementation dilemma was that other than notifications, which are official orders issued by senior executive officers in the corporation, there were few remaining options for incentivizing the use of the system. The special commissioner (projects) offered a grace period to the engineers that would lower the initial risks entailed by adoption. The process was largely informal, but the special commissioner announced to the engineers that they would not be punished for previous mistakes or problems if they began fully complying with the new GPMS system.

We told engineers if they had done something in the past that might get them in trouble, we would not move forward with disciplinary action if they started using the system. While this might let a “bad apple” remain, the thing is you can never be certain that a bureaucrat will be reformed.56

56 Interview, 17 June 2015.
The role of the Indian CST was evolving from their initial responsibilities for the execution of system design, development, and training. While the first phase of implementation focused on ascertaining the number and composition of projects under the control of the amalgamated BBMP, the second phase focused on the performance of various actors in the chain of delegation. The lead programmer at the Indian CST was responsible for overseeing modifications to the backend of the system:

*We focused in the second phase with a variety of reports like contractor report for example. If contractors are executing around four to five jobs and they submit a tender for a new one, then the BBMP officer needs to check how many projects this contractor has delivered, whether he has completed all the projects, and how many projects are in progress.*

By March of 2010, the number of projects in the GPMS system had surpassed 30,000. The centralization of project information in the BBMP had drastically shifted the policy concern of the special commissioner (projects). Organizational attention among senior officers moved from understanding the total number of projects in the BBMP’s portfolio to how to cover the projected costs of the additional projects that were officially registered across expanded BBMP territory in the GPMS system.

The shift in performance management and coordination to clear projects was subtly changing management relations between concentrated and deconcentrated agents. The Indian CST and special commissioner (projects) used the weekly meetings at the BBMP to instantiate a modified performance evaluation system. With the municipal commissioner present and invested in the outcome of the FMIS system, the special commissioner began to reinterpret data flowing in the GPMS system as performance indicators to evaluate engineers and recommend staffing changes. Some of the variables used to judge performance included who had and had not logged in to the system over the previous week and the extent of project-level data reported from the zones. Thus, the type of performance management that was beginning to take shape was pragmatic with respect to the situation at hand. The special commissioner for projects could use performance reports in the system to manage tasks related to staff transfers to other

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57 Interview, 15 July 2015.
departments, locations, or offices for those engineers that refused to use the GPMS system for project management.

The ability to append digital photos to the project page was considered essential given the size of the BBMP’s new jurisdiction. While the special commissioner and chief engineers still relied on spot checks to monitor project execution, the feature increased the engineer department’s capability to allocate scarce staff resources to more efficiently monitor the entire portfolio of projects under their authority. An engineer described his new capability to exert control at a distance in the following way:

> You can monitor from any place. You need not go to the site. What I mean is that information on the project and reports can come from the system and then be used to check against other manual reports or progress on the ground. Information is more balanced.\(^{58}\)

The Indian CST’s Software as a Service (SaaS) delivery model provided them considerable discretion adding new reports and features to the system. The original idea was that adding features would be subject to demand, however ascertaining demand for project information was difficult. In soliciting the reporting needs of different engineers, the Indian CST could not solely fall back on the system they had introduced and its information processing capabilities. Most of the reports the Indian CST could provide were overshadowed by the mounting pressure to come up with a funding solution to the number of projects that were now formally registered.

This issue could not be solved directly by the Global Project Management System. The special commissioner (projects) was now responsible for their completion, but clearing them off the BBMP’s books as liabilities required working more closely with the chief accounts officer (CAO). They began with the incomplete project report automated in the GPMS. While the report helped identify projects that had gone far beyond their estimated completion date, the BBMP was still subject to cash management constraints. The senior management of the BBMP divided bill payment into three levels:

> The bill payment problem is critical. We received money for day-to-day management and the State had given 500 crores. We devised a system of three categories. Service bills like

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\(^{58}\) Interview, 9 December 2015.
solid waste management and water cannot wait so they were cleared within one week. Salary and wages also have to be cleared. Project mode bills for lake development, major roads, bridges will get priority out of the remaining funds. The remaining 30 percent goes to ward works or miscellaneous projects such as school room repairs.\textsuperscript{59}

Within these parameters, the suite of project reports introduced by the Indian CST helped identify which projects to accelerate for completion and which projects were in the pipeline that could be scrapped.

There is a liability on BBMP, you could not just stop it in between. It should be taken into safe stage in some cases or just to be allowed to be completed. Those works which were not started yet and were not necessary actually, keeping the financial health of the BBMP, and considering the non-prioritization of those things, we scrapped them.\textsuperscript{60}

At the time, the special commissioner estimated he had saved the BBMP from committing to around 3,000 crores ($680 million) rupees of funds for socially unnecessary public investment projects such as roads, drains, and unnecessary maintenance.

4.2.5 Bolting the System Down

Having introduced new report formats to support the special commissioner and engineers in the zones, the implementation strategy turned to bolting the GPMS down more deeply into the BBMP’s public financial management system. A stronger incentive would be necessary to encourage engineers to enter any remaining projects in the GPMS system. The Indian CST offered to bring online a bill processing feature in the GPMS. GPMS would then transform into a mandatory step that would force the engineers to rely on it more fully. More importantly, the move was viewed as essential to push the full responsibility for financial management over projects down to the chief engineers and executive engineers working at the zonal level. If bill payment to contractors had to flow through the GPMS, and engineers were inputting information into the system at the point of transaction, then accountability relations could be fixed around the level of correspondence between the project information and bill payment information in the GPMS system.

At the time bills were approved manually by the executive engineer before checks were released by the chief accounts officer after confirming cash levels in the BBMP’s bank accounts. The transaction

\textsuperscript{59} Interview, 17 July 2015.
\textsuperscript{60} Interview, 3 July 2015.
was officially registered through ex post entry into the Integrated Financial Management System (IFMS).

By tying bill payment to GPMS, they could achieve two objectives. First, processing payments to contractors through GPMS would increase the downside risk for engineers and contractors of keeping projects off the books, since the scrutiny of contractor payments could happen in real-time. Second, by requiring bill processing and payment disbursement to contractors to run through GPMS, the city government could gain back control over the payment flow process. The change would also force coordination between senior officers in the projects and the finance departments. The consequences of the change were that monopoly control over contractor payments exercised by the chief accounts officer would be reduced. The decision was linked to vertical scrutiny of financial flows:

*We issued through circular instructions and through review meetings that GPMS was being put into use and we also said that (circular) that if bills don't come through GPMS they will not be honored (project bills). Scrutiny could be done.*

The current municipal commissioner, Siddaiah, agreed and issued a directive (i.e. circular) to engineers that all bills should be entered in GPMS as of April 2010. Following the circular to pass bills through the GPMS system, the assistant engineers and assistant executive engineers in division offices across the zones began issuing payments through the GPMS system. In order to introduce the appropriate controls, the Indian CST could automate the validation step within the CVCMARK data management framework in the new bill payment module. Without the automated validation, engineers would be able to pass invalid or unverified bills through the system. Bill payment entries required the exact work code associated with the project selected. When issuing a bill to pay contractors through the GPMS system, the engineers would have to select a work code and the remaining aspects of the project work would automatically populate from the related project file in the system into the bill payment data entry screen.

The 14-digit project-level work code, which originated with the FBAS system, was issued manually by the assistant controller (finance) based on cost estimates provided by the engineers and depending on annual budget sanctions and the availability of finance. Work codes flowed into the GPMS

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61 Interview, 17 June 2015  
62 Interview 30 May 2015
after their creation so that critical element of internal control in public financial management was outside the GPMS system (see figure 4.4 below). The order to pass bills through GPMS therefore modified the existing budget execution process by inserting a control between procurement and fund commitment. The expectation was that by requiring project information to be entered by engineers in the zones and requiring them to use the GPMS to scrutinize bill payment the BBMP would move one step closer to bolting the system down. The special commissioner projects and the Indian CST anticipated that affixing the two ends of project supervision to the same FMIS system and within the same level of the engineering hierarchy could reshape accountability relations within internal management procedures across all 198 wards.

Figure 4.4 Change in Internal Control Process as a Result of GPMS Bill Payment

Having expanded the functionality of GPMS from project entry to project accounting and introducing new reporting formats, the deployment had reached an important performance plateau (S. Peterson 2011). The next task was to increase public awareness of the system and encourage public participation. A year and a half after the introduction of the GPMS system in the west zone, public events were held around the city to present the GPMS to the public and communicate its purpose and how citizens might participate. The Citizens Voluntary Initiative for the City (CIVIC), a prominent NGO in Bangalore, hosted a public presentation and training session in June 2011 in Bangalore. The municipal

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commissioner that approved the design and development of GPMS presided over the event. The purpose was to train the public on the GPMS system and its features, including registering complaints, viewing public investment projects, uploading comments and photos to the project sites, and to solicit suggestions for improvements to the GPMS online portal.

4.2.6 Shock to the System: The Verification Problem and Hidden Implementation Stress

As the GPMS system continued to stabilize in the BBMP, the Indian CST turned to integration issues they had left unresolved during the first year of deployment. The number of projects registered in the BBMP was approaching 50,000 but the system remained delinked from the other financial management information systems in the BBMP. Integrating the Global Project Management System and Integrated Financial Management System was important because monitoring and control over bill payment was now conducted through the GPMS system, but bill payments to contractors were ex post registered in IFMS by the chief accounts officer. By integrating the back end of GPMS and IFMS, the project management cycle would be fully covered. Integrating the two systems would help reduce the single version of truth (SVOT) problem that continued to exist in the BBMP.

The Indian CST began to focus on two subsets of projects: projects without work codes and projects that were duplicated between IFMS and GPMS. The former were important because the Indian CST had included data entry validations in the project bill payment feature of the GPMS. If a project did not have a work code, engineers would not be able to submit bill payment requests through GPMS. This step in the systems development process confronts the verification problem, which is distinguishing between “honest errors in judgment and outright corruption” (Stiglitz 2010, 24). The introduction of controls into the system is a particularly precarious period during implementation. If the controls are too rigid and penalize honest errors, the design might discourage the continued institutionalization of the system. However, the purpose of the system is to economize on the efforts required to detect and prevent outright corruption, so internal controls are necessary to produce the requisite efficiency gains (benefits) to justify the opportunity costs of changing internal procedures.
Table 4.4 below shows project information from a report that described the range of statuses among projects in the GPMS, including 5,890 projects that contained duplicated project information and 1,062 projects that were entered without an assigned work code. Existing budget and accounting regulations for the BBMP (Bangalore Mahanagara Palike (Accounts) Regulation, 2001) that were developed when the funds based accounting structure was devised by the BATF stated that assistant controllers finance (ACF) (located in zone offices) assigned the work code for each project only after the chief accounts officer had approved the availability of funds and either the joint commissioner or municipal commissioner had approved the project through the program of works. Because FBAS was centrally located in the BBMP head office, such an arrangement required substantial investments in top-down monitoring and oversight. When SM Krishna lost the elections in 2004, the BATF’s heavy hand of monitoring was lost. When the state government dissolved the BBMP council to amalgamate the city with the peri-urban jurisdictions the internal coordination necessary to make the system work collapsed even further.

Table 4.4: Projects in GPMS as of November 2011

<table>
<thead>
<tr>
<th>Project Status</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Projects</td>
<td>52,269</td>
</tr>
<tr>
<td>Duplicates</td>
<td>5,890</td>
</tr>
<tr>
<td>Projects without Work Code</td>
<td>1,062</td>
</tr>
<tr>
<td>Projects without Zone</td>
<td>6,874</td>
</tr>
<tr>
<td>Cost Over Run Projects</td>
<td>2,093</td>
</tr>
<tr>
<td>Cost Savings Projects</td>
<td>4,240</td>
</tr>
<tr>
<td>Time Over Run Projects</td>
<td>2,885</td>
</tr>
</tbody>
</table>

Source: Indian Centre for Social Transformation

Now that the Indian CST’s GPMS system was handling management review of contractor bills, it was incumbent on the organization to understand why projects without work codes existed in the GPMS system. The effort to get GPMS up and running had been an enormous undertaking with project information entered by both staff from the Indian CST and BBMP engineers and other employees. With permission from the special commissioner, the Indian CST started in the west zone and began inquiring about specific projects that were entered into GPMS without a job code. Following spot checks and conversations with west zone engineers, the Indian CST was able to hypothesize that assistant controllers
finance and executive engineers were using duplicated work codes to submit work bills for payment on incomplete or entirely non-existent work. The special commissioner (projects) recommended a deeper investigation.

The municipal commissioner constituted the Technical Vigilance Committee under the Commissioner (TVCC) to investigate. The TVCC was dispatched around the city with project data from the Indian CST to visually inspect whether work for the duplicate project codes had been carried out. They relied on GPMS project reports to systematically examine projects in three constituent assemblies in the west zone: Gandhinagar, Malleswaram, and Rajarajeshwari. The initial estimate of financial irregularities in these three assembly districts amounted to Rs. 1,539 crores (USD$265 million). This amount was reported in the Financial Express with confirmation provided by the BBMP commissioner.64

Another news article presented speculation by Sharan Patil, a Congress party MLA, that the loss to the city could rise to 10,000 to 20,000 crore rupees if an inquiry were to be conducted across all 198 wards. Siddaiah, the municipal commissioner that had supported the initial development and implementation of the GPMS, made an initial recommendation to the Bangalore Metropolitan Task Force (BMTF).65 The BMTF issued first investigative reports (FIR) to over 1,300 engineers. However, shortly after the BMTF initiated their investigation, the BMTF’s office along with server rooms inside the BBMP were attacked by arsonists.66 The project files were, however, stored in the GPMS system secure on remote server backups.

The ensuing debate centered on what institution to recommend a deeper investigation. At the time, there was no precedent for such cases in the BBMP. The special commissioner (projects) and the

65 The BMTF was created in 1996 as a police agency to investigate the destruction of public property and to detect and prevent illegal construction on public land in Bangalore.
municipal commissioner considered their options, which ranged from the Karnataka Criminal Investigation Department to the Karnataka Lokayukta:

Therefore, we had in fact, the then commissioner and myself, we took a decision to refer it to a higher level authorities like, not necessarily CID because CID again is under the government and they could be under some kind of influence or whatever. We wanted this to be probed by Lokayukta itself.

The state government made powerful interventions into the local investigation. Less than two weeks after the irregularities were made public, the BBMP commissioner was transferred and replaced by Shankarlinge Gowda. In a statement made after Siddaiah was replaced, the chief minister was quoted as claiming the irregularities only amounted to 5.22 crore instead of 1,539 crore. The new municipal commissioner submitted to the state government’s plan, which departed from the earlier decision to refer the case to the Lokayukta:

But government took a different view and the cabinet took a decision to refer it to the Criminal Investigation Department (CID) and these three divisions, they went through some of the works again. The CID people, they couldn’t understand much because of the technical issues, lot of technicalities are involved, and because of the passage of time and again some roads and some culverts would have been redone again, so they couldn’t go to the original, probably because the projects were from three or four years ago.

The discovery by the Indian CST was, however, highly detrimental to their system. The state government froze the use of work codes and introduced an entirely new unique project identification called the job code. The job code was a convention borrowed from the state government public works department. All new job codes would be issued by the chief accounts office (finance department) and created by the Integrated Financial Management System. The decision effectively cut out the Global Project Management System (GPMS), as engineers abandoned the system and the municipal commissioner that had ordered the use of GPMS had been removed.

The authorizing environment in which the Indian CST had maneuvered to deploy the GPMS system had changed substantially in just two years. The duplicate project scam in the BBMP’s West Zone

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67 The Karnataka Lokayukta is the highest anti-corruption judicial agency in Karnataka.
68 Interview, 29 October 2015.
70 Interview, 29 October 2015.
had exposed weaknesses in internal control connected to information technology governance decisions made by the Bangalore Agenda Task Force (BATF) a decade earlier. Centralizing the accounting information management system in the head office while delegating fund commitment (i.e. the origination of the project work code) had generated structural asymmetries in financial information management. Contractors and engineers, working with the assistant controller finance (ACF), were able to exploit mismatches in delegated responsibility for monitoring and oversight between the task areas of budget authorization, fund commitment, and project execution.

The assessment of the GPMS implementation was that the special commissioner (projects) and the Indian CST team had pushed too soon to bolt the system down through payments. They had confronted a set of powerful actors, but had done so in too straightforward a manner to sustain long-term use of the GPMS system by engineers. If the BBMP could improve the effectiveness of revenue administration by increasing control over short-term cash flows and cash balances, they could gradually introduce an integrated project monitoring system while guaranteeing the availability of funds for contractors. As the duplicate project scam moved into the court system, the BBMP turned its attention to cash management. In particular, replacing the manual collection system with automated processes became a major priority taken up by the special officer (finance) who had been recently deputed with instructions to replicate the state governments automated treasury system for the BBMP.71

4.3 Financial Management System

4.3.1 Negotiating the Boundaries of the Revenue System

The special officer (finance) first approached the Integrated Financial Management System team to build on the existing human resource information system. IFMS’s human resource information system

71 The Khajane project had been a major success for the state government, connecting all 216 treasury offices located in district across the state to a central server. The new arrangement under Khajane corrected an old system where disbursements of intergovernmental finance were made on a first come-first served basis, with little tracking and monitoring over how the funds were used locally (Sandeep and Ravishankar 2011). The special officer (finance) had been private secretary to the Karnataka finance minister for seven years and then spent a decade as the Director of Treasuries with responsibility for implementing Khajane.
had been issuing paychecks for years and was therefore equipped with real time gross settlements capabilities. The request made to the IFMS team was for a comprehensive, end-to-end IT-based cash management system beginning with automated receipts across all departments on a single platform. The special officer’s goal was to monitor and account for all payments made for services to the BBMP. Consequently, the automated receipt system would capture and account for all revenue sources supporting municipal services, from the ten-rupee ($0.33) fee for admission to public health clinics to the property tax payment made by the largest urban landholding companies. The IFMS team, however, would not agree to the level of customization desired by the special officer:

*IFMS was supposed to be a comprehensive version... for the whole BBMP across departments on a single platform. But it was not implemented in the way I had envisioned it. They wanted my help for the specification sheet – I am only a domain man I am not an IT person – so I can give ideas. When they are not accepting my advice for IFMS I decided I will go on step-by-step developing module by module.*

Consequently, the special officer (finance) approached the Indian CST and their OpenSaaS model of system development. The decision to take a modular approach in response to limited coordination from the IFMS team required strengthening the vertical linkages between senior officers, the Indian CST, and front-line revenue agents distributed across the BBMP’s 198 wards spread across 709 square kilometers of territory.

With the issue of internal control over engineers and zonal-level project management institutions in the hands of the Karnataka courts, ensuring the availability of cash resources for budget execution turned the focus of the special commissioner to revenue collection and the comprehensive consolidation of cash resources. The first step was an automated receipt module called the Financial Management System (FMS). The objectives of the FMS were three-fold. First, the system would aim to integrate monitoring and management of all forms of tax and fee payments made in city government offices for all available services. At the time, receipts were handwritten and reporting was manually done based on aggregating paper records contained on numerous payment registers. No single system could account for

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72 Interview, 15 December 2015.
payments for all types of services. More importantly, the timely reconciliation of bank balances was not possible, as automated sweeping of the hundreds of BBMP accounts into a central consolidated account had not been established. Consequently, the incremental gains in revenue collection from automating receipts and reconciling accounts daily could be used to clear pending bills to contractors and increase support for broader reforms to cash management that had failed to come about during the previous GPMS implementation.

Second, once the automated receipt module was deployed, the Indian CST could link it to contractor payments by migrating the bill payment feature from GPMS into the FMS system. If this move was successful, they would link payments to contractors and revenue inflows and therefore have a more accurate picture of payables and receivables on a single platform. Third, with some foresight and strategic consideration, the front end and backend design could be tinkered with to pursue other objectives, such as improving managerial understanding of revenue administration practices in the hundreds of BBMP offices located around the city.

This third objective was essential, almost a precondition of the other two, because senior managers in the BBMP had no systematic understanding of the financial position of the municipality.

*We didn’t know how much money we were getting, who was paying. It was an internal crisis. Some revenue officers were blatantly duplicating and changing figures at the time so we had to figure out a way to put a stop to that or to try to understand what they were doing using the receipts module.*

Similar to the GPMS system, the overall aim was to reduce slack in revenue collections and cash operations by strengthening information management accountability. To do so, the FMS system would have to delegate formal information management responsibilities to the level of action where information originates.

*The objective was to decentralize the system to empower zonal authorities and then be able to hold them accountable. You see previously, when receipts were issued manually, we knew there were duplicate receipts but we did not know how bad the problem was.*

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73 Interview, 16 July 2015.
Now if any type of duplications started coming up in the system, we could see where it was happening, and we could start to understand it.\textsuperscript{74}

The BBMP commissioner issued a circular\textsuperscript{75} in February of 2012 and the Indian CST took five months to develop the first receipt module.

The first challenge was sitting down and coordinating with the other managers of financial management information technology systems in the BBMP. The property tax was managed through software provided by the National Informatics Centre and FBAS was still used to report annual revenue yields in order to construct budget proposals. The special officer (finance) and the Indian CST tried to convince the property tax team, managed under the additional commissioner (revenue), to migrate the property tax system onto the new FMS platform. The property tax software was not capable of handling arrears, which at the time were cleared and accounted for manually by hand. The information technology system that covered the property tax, which was the largest source of own revenue for the city, refused to integrate with the new FMS receipt module. However, because the NIC software could not handle property tax arrears, they agreed to process back payments for property tax on the FMS system.

Through these initial attempts at coordination and the negotiations spawned by them, the special officer (finance) and Indian CST encountered a strategic opportunity with respect to designing the elements of the first FMS module.

\textit{You see because there was a separate software prepared by NIC [National Informatics Centre] for property tax, we instead prepared software intentionally were multiple data in different types could be ported in to daily get information on nodal banks.}\textsuperscript{76}

Although the automated receipts for the property tax would be excluded from the FMS system, the team devised a workaround based on manual entry. Because khata\textsuperscript{77} transfer fees (i.e. the registration that makes a property owner liable to pay property taxes) and property tax arrears would pass through the system, they already had a portion of transactions falling under the property tax system. The Indian CST

\textsuperscript{74} Interview, 15 December 2015.
\textsuperscript{75} No. EIC / PR / 4582 / 11 – 12
\textsuperscript{76} Interview, 16 July 2015.
\textsuperscript{77} Khata is proof of a property taxpaying account with the city government. Khata certificates are necessary to apply for electricity and water connections, trade and building licenses, and bank loans.
and the special officer (finance) agreed to include in the FMS an input screen for end-of-day property tax collections, where the assistant revenue officers would report the aggregate collection for the day. Figure 4.5 shows the dedicated page under “Property Tax” in the front menu that provided input fields for end-of-day nominal collections.

**Figure 4.5 Daily Property Tax Collection Screen in Financial Management System**

![Daily Property Tax Collection Screen](image)

Though this feature would require ongoing supervisory action to ensure compliance, the difference between the reported end-of-day property tax collections and the value of property tax arrears and khata transfer payments would approximate the difference between the total property tax yield and amount of receipts registered in the core property tax software. As the system expanded, the only way to make legitimate claims on the performance of the different revenue sources for the BBMP would be to “close out” the system by including daily and monthly bank account balances (see figure 4.6 below).

Senior managers in the BBMP anticipated a transition period for this requirement to be taken for granted as part of the routine of revenue officers in payment offices and assistant controllers finance (ACF) in the zonal offices. The feature would facilitate partially automated bank reconciliation reports and save senior managers valuable time ascertaining the ongoing performance of various revenue instruments in the BBMP and the overall financial position of the city.
The internal control purpose of the feature was to provide a mechanism to the special officer to check whether funds deposited into the more than 900 BBMP bank accounts (up from 300 when the BATF installed the FBAS system) were being remitted daily into the consolidated bank account of the BBMP. Over time the system would provide the basis for credible orders to automatically sweep the accounts into the consolidated account. Getting to this point would require detailed knowledge of the revenue system’s mechanics at a highly disaggregated level, since making such a major structural reform would require introducing new procedural rules and programs and reappointing staff.

Consequently, the overall design of the FMS was planned accordingly. Once the system was in place, the information contained in FMS could then be compared against reported information in the incumbent property tax information system to arrive at a more comprehensive picture of the revenue system. In contrast to the GPMS system design which was relatively open at first and only later added internal validation elements as implementation proceeded, the FMS system would be rigidly designed around a set of automated validations from the beginning.

The Karnataka Municipal Accounting and Budgeting Rules (2006) and the National Municipal Accounts Manual both prescribe certain requirements for receipts issued by urban governments. So the system would need to be designed in such a way as to conform to those laws and regulations while also
including elements that would reveal practices at the level of the revenue office. To achieve the latter, some unique design elements and features would need to be added to the system.

    I added new features based on the ability of the software system: Put budget head for payment (4 digit R-Code); Name of department (zone office); Name of division/subdivision; Name of official receiving money; Name of bank, bank branch, and account number.

The desire to print so much information on the front end of the receipt was to increase the level of transparency. In addition to receiving an automated receipt in exchange for payment of services, citizens would be able to check with the appropriate bank branch to ensure that their payment was deposited in the bank. On the back end of the system, the inclusion of so many details had another purpose. To start, collecting the relevant information related to existing bank accounts and revenue codes required substantial time investment. The chart of accounts has 327 revenue receipt codes. To create such functionality in the FMS system, the master file would need to have all bank account information records for the 936 bank accounts operated by revenue officers that make deposits into BBMP accounts.

    The system would be need to be more automated and restrictive than the GPMS. The scope for discretion would need to be extremely limited, given the dual aims of understanding the situated practices of revenue officers while maximizing revenue inflow by capturing and accounting for even the smallest payments, such as the Rs. 10 charge to enter public hospitals for service. To do so, the system would need additional features:

    Another thing I did that is unique is giving unique system generated number for the receipt and made each officer a unique structured code. The code contains: Department (zone/division/subdivision) and his number.

By creating a unique structured code for the receipt and the revenue officer linking it to the office location, when the officer logged into the system and selected the R-code (budget head linked to the specific revenue) the rest of the receipt except for the amount field and the payment type would be locked.

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78 Interview, 15 December 2015
79 Interview, 15 December 2015
When he enters his code all the things in the system will automatically populate. So we have a single source of data for accounting and auditing and reconciliation so that nobody can give duplicate figures and data is secure.\textsuperscript{80}

This section and the previous have outlined how the design of a local financial management information system can play on the multiple uses of accounting information as a strategy to “fix the accounting” and build state capability. The design of the FMIS is not simply to produce thin “technical-rational” accounting information, but to produce a particular type of information to better understand “thick accounting” relations (Andrews, Pritchett, and Woolcock 2016). While there may be universal standards of “technical-rational” accounting information, accounting information for “social-political” and “institutional” purposes require more situated knowledge (Ansari and Euske 1987). Here we can observe the special officer and Indian CST’s intentions to develop surveillance resources but not through horizontal coordination with other concentrated agents. Instead their approach built up resources through vertical coordination within the new FMS system in order to express reform interests through demands in future bargaining situations. The special officer (finance) would only be able to do that once sufficient information had accumulated on the system, which was only possible through skillful design of the system.

4.3.2 Three Modes of Coordination

Since the overall objective was to centralize information in order to shift downward accountability relations to the zonal level, the design of the FMS system necessitated starting in the head office. R-codes, the unique identification code for each revenue head in the budget, had to be mapped. The need to map the system for revenue codes and bank accounts provided the Indian CST with an opportunity to devise one approach to coordination as experimentation.

\textit{We had to prepare master file which is a huge task. The source is the individual departments of the BBMP so we are at the mercy of their will, there is no other agency that can compel them. First we started training department people how to enter data.}

\textsuperscript{80} Interview, 15 December 2015
Department by department we went down to subdivision level of training. In addition, we put 1 engineer in each zone whose only responsibility was to support FMS.81

The deployment of the system provided the opportunity to devise a coordination mechanism that would also serve the purpose of inquiring into “folk practices” out of sight to officers in the head office. While the FMS team anticipated problems associated with manual issuance of receipts, they were only beginning to learn the variation in revenue administration practices around different areas of the city. The markets department, which oversaw the leasing of government properties, provides a useful example of the coordination mechanism of planning and mutual adjustment. As the FMS team began targeting departments for training, the markets department was a potentially important revenue base where automation could improve collection. The BBMP rented out tens of thousands of stalls and other spaces in various city properties. The general understanding was that revenue collection of market rents was weak, but the reason why was not well understood.

As the system was built out, training sessions provided opportunities to understand the specific constraints to procedural coordination that would potentially limit the usefulness of FMS in delegating accountability down to the zonal level. For instance, in the training session for officers in the markets department, participating officers revealed that tenants in KR Market, the largest wholesale commodities market in the Kalasipalya area, tended to pay their rent in one large payment but refused to pay with check if the amount is above 1,000 rupees. In contrast, the dress and clothing store tenants on MG Road and Jayanagar paid by check. However, across both types of tenants and locations, the special commissioner (finance) and the Indian CST learned that most shops were subleased out to at least four different parties. While lease registration documentation could be sought in some cases, in nearly all of them the revenue officers were not able to recognize the primary party/shop owner for collecting unit rent. The solution to this problem, although limited, was to use handset devices that revenue officers could take to the shop stands, attempt to register primary leasees, and collect payment on a monthly

81 Interview, 15 December 2015.
The amount collected at the end of the day would then be transferred from the handheld unit into the main system accessed online in the respective markets department offices throughout the city, thus generating an aggregated income stub that listed the individual payments of tenants.

Similar to the GPMS experience, the FMS system engaged in a pilot in the town planning department in the head office before deploying the system in the zonal offices.

*As we developed the module, we did one month of a bank reconciliation and found 182 crores missing. We knew we were on to something so we then put the module into place in the zones. The system would give a list of receipts during the day and show the entire flows of revenue from the citizen to the bank.*

The training, piloting, and overall deployment provided the Indian CST with opportunities to create new coordination mechanisms through face-to-face visits and discussions with BBMP officers both in centralized training sites and in the payment offices and other budget units of the BBMP.

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82 Indian CST. Weekly Reports 30.07.2012 to 04.08.2012.
83 Interview, 15 December 2015.
Feedback reports filed weekly during the initial deployment phase were generally positive about the benefits and future potential of the FMS receipts module. The Assistant Controller Finance in the East Zone reported both time savings and improved managerial accountability through better payment tracking along with improved tax services to residents:

*I would like to reiterate that the initiation of FMS at our offices since 02-July 2012 at East Zone have been very helpful, I have received a lot of calls from BBMP officers of this zone stating the importance of have such an application at our working place, by using FMS it saves a lot of time, easy to get reports, above all there is accountability of public funds. We have received good opinion from the public too as now after implementing FMS they feel they can avoid delays.*

These manual feedback reports submitted directly from unit offices back to the Indian CST were important coordination mechanisms during the initial implementation, creating tight feedback loops between the experiences of end users during initial use and the technical system designers external to the BBMP. They helped motivate the Indian CST programmers and implementation officers, while also

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84 Feedback for FMS. 27 August 2012.
providing valuable insight into the use of the system and into particular end user problems, such as further training of staff beyond the formal positions on the organization chart:

At present only AEE [Assistant Executive Engineer], AE [Assistant Engineer], ACF [Assistant Controller Finance], & Clerk knows how to operate computer generated receipts. My suggestion is to better to train all staff how to operate computer because usually AEE, AE, ACF is attending meeting and the clerk sometimes leave.\textsuperscript{85}

There were still problems of technology failure as a result of interruptions to the supply of power or internet service in BBMP offices. Feedback forms also contained reports suggesting that the system could not prevent all forms of petty corruption at the point of payment. An assistant revenue officer in Begur, an area that was added to the BBMP in the amalgamation, reported a case where a taxpayer:

He has applied for khata transfer certificate and the case worker has given computer generated receipt with the amount he had paid. The system of FMS is good. The case worker is asking extra amount for bribe for issue khata transfer certificate.\textsuperscript{86}

The receipt module of the \textit{Financial Management System} was not able to address these forms of petty corruption.

One other type of coordination mechanism emerged from the deployment of the FMS system. Led by Indian CST’s initiative, the substantive coordination mechanism took the form of experimental investigations that largely failed to stimulate further action on the part of the BBMP. As the Indian CST had learned with the GPMS, it is difficult to anticipate the demands for IT services within the administrative hierarchy. The Indian CST also had an interest in offering new IT services, since the model was based on a software as a service (SaaS) framework. They needed to coordinate strategically with certain actors to get small wins (Weick 1984) in order to demonstrate the pragmatic legitimacy of the system to the BBMP’s normative policy objective of improving revenue collection and cash management.

The first investigation was with advertising tax. The advertising department claimed there were only 3,000 billboards (“hoardings”) across the entire city. The BBMP had expressed an interest in abolishing the advertising tax, though the state government would not allow it on grounds it was one of

\textsuperscript{85} Feedback of FMS. 24 August 2012.
\textsuperscript{86} Feedback of FMS. 24 August 2012.
the BBMP’s dedicated revenue streams. Payment and income for billboard rentals were managed by the Advertisement Department manually and in excel. The income in their records showed 25 crores in 2012-13, but the amount in the FMS demonstrated 65 crores. Based on their detailed analysis of advertisement receipts, they produced a study and circulated a reform strategy for collecting on advertising billboards that had poor records of payment.

The other investigation was in the area of property tax collections where the Indian CST conducted a ward-level survey and of a single property to determine the potential returns from different collection strategies. First, the Indian CST chose Shantala Nagar, Ward 111, and surveyed 734 properties. From this sample, the BBMP issued 275 notices to pay property tax following the property visits by the Indian CST team. As a result of their efforts, the city collected an additional 15.66 crores from a single ward. The other experiment was an analysis of a single large commercial property in Shanti Nagar, in the center of the city. The Indian CST combined non-payment of arrears with a physical site measurement against the Self-Assessment Scheme declaration by the owner. The difference in the built-up area claimed by the owner and the actual total built up area amounted to 632,811 square feet. Combined with four years of arrears the unpaid property tax amount rose to 10.40 crores for a single property. The Indian CST would continue to use this experiment to advocate for their legitimacy amid other IT actors in the BBMP. By simple extrapolation, 15.66 crores from a single ward would yield 3,100 crores ($501.83 million) for the entire city.

4.3.3 Returning to the Problem of Cash Management

As time went on and the FMS system came to be institutionalized in the IT ecology of the BBMP and the information generated by the FMS system and available to the Indian CST began to cover a wider range of practices. By the end of March 2013, over 11 billion rupees in tax and fee payments had been transacted through the Financial Management System (see table 4.5). In less than a year of use over 230,000 receipts had been issued through the FMS system, which allowed the Indian CST to begin building up a real-time analysis of the information flowing through FMS. The Special Officer (Finance)
had also succeeded in getting drawing and disbursement officers to process bill payments through the FMS.

**Table 4.5: Financial Management System Status as of March 31, 2013**

<table>
<thead>
<tr>
<th>Transactions</th>
<th># of Records</th>
<th>Total Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Receipts</td>
<td>230,529</td>
<td>11.41 billion ($190.19 million)</td>
</tr>
<tr>
<td>Work Bills</td>
<td>5,261</td>
<td>7.44 billion ($124.07 million)</td>
</tr>
<tr>
<td>Tax Deductions against Work Bill</td>
<td>5,261</td>
<td>940.22 million ($15.67 million)</td>
</tr>
</tbody>
</table>

Source: Indian Centre for Social Transformation

Like the special officer (finance) had originally intended, the receipts module was designed in such a way as to help understand what practices were going on in the far flung divisional, sub-divisional, and ward offices of the BBMP. From June 2012 to August of 2014, monthly opening and closing balance statements had been entered for 126 bank accounts. The opening and closing balances for 810 bank accounts had not been recorded in the FMS. The Indian CST was regularly producing reports for the BBMP like the Opening-Closing Balance Report from February 2014 in Table 4.6. These reports clearly demonstrated the need to sweep unsupervised bank accounts and to order a full reconciliation of the BBMP’s bank accounts.

**Table 4.6: Opening-Closing Bank Balance Report (Dasarahalli Zone)**

<table>
<thead>
<tr>
<th>Department</th>
<th>Bank Name</th>
<th>Bank A/C No.</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering - Electrical Offz Address: EEEETDSR</td>
<td>Syndicate</td>
<td>X</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Engineering - Electrical Offz Address: EEEETDSR</td>
<td>Canara</td>
<td>X</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Revenue Offz Address: RDAROTDSR</td>
<td>Vijaya</td>
<td>X</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Engineering - Public Works (Zonal) Offz Address: EPEEDSRH</td>
<td>Syndicate</td>
<td>X</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Engineering - Public Works (Zonal) Offz Address: EPEEDSRH</td>
<td>Syndicate</td>
<td>X</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Health - General Offz Address: HGDHODSRH</td>
<td>Vijaya</td>
<td>X</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Finance &amp; Accounts Offz Address: ACFDSR</td>
<td>Syndicate</td>
<td>X</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>
The FMS had also registered the use of duplicate demand draft identification numbers on different FMS receipts used to pay for multiple services. For instance, the Indian CST had flagged as part of a larger examination the use of duplicate demand drafts to pay the same amount twice but while making slight variations in the “Party Name” in an attempt to avoid detection. These transactions covered tax and fee payment amounts far higher than petty corruption, for instance fee payments of 70,000 rupees. Towards the end of 2014 the FMS system had registered over 1,500 instances of duplicate demand drafts being accepted for tax and fee payment at BBMP offices. This growth spurred the Indian CST to approach the municipal commissioner to order a formal reconciliation of the BBMP’s bank accounts. In response, the municipal commissioner formally constituted a committee comprised of all the IT-providers for financial management to the BBMP to determine an integration strategy to connect all the disparate systems. The additional commissioner (finance) was appointed chairman with representatives from all four software providers as members. The committee met several times in the fall of 2014 and discussions were extensive. However, the additional commissioner (finance) failed to submit a final report.

4.4 Discussion

Digital financial management information systems (FMIS) are, by definition, complex development projects. Intentional coordination efforts are necessary to alleviate both anticipated and unanticipated problems. The previous sections chronicled the emergence of various coordination mechanisms and structures in local government following the introduction of the GPMS and FMS systems. These coordination structures were partially built around the task environment of project

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88 Letter No. CFO / 95 / FABS/ 2014.
management and revenue mobilization in a setting characterized by high levels of incomplete information. These coordination mechanisms, however, mostly existed within the GPMS and FMS systems. Beyond the boundaries of these modular financial management information systems, the IT-advisor and the administrators of the other FMIS systems were reluctant to collaborate. As each system evolved over time, transactions in one system began to gaining meaning with respect to transactions in the other systems.

This chapter focused on delegation within the management accountability relationship in the building state capability (BSC) framework. In this discussion section, I will draw from Galbraith’s (1974) perspective of organizational design as a problem of information processing to outline types of coordination emerging from information technology on the expenditure and revenue side of the budget. Galbraith (1974) views problems of coordination as a result of slack in the delegation of information management and accountability. The amalgamation of the BBMP with the 111 jurisdictions on the periphery generated substantial performance slack in the public financial management system. As monitoring, oversight, and control mechanisms were degraded (intentionally and unintentionally) as the size of the BBMP increased, the information requirements to perform basic PFM tasks increased substantially. As evidenced by the narratives in both expenditure (e.g. duplicate work codes), and revenue management (e.g. subleasing market stalls), the number of “transaction exceptions” had led to hierarchical overload in both revenue and expenditure subsystems. This was the situation confronted by the special commissioner (projects) and the Indian Centre for Social Transformation (Indian CST) when they first embarked on the development of the Global Project Management System (GPMS) followed in turn by the Financial Management System (FMS).

Increased coordination was also accompanied by conflict and competition, in particular competition between the IT-provider organizations that were supplying the BBMP with financial management systems that had overlapping accounting functionality. The following discussion focuses on why the vertical coordination between concentrated and deconcentrated actors within the GPMS and FMS deployments did not lead to horizontal coordination between the external contractors. High levels of slack
can create common cause for short periods of time, but this consensus quickly confronts fragmentation. Contests for power render the short-lived coherence of common causes untenable. What explains why patterns of horizontal conflict and competition emerged within core areas of technical administration?

4.4.1 Asymmetric Integration

In many ways, the Indian CST operated as Simon’s (1945) quintessential product engineer, immersed in the end user environment to discover on a rolling basis what “products” were needed and how each could relate to improvements in financial information management. However, the BBMP was not an open market and demand for their services was expressed unevenly across the many fragmented departments that comprise the city government. The asymmetric approach to integration adopted by the Indian CST was partly necessary given the formative information and communication technology (ICT) context. No immediate solution existed to resolve the prevailing technological and organizational problems with the FBAS system and the diseconomies of scale brought about by amalgamation were causing major problems for oversight and monitoring of project construction and delivery.

The Indian CST’s social enterprise model also shaped the asymmetric approach. The Indian CST’s OpenSaaS technology framework has a very specific logic. The organization offers the technology for free with the promise of full customization. In exchange for the promise of full and ongoing customization, the Indian CST operates not only as a technology provider but also as a type of governance advisory firm. As the head of the Indian CST described, when they approached the BBMP the message they conveyed was that:

*You do not have to pay much for the technology but the tradeoff is we increase the threat of exposure for you.*

Though financial management information systems are typically classified as non-core components of the public financial management system, the GPMS and FMS systems integration approach required the system to trespass into core areas.

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89 Interview, 16 March 2015.
The GPMS strengthened coordination capabilities at the top of the BBMP hierarchy, but had less of an affect lower in the engineering department. While there is evidence the system increased levels of efficiency (e.g. engineers reported not having to make as many construction site visits to manage projects), the system did not increase the effectiveness of project execution. This is the case because the effectiveness of project execution is beyond the scope of the GPMS technology. As an engineer remarked:

“There are many problems we face when executing a project like shifting of cables, pipes, removal of trees, and coordination with traffic police. All of these things cannot be programmed as such. They cannot be anticipated because there is no documentation. There is no documentation of trees or the location of pipes and utilities.”

On the revenue side, the FMS system helped some revenue and assistant revenue officers prioritize and target arrears for tax collection. Because of the BBMP’s highly distributed bureaucratic structure with substantial discretion at the zonal level, the use of controlling mechanisms of coordination below the level of the head office were almost entirely voluntary.

4.4.2 Reducing Slack and Decentralizing Information Management

What is the relationship between information technology design and information management accountability? Figure 4.8 below describes the relationship between the locus of information management accountability and verification costs. When the locus was in the head office, verification costs were very high. As GPMS and FMS both pushed information management accountability down to the points of action where information originates, the cost of verification declined. This was the intended response to the high level of slack in the system following the amalgamation. Without the authority to change the information requirements to perform public financial management tasks, the BBMP special commissioner (projects) and special officer (finance) designed and deployed financial management information systems to increase the capacity of the system to process information.

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90 Interview, 9 December 2015.
The GPMS and FMS systems reduced slack between the information requirements to perform system tasks (in the organizational context of the BBMP stretched out across 198 wards spread over 709 square kilometers) and the capacity of the system to process information. Yet, the reduction in transaction and coordination costs were accompanied by a drastic increase in information flows. On both the expenditure and revenue side of the budget, these flows turned into a sort of information overload for which the Indian CST alone was incapable of handling in a strategic manner. Tactically, the Indian CST devised a form of inquiry into task areas within the functional domain of project management and revenue administration. These forms of inquiry were a response to information overload that was consistent with the resources of the Indian CST. The organization is small and highly specialized. As an external vendor to the BBMP offering a software service, it constantly faced the dilemma of how hard to push the BBMP in a particular direction without upsetting relations with its most important (and largest) client.

In such a large bureaucracy with various levels of exposure to information technology, we should expect mixed experiences. However, two of the Indian CST’s and BBMP’s implementation decisions were strategic mistakes and are relevant to discuss. First, the idea that
passing contractor bills through GPMS would bolt the system down was misguided. The timing was premature to convert the GPMS system into an obligatory passage point by adding the bill payment feature. The special commissioner (projects) concluded that:

*Ultimately you know it boils down to one thing the bill passing authority is the executive engineer. In BBMP, actually files need not come to my level for passing bills. They won’t come. Only for certain things...such as for release of letters of credit and those things, but the bill passing authority is executive engineer. So what they would do after insistence on GPMS for passing bills is they started passing bills at their own level.*

Moreover, introducing the bill payment feature put the GPMS system into direct confrontation with the finance department and chief accounts officer (CAO). These are the two most powerful institutions in public financial management operations on the expenditure side of the budget. The case for co-locating information management accountability for contractor payment with the responsibility for entering and maintaining public investment project information made on the basis of efficiency and oversight logic was strong. However, relying on a logic of appropriateness given the ongoing transition and disruption caused by the GPMS system might have provided alternative options.

Second, neither the BBMP nor the Indian CST had a plan in place to manage resistance other than ongoing mutual adjustment. Put differently, no one involved had the foresight to propose an interim institution to process and discharge the many “exceptions” that were mounting over time. Processing such large volumes of transactions in short periods of time requires skilled handling of irregularities. On the project side, these exceptions were previously lost in the delegation mismatch between issuing the work code by the assistant controller finance located at the zonal-level and approval and oversight located in the head office. The special commissioner (projects) temporarily “suspended” expectations of substantive accountability during the initial deployment of the GPMS system, but did so only through informal means.

The Indian CST handled these “exceptions” according to the resource constraints they faced as an organization. Such methods underpinned their overall organizational strategy, isolating variables in the

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91 Interview, 8 December 2015.
FMIS and investigating why they are expressed as “irregularities” in the system. On the revenue side, the information overload originated with the overflow of “exceptions” in duplicate demand drafts and differences between opening/closing bank balances and reported receipts. Both continued to grow even as the FMS system increasingly achieved a taken-for-granted status in the BBMP. In the language of the building state capability framework, it is not the case that computerization represented procedures that were too distinct from the “folk practices” (Pritchett 2013) within the public financial management system in the BBMP. Rather, the GPMS and FMS systems had no capability for accommodating the “folk practices” outside a regime of substantive transparency and accountability over what was clearly an extended transition period.

4.4.3 Plural Institutional Configurations and Polycentric Regulation

The third and final explanation for the decentered governance structure for public financial management was the presence of plural institutional configurations in close proximity at the technical core of the PFM system. The presence of two commercial firms and one non-government organization spurred a clash between production models for three reasons. First, conflict was partly the result of a structural feature of the “business model” for information technology services placed within a setting characterized by high levels of incomplete information. Pragmatic legitimacy of FMIS applications are premised on the scale of transactions that flow through them. Put differently, network effects (Katz and Shapiro 1994) apply to public information and communication technologies (ICTs) that handle large volumes of transactions. Their pragmatic legitimacy goes up with their share of the total universe of transactions that could possibly processed through them. Second, following the advice of the special officer (finance), the Indian CST intentionally designed the FMS system to encroach upon the transaction space covered by other information systems. Third, there are certain identification numbers on both the expenditure and revenue side of the budget that are more integral to accountability than others. On the project side, the replacement of the work code with the job code and the failure of GPMS to issue it (and the acquisition of responsibility by the IFMS) was detrimental to future coordination with the GPMS.
A hierarchical mode of producing financial information management services could not be imposed on the fragmented organizational environment. Competitive institutional configurations arose internally to the BBMP, but not because the BBMP developed the capability for competitive tendering. The FBAS cell was the monopoly provider of digital financial information management services in the BBMP. The expansion of the BBMP in 2008 drastically reduced their pragmatic legitimacy but did not affect their normative legitimacy as the core accounting platform in the BBMP. The premise of the OpenSaaS model, full customization and front running ideas for new reports and applications in a service oriented architecture (SOA), placed it in competition with commercial firms driven by the profit motive. On both the expenditure and revenue systems in which the Indian CST was contracted to deploy financial management information systems, coordination gave way to competition when the Indian CST’s technology transitioned from “counting” to “accounting” functionality and thereby reducing slack in the organization. The broad conclusion is that financial management information systems cannot be relegated to non-core technical areas of the PFM system. The particular mix of institutional arrangements in “non-core” technical domains give rise to social dynamics that spill over into core areas.

This chapter found that information technology projects for public financial management do improve coordination between senior managers and frontline agents. Because these coordination structures operate under pervasive conditions of incomplete information, they serve not only to facilitate IT implementation but also as an interim institution of local inquiry that increases the legibility of the practices in the system. However, the presence of multiple financial management information systems operating in close functional proximity and managed under incompatible institutional arrangements generate competitive behavior among IT-providers. Rather than augmenting vertical control in rule-bound bureaucratic structures and intergovernmental relations, financial management information systems gradually convert local public financial management into a polycentric regulatory regime.
Chapter 5: Mediating Financial Transparency: Spoiler Traps, Legitimacy Games, and the Making of an Issue Network

5.1 Introduction

Having demonstrated in the previous chapter that reductions in organizational slack as a result of enhancing information processing capacity can inadvertently lead to competition and conflict, this chapter asks whether or not financial management information systems (FMIS) delivered to urban local bodies (ULBs) in outsourcing arrangements are consistent with the public good. Do they contribute to fiscal transparency as boosters claim in the smart cities literature (David, Justice, and McNutt 2015)? Do they create opportunities for pernicious forms of elite capture, particularly as the private value of public information rises? Or is there an alternative to these critiques from the left and the right, where novelty in governance can yield public value even in complex, highly contentious local government settings (Cordella and Bonina 2012)? Interrogating the issue of fiscal transparency and the public good through the case of the BBMP is interesting because the city government had come to depend on three different and overlapping financial management information systems (FMIS). Each was managed under a different institutional arrangement, giving rise to both coordination and conflict among technology services in “non-core” areas of public financial management.

The data for this chapter comes from direct observations of negotiations and the actions and reactions that were stimulated by actor interpretations of the micro-context of change during a period of social and political mobilization around public financial management in Bangalore (Joshi 2014). The evidence indicates that the polycentric internal governance regime that results from incompatible institutional arrangements surrounding FMIS neither leads to information democratization, nor does it contribute to systemic capture of local government by elites. I uncover both patterns of information democratization and information closure.
Information closure can be attributed to technology organizations rationally protecting their reputational and profit interests in local software product markets. Progress made in the direction of information democratization is mediated by the situated interests of political actors that can gain access to relevant information and assemble it in ways that support their agenda. Decentered internal governance opens up a polycentric entrepreneurial environment where legitimacy games are structured around subsets of fiscal transactions and functionalities within the local public financial management system. This plays out on both sides of information closure and information democratization. In such a setting with multiple financial information systems providers, the interaction of political and market interests across these institutional arrangements can serve to create a spoiler trap for institutional challengers.

5.2 Politics and PDFs: State-Local Relations and the Quest to Reassert Version Control

Only a month after the municipal commissioner had established the committee on integrating the FMIS systems in the BBMP, the chief minister of Karnataka formed a committee to explore options for restructuring the BBMP. Led by B.S. Patil, the Expert Committee on BBMP Restructuring had held public consultations for nearly six months and was expected to release their final report advocating trifurcating the BBMP. In February of 2015, Chief Minister Siddaramaiah constituted the Kataria Committee to investigate financial irregularities in the BBMP. The committee submitted an interim report in two weeks but the report remained private. The combination of the two committees telegraphed the Chief Minister’s intentions to use the recommendations of the Kataria Committee to justify show-cause notices to BBMP council members. This would be the initial step to dissolving the BBMP council. The Government of Karnataka issued notices to 198 BBMP councilors in March, 2015. Chief Minister

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92 All three software providers were offering their services at a price that was easily covered by the BBMP’s albeit deficit prone budget. Because of the extreme variation in information technology skill levels within the BBMP and the local supply of information technology services relative to demand, it is a sound assumption that the external technology providers needed the BBMP more than the BBMP needed them.

93 The committee ultimately proposed to split the BBMP into five corporations with directly elected mayors holding five year terms, but the plan was eventually shelved.
Siddaramaiah’s explanation for the decision was that the state government no longer had the resources to supervise the BBMP, particularly national and state government investment schemes in the city.

In addition to requiring all BBMP council members to respond within two weeks with why they disagreed with Siddaramaiah’s concerns (a formality in India’s parliamentary system), the move required legal proceedings in Karnataka High Court to postpone the regularly scheduled elections in May for up to six months. The state government held that the restructuring would require time to effectively delimit new wards. Opposition parties (Bharatyia Janata Party and Janata Dal-Secular) claimed that the move was nothing more than an attempt to postpone elections at a time when the BJP was ascendant in national elections and while it held 113 of 198 council seats in the BBMP. A ruling in the Karnataka High Court on April 24 gave the chief minister the permission to dissolve the BBMP and move forward with the restructuring.

With the dissolution of the BBMP council, the state government appointed an Administrator to manage the BBMP during the interim period. The Administrator brought in new officers in key positions, which included subsuming the information technology department under the Additional Commissioner (Finance) position. The Administrator ordered the newly appointed Additional Commissioner (Finance and IT) to reconstitute the integration committee out of the contractors for the three core FMIS systems in BBMP (FBAS, IFMS, and GPMS-FMS) along with the IT Advisor and the chief accounts officer. The new Additional Commissioner (Finance and IT) requested a series of live demonstrations from each of the three FMIS providers which would be followed with a discussion on viable options for integrating the systems moving forward. While the Indian CST was uncertain how the demonstration meetings and subsequent deliberations would go, they expressed hope that the decision to integrate the systems would finally be made. There were other reasons to be optimistic. First, the Indian CST’s initial experience implementing the FMS system demonstrated a capability to quickly identify revenue leakages which would be necessary to ameliorate the building crisis in pending bills. Second, the Government of India had recently released the preconditions for participating in the Smart Cities Mission, which the Indian
CST assumed would serve as a strong incentive to the BBMP to adopt the GPMS-FMS technology.\textsuperscript{94} Third, other prominent national programs like Digital India, which advance information technology adoption in state governments and urban local bodies, encourage preferential treatment to domestic firms and organizations that develop open source software applications developed in India.\textsuperscript{95}

5.2.1 Co-Producing Capacity

A little over a month before the integration committee negotiations began, the BBMP Administrator took to Twitter on May 17 to announce that “Details of all works pending bills as on 30/4/2015 are put up on BBMP website for transparency. Please check the works and inform us.” The BBMP had published information on pending bills to contractors, but the information was uploaded on a static portable document format (.pdf) file. The file contained information on 41,868 pending bills for public investment projects in the 100 wards of the old BMP jurisdiction. The decision to make available pending contractor payments was puzzling, particularly in the context of the court cases on the BBMP elections unfolding in the Supreme Court. In a May 5 Supreme Court hearing, the bench had ordered the State Election Commission to hold the BBMP council elections by August 6, 2015. The State government had one last appeal, which would not be heard until the first week of July.

As campaigns for council seats began with an election date still unknown, the Aam Aadmi Party (AAP) was beginning their first systematic grassroots campaign to build local political support and potentially contest seats in BBMP elections. A third of the funds supporting Arvind Kejriwal’s monumental victory in the February Delhi elections was sent from Karnataka and Maharashtra.\textsuperscript{96} The connections between the Indian CST and the Karnataka AAP party went back to the summer of 2014.

\textsuperscript{94} The Smart Cities Mission adopted a set of parameters and scoring criteria from which competing cities would be evaluated that amounted to 100 points for the first stage of city selection. The parameters that related directly to the GPMS-FMS system amounted to 25 points.

\textsuperscript{95} See Government of India (2015). The Indian CST regularly traveled to New Delhi for trade shows hosted by the Ministry of Electronics and Information Technology among other central government ministries in order to strategically position the GPMS-FMS system according to the nominal policy “formula,” in the language of the building state capability framework.

\textsuperscript{96} See Aji, Sowmya. 2015. “33% of Aam Aadmi Party’s Delhi Funds Come from Karnataka & Maharashtra.” \textit{The Economic Times} (January 29). Kejriwal founded the Karnataka AAP in July, 2013.
when the Indian CST was invited to speak about the GPMS and FMS in a leadership training program for party activists. During that presentation, the Indian CST advanced a proposal to utilize the GPMS and FMS systems to develop an issue community of volunteers that would focus on citizen audits of projects. The idea at the time was to develop the capacity of AAP activists to contest BBMP council seats in the local elections that were a year away. Groups of volunteers could systematically audit the project information contained in GPMS and begin responding to the citizen complaints stored on the grievance portal. Such activities, if done systematically over the course of a year, could increase significantly the sensitivity to community problems and situated knowledge of the public expenditure system of participants. The Karnataka AAP party did not follow through on the civic capacity building program, but many of the AAP party members and activists remained in touch with the Indian CST.

The BBMP administrator’s release of pending bills was a valuable opportunity for the Karnataka Aam Aadmi party and the Indian CST. For the Indian CST, the information filled a gap in the GPMS system between the period when engineers stopped passing contractor bills through GPMS and when the task was reconstituted on the FMS system. The release of the pending bills suddenly brought the Karnataka AAP and Indian CST together again. In an initial set of meetings shortly after the BBMP Administrator’s announcement, the Indian CST and AAP activists debated the merits of various strategies for utilizing the newly available project information. Two problems surfaced immediately. First, the pending bills file posted to the BBMP’s website would need additional work to convert the project data in the file spread line-by-line across thousands of pages into usable information. Second, the pending bills listed were only from the 100 wards that made up the old BMP corporation before amalgamation. The discussions about what to do with the information included shaming the BBMP government and politicians or utilizing the new administrator’s actions as a resource for political mobilization given the backdrop of the elections. They agreed on the latter.

Many AAP activists worked in the information technology (IT) industry in Bengaluru and so offered to help convert the data contained in the pending bills documents into a format that could be uploaded into the GPMS-FMS system. The Indian CST and their GPMS and FMS systems were useful to
AAP because the data on pending payments in 100 wards released by the Administrator was limited only to the name of the project and the amount of pending payment. Access to the GPMS system would give the AAP activists capacity to more clearly devise a persuasive interpretive frame for the mass of data contained in the list of pending bills, based on an array of important information that was not available such as original estimated cost, photos of the projects, and engineer and contractor information. The GPMS-FMS system also contained another resource that was valuable to the AAP activists – the citizen complaint module. At the time, the complaints module had over 8,521 entries dating back to 2010. The AAP activists requested the Indian CST to modify the front-end user interface so that they could sort complaints at the ward-level and correlate these complaints with whatever eventual sorting and analysis they made of the pending bills contained in the PDF files and the project information in the GPMS system.

Some of the AAP activists had advanced skills in data mining and who had supported various local political mobilizations around the state by mining online voter ID registries to build customized voter registration databases. In exchange for controlled access to the GPMS-FMS system, they offered support to the Indian CST to import the pending bills data and to update the FMS system. The AAP activists offered to scrape the property tax payment website and transfer the information into the FMS system. Though an unconventional and isolated approach to temporarily integrating the FMS and property tax payment systems, this type of activity was covered by the Indian CST’s public trust deed and memorandum of understanding (MoU) with the BBMP. In addition, the FMS system already contained both normal property tax transactions and property tax arrears. The online property tax payment portal of the BBMP asked for either new or old property identification (PID) numbers. The AAP team coded a screen scraping application, cycling the PID numbers that had been registered in FMS during tax

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97 Though covered under the Indian CST’s public trust and MoU, this activity is simply an updated tactic for the Internet age long practiced in India. As Goetz and Jenkins (2001) report in the case of the Mazdoor Kisan Shakti Sangathan (MKSS) in Rajasthan, there is a long history of non-government organizations obtaining official expenditure records “filched” from low-level clerks inside government.
payments made in the revenue offices of the city.\textsuperscript{98}

The data scraping engine provided for 50 threads to run parallel on the BBMP’s online property tax system, which took approximately 8 days to get all the property tax payments that were missing in the FMS system. The AAP team was able to collect 1.2 million property tax transaction records from the BBMP site in less than 2 weeks.\textsuperscript{99} Given the pending integration committee meetings, the Indian CST believed the property tax information would enhance the pragmatic legitimacy of their system. They felt confident the updated GPMS-FMS system would prove its worth during the live demonstrations. The AAP activists settled on the model the Indian CST had presented to the Aam Aadmi Party of Karnataka in 2014 by initiating a political mobilization around a city-wide citizen-led social audit of public investment projects in the BBMP.

5.3 Integration Committee as Spoiler Trap

The new additional commissioner (finance and IT), who had been the position for only a month, had been charged with assessing the existing ecology of IT systems in the BBMP and developing a plan to integrate them into a single system. This required an assessment of the existing systems, in order to determine which would become the BBMP’s base system and incorporate the information from the other two. A separate option entailed adopting a new FMIS from the outside, such as the system developed by the Municipal Reform Cell (MRC) in the state government. A new system from the private sector would likely require initiating a tender process which could delay the necessary integration.

The BBMP’s cash management problem, stumbled upon by the Indian CST when they first helped introduce the GPMS six years prior, was still unresolved. Pending bills to contractors for completed work had risen to around 2,500 crores (US$ 416.6 million) and most assumed the chief

\textsuperscript{98} Screen scraping is a technique used in transparency initiatives to correlate information contained in government databases that are intended for final display to a human user, making them difficult to link to another dataset (Brito 2008).

\textsuperscript{99} These types of programs are limited by the refresh rate of the online system targeted for data mining. For instance, if the refresh rate is two seconds, then a scraping program could acquire information for 302,400 transactions in the course of seven days.
minister and administrator would succumb to pressure to expedite the completion of existing projects during the period of administrator rule in the run up to the elections. The stakes were high for making a decision, as the additional commissioner (finance and IT) would make clear during the negotiations when he stated that “there are financial implications not just technology considerations.”

In a letter circulated to the Indian CST, the additional commissioner (finance and IT) set the expectations for the committee’s work. Each party would be given an opportunity to outline the features of their system in a “live” demonstration. The letter neither specified the evaluative principles nor criteria that would be used to make the assessment of the three systems. The FBAS system had long been recognized as obsolete, but the FBAS cell retained importance (and some control) given their involvement in producing the annual budget statement of the BBMP. The Indian CST was slated to go first.

5.3.1 Negotiations: Round 1

At the start of the first meeting, the additional commissioner (finance and IT) clarified that the purpose was to come up with a plan to integrate the three systems into one and to decide which system should be the final system to adopt. The objective of this meeting was to provide each party an opportunity to do a live demonstration of the features of the system to help the additional commissioner (finance and IT) understand the BBMP’s options with respect to the capabilities of each system to provide for the information management needs of the corporation. Each party would be given 30 minutes to present. Before proceeding to the demonstrations, the additional commissioner outlined the state of problems in the BBMP and the level of functionality desired:

*We know that enterprise resource planning (ERP) solutions exist. I wanted a detailed statement of April and June and we could not compile total income and total expenditures. The CFO had to go to the bank and ask. It should be that I’m sitting on my mobile and I can see the balance sheet.*

The additional commissioner continued:

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100 Integration Committee Meeting. 7 July 2015.
101 All quotes under this section were collected during the integration committee meeting on 30 June 2015.
FBAS has two simultaneous problems. Migration and the database does not have updated information. We are not sure if the data generated is right or wrong.\footnote{By migration the Special Commissioner was referring to FBAS software system hosted “offline” (i.e. local area network) not connected to the Internet.}

Because the Indian CST’s GPMS-FMS systems were constructed on a cloud-computing platform that could quickly and inexpensively collect, aggregate, analyze, and display income and expenditures, the additional commissioner’s description of the system requirements seemed in their favor.

The Indian CST began their live demonstration by logging into the Global Project Management System (GPMS). They first displayed basic project information contained in their system, starting with the number of projects, their location across different scales (zones, divisions, and wards), and the status of project construction and delivery. The chief accounts officer interrupted to argue that the GPMS-FMS has not been “handed off” to the BBMP. The Indian CST responded by noting that:

*The GPMS-FMS is a cloud computing platform, so everyone has usernames and passwords, and the system is being currently used to issue receipts and to produce reports for the BBMP.*

The CAO countered that the process of transferring information technology to the municipal corporation is defined by an official process that has to be followed and that it was not followed by the Indian CST. For instance, the CAO claimed that the transfer of system ownership requires a software requirement specification (SRS) sheet, a work order, and a schedule of rates for the specific tasks that are carried out to deliver the system.\footnote{This line of questioning of the procedural aspects of system design and implementation closely follows the discussion during a previous meeting with the CAO in which the Indian CST attempted tried to press the issue of bank reconciliation. Despite having a memo from the Municipal Commissioner ordering that a bank reconciliation system be put in place, the CAO questioned the absence of a schedule of rates in the Indian CST’s MoU with the BBMP and a formal work order. The concern was that correct procedures would need to be followed because the BBMP would be audited.} The Indian CST noted in response that the system was developed under a Memorandum of Understanding (MoU), signed first by a state government enterprise and then by the commissioner of the BBMP.

The Indian CST moved on to demonstrating the project screens used by engineers to input project details. Noting that some of the input fields were voluntary, the Indian CST demonstrated that important
information like work code, job code, p-code, initial cost estimate, associated bill payments, and progress statements were all available. Even with the updated information from the administrators pending bills files, the unevenness of project information related to physical process and financial management posed a problem for the Indian CST. Both the IT advisor and the CAO confronted the Indian CST, noting the gaps and placing the blame on the Indian CST. The IT advisor and CAO strengthened their critique by describing the GPMS-FMS as an “outside system” and as such:

_The BBMP does not have official ownership. It is not the BBMP engineer’s responsibility to upload information._

The Indian CST responded by noting the core principle of transparency in financial management information systems – pushing information management down to the points of action where information originates. They conceded they recently updated the project files with the pending bills data released by the Administrator, but considered this a strength. The system was robust to bureaucratic resistance that might arise in response to various administrative and political shocks or crises and can very quickly be updated. They followed up by asserting that in order for e-governance applications to be legitimate the burden is on BBMP engineers and revenue officers to update the system “in real time” following the execution of a government transaction.

In response, the chief accounts officer exposed the problem for the Indian CST’s OpenSaaS model with a simple question:

_Why haven’t the people in the BBMP updated it if you have already transferred it?_

The Indian CST could not furnish a coherent response to the CAO’s line of questioning. The line of questioning trapped the Indian CST in a dilemma. Although they had demonstrated the utility of the GPMS features, the additional commissioner (finance and IT) was new and they did not want to be seen as accusatory towards BBMP engineers. After finishing the demonstration of the remaining GPMS features, the Indian CST loaded the FMS system and gave a quick overview about how system capacity could expand on demand in order to process growing transaction volumes for taxes and fees the BBMP
imposes on residents and commercial firms. Displaying the property tax module, the Indian CST pointed out this feature was essential for the BBMP’s most important revenue source.

The IT advisor and chief accounts officer immediately objected to the presence of the property tax information in the FMS system. From project management to revenue administration, the first meeting of the reconstituted integration committee had become very contentious. The IT advisor expressed concern that property tax payment on the FMS system had not been validated by the BBMP. The Indian CST responded by loading the citizen complaint module, showing thousands of complaints posted online about problems and deficiencies in the BBMP’s online and office-based property tax system. These complaints described a system that was generating rolling losses for the BBMP.

The additional commissioner (finance and IT) interrupted, conceding that:

*Property tax payments collected through FMS is a failure of the existing property tax system in the BBMP.*

The chief accounts officer and the IT advisor followed up with two requests, asking to see a budget module and a year-long report of property tax collection. The budget module was loaded but empty as it was never activated during the initial deployment of the FMS system. The Indian CST exceeded the second request by displaying a five-year report for property taxes that included arrears. The request to see automated property tax analysis provided the Indian CST the opportunity to show the automated bank reconciliation report that they had relied on over the previous six months to submit the paper-based report and request for bank reconciliation they had been submitting to state government and BBMP officials.

In doing so, the Indian CST believed it could open a line of questioning about property tax collection and demonstrate to the additional commissioner (finance and IT) the capability of their system to quickly and precisely identify the collection offices in the BBMP where these discrepancies might be originating. To further their case, the Indian CST loaded the automated report that tracked the use of duplicate demand drafts in collection offices. In response to the performance capability of the GPMS-FMS system, the IT advisor attempted to return the discussion back to procedural norms associated with information and communication (ICT) projects in ULBs, asking if:
All the functions that could possibly be included in the GPMS-FMS are listed in the MoU?

At this point, the Indian CST’s demonstration had proceeded for over two hours and the additional commissioner adjourned the committee until the next meeting the following week.

5.3.2 Negotiations: Round 2

For the second meeting, the FBAS cell and IFMS team were asked to give live demonstrations of their systems. The Indian CST showed up to the second meeting carrying large binders full of reports, letters, orders, and circulars in anticipation of similar challenges to their account they experienced the previous week. Opening the second meeting, the additional commissioner (finance and IT) requested that the committee consider whether or not a low-cost solution exists for migrating data between the existing systems. The FBAS team was scheduled to give the first demonstration.

Because the system was not web-enabled but hosted on a local area network inside the FBAS cell office in the BBMP head office, the FBAS team could not give a live demonstration. Instead, the FBAS team circulated a memo for discussion. The note stated that “the objective of the exercise is to implement a fully integrated, decentralized solution in the BBMP.” The note further outlined a set of four task areas related to legal and administrative reform and the technical parameters for a software system that would replace the arrangement. The four task areas of the proposed project were (1) transition to National Municipal Accounting Manual (NMAM); (2) implementation of software for core accounting; (3) web enablement and integration of core accounting software; and (4) decentralization, training and implementation. The note was establishing the parameters for what constituted accounting in the BBMP and leaned in the direction of normative compliance.

The additional commissioner (finance and IT) proceeded to list the set of requirements for the future system in the BBMP in terms of content. The system:

Must have assets, liabilities and expenditures and the balance sheet must conform with the national municipal accounts manual (NMAM). The system should reveal inflow and outflow based on whoever gives the approval.

104 All quotes under this section were collected during the integration committee meeting on 7 July 2015.
After a discussion of the existing accounting process in the BBMP, the additional commissioner noted the importance of understanding the Integrated Financial Management System (IFMS) software and acquiring the capability to integrate IFMS with whatever solution was adopted. The IFMS team then began presentation of payroll and job code functions of their system. Neither of these were “live” in the sense of showing transaction processing from the point of action where information originates through to the reporting and auditing features. The IFMS team suggested taking:

**A new approach to scalability that includes core accounting and is document-based with menu options available.**

The latter feature had been in the GPMS system since 2009. The Indian CST countered that a key requirement of accounting – the availability of closing and opening balances of BBMP bank accounts – was not demonstrated by the IFMS team. In contrast, the FMS system had special features designed precisely for this purpose. The additional commissioner (finance and IT) asked how much time is needed to get to core accounting and budgeting and the IFMS team responded with 2 months and at a cost of 5 lakhs ($8,300). The additional commissioner (finance and IT) inquired as to whether the Indian CST and IFMS team could run a competition to see how each software system would handle official financial data shared from the FBAS system. The IT advisor shifted the emphasis of the discussion to the need for a comprehensive solution:

*If you want to go for comprehensive accounting system we have to define what we want and go for a study. First define functional features. The Municipal Reform Cell already adopted standards from NMAM and we can use them. We need to detail a framework of functions. What has been done? What needs to be done? Once we have the framework we can ask what are the solutions we have. Then a timeframe. Then ensure compliance. We have to decide on these things. Looking right now on IFMS solution is best. They are already doing [contractor] payment and that is most important. IFMS has to do an estimate we cannot just believe what they say.*

The FBAS team added that:

*It is clear they [Municipal Reform Cell software] can do core accounting and there is not a core accounting module in each of the other systems.*

The IT advisor continued to add factors that would need to be considered in any new financial management information system project:
When we are making a big transition we need a more robust system. People get transferred. Have to hand over the technical. We need functional expertise in BBMP. If you want a balance sheet on this day or report on the payroll account it should be able to do it. In this context we should look at the big picture.

The Indian CST countered:

FMS has all the capabilities you are describing available it would just take minor adjustments. Every BBMP employee has a username and password so the system is already available.

The discussion further drifted in the direction of legal compliance. A member of the IT department noted:

For each transaction, there are accounting standards. As of today, receipts and expenditures are not matching so they [BBMP officers] want to do manual procedures.

The additional commissioner then shifted to more short-run considerations by noting that:

A tender might be very expensive. We have 3,000 crores pending payments. If the IT solution is sustainable over the next 3 years this is good enough. Municipal Reform Cell if it has all the capabilities we can migrate to that level. Among available solution providers we need a rough estimation of costs and to decide if we don’t have to go with a tender.

The Indian CST tried to draw attention back to the issue of functionality, in particular the relationship between the design of the system and its legitimacy as an accounting system. Returning to the IT department officers comment, the Indian CST argued:

We are thinking too narrowly. Cost of training has to be separated out for tender. IT team needs to be changed and this requires significant training. Validation should be at user level, tight at entry level.

The Indian CST attempted to reframe the discussion around an alternative to compliance to procedural norms for IT projects but in relation to the requirements of the Smart Cities Mission:

We had 17 projects for JNNURM but they are not completed. For Smart City status you have to show that the projects are completed. The IT system should be open source. Need to have project management system in place. Need to show increase in revenues which we have done. The GPMS-FMS is best positioned to meet the criteria for Smart City. The FBAS and existing property tax system have small and big errors as we have already seen. As far as system is concerned, IT system should preserve data. Public participation is important. How do you allow citizen to participate in every aspect of governance? We should not get rejected as a smart city.

The additional commissioner (finance and IT) concurred but deferred the decision by requesting a presentation from the Municipal Reform Cell in the Karnataka government. The second
negotiation meeting concluded with no immediate decision. Instead of revealing the preferences of the new BBMP administration during the interim period between elections, the negotiations held by the reconstituted integration committee revealed hostilities from senior officers and indecisiveness on the part of the additional commissioner (finance and IT). The OpenSaaS model adopted to asymmetrically integrate the GPMS and FMS systems made it difficult to counter the procedural critiques made by the IT advisor and chief accounts officer.

5.3.3 The Spoiler Trap in Social Outsourcing for Information Technology

Between the three technology systems available to the BBMP, the Indian CST had developed the lowest cost solution with the most demonstrated functionality to improve elite policy/services and transaction intensive tasks associated with service delivery and imposition of obligations. Moreover, the argument for the GPMS-FMS also stood on the support derived from the particular characteristics of the financial management information system that would increase the strength of the city’s application for funding under the Smart Cities Mission. The external option discussed during the meetings, approaching the Karnataka Municipal Reform Cell (MRC), was developed for small and medium-sized ULBs in the state but was not robust to the transaction volume and overall stress of Bangalore’s general-purpose megacity administrative system. Following the integration committee meetings, the Indian CST confronted a dilemma on how to move their work forward.

The social outsourcing model had led the Indian CST into a trap. On the one hand, the parameters for the BBMP’s new integrated financial management information system discussed during the negotiations closely matched the GPMS-FMS system. On the other hand, choosing the Indian CST as software provider would have triggered a bank reconciliation process inside the BBMP. The organization had made a point of identifying that precise problem during their demonstration. There simply was no way around this implication of selecting the GPMS-FMS technology to support the BBMP’s public financial management system moving forward. Over the previous six months the Indian CST had continuously advocated for a bank reconciliation, a decision borne out of the evidence. Given the growing volume of “mismatches” between the BBMP’s suite of financial management applications, the bank
reconciliation implied a high-level investigation. The Indian CST perceived the opportunity as a potential pathway to tighter integration because any systematic attempt to reconcile the BBMP’s 900 or more bank accounts would also force an audit of the other FMIS systems, thus calling into question larger systemic revenue collection and financial management practices.

The alternative approach would be to pursue a more oblique path, less threatening to the legitimacy of the BBMP. The difficulty with such an organizational strategy was that it put the legitimacy of the Indian CST’s model at risk. The organization is concerned with long-term transformation of financial management, based on offering a combination of features including extremely low cost FMIS systems and a commitment to ongoing customization (carrot) which come with an implicit threat of exposure (stick). The social outsourcing arrangement supporting the partnership between the BBMP and the Indian CST – a memorandum of understanding instead of a tender (or other contractual obligation) – was, in part, a result of path dependency. The project began with the attempt to transfer the web-based project management system (WBPMS) from the Karnataka State Police Housing Corporation (KSPHC) to the BBMP. Nevertheless, over time the ambiguity and flexibility of the MoU became essential to the Indian CST’s adaptability and robustness to stress. Put differently, the Indian CST perceived the relative openness of the MoU and the OpenSaaS model of software delivery as a form of options contract. Even if they did not exercise the implicit threat of exposure, the option had value.

The Indian CST faced what the literature on anti-corruption agencies and public sector accountability refers to as a spoiler trap (Kuris 2014). The spoiler trap is a dilemma confronted by anti-corruption agencies (ACA). Aiming to neutralize the investigatory or prosecutory powers of ACAs, institutional incumbents force ACAs into a dilemma to stall or derail the push for anti-corruption reforms (Kupatadze 2017, 2015). The dilemma centers on the decision to either push forward with high-level investigations risks “crippling pushback or potential dissolution” while less obtrusive actions “might appear timid or biased” (Kuris 2014, 3). Each option is filled with downside risks. Mismanaging the dilemma threatens to curtail the pragmatic legitimacy of the ACA. In the case of the BBMP’s financial management information systems, the two alternatives confronted by the Indian CST pose as legitimacy
games. If the organization continues to push the bank reconciliation report, it threatens the external legitimacy of the BBMP with credible information supplied on official systems by engineers, revenue officers, and other staff. If the Indian CST backs down and as a result is not perceived as legitimate, its commitments and obligations as a social enterprise are less likely to be perceived as legitimate particularly the rapidly expanding issue network which it had helped construct and to which it belonged. The Indian CST and allies thus had to weigh the likely costs and benefits between a high-visibility or low-visibility strategy.

5.4: Mediating Information Democratization: Factors Shaping Local Fiscal Transparency

As the chapter described earlier, the combination of the pending payments file release with the GPMS-FMS helped reassert a higher level of “version control” in the GPMS-FMS system following the buildup of some gaps in financial information over the previous year. The dilemma confronting the Aam Aadmi Party activists was how to develop an approach that could exploit the public release of the pending contractor payment files to support a political mobilization. How could the financial information in the GPMS and FMS systems help? This decision was complicated because the Karnataka AAP had not yet decided if they were actually going to have AAP members contest the BBMP elections. On both the expenditure and revenue side of the BBMP’s budget, financial information was fragmented and incomplete. The AAP activists now had access to data on public investment project performance from tens of thousands of project entries and on the revenue performance of the city from hundreds of thousands of transactions.

During an initial meeting with the Indian CST, an AAP activist concluded that the problem in its simplest form was that:

We have to decide those cases we are comfortable living with and those we are not.106

106 Interview, 18 June 2017.
How would such a value framework be imposed on the mass of public financial management information at their disposal? The AAP’s campaign to win the Delhi elections in early 2015 had focused heavily on themes of corruption and basic services. An AAP activist noted that their:

Immediate interest is to understand and expose corruption and use it as an electoral tool. But sensitization is lacking because we do not know the figures.107

Drawing on the complaints related to water, housing, sanitation, and roads, among other service conditions in the citizen grievance platform, the AAP activists began developing an approach that was first narrowly targeted at the ward level of governance. For instance, originally the overall aim was to:

Align the needs of the locality with the existing corporator [BBMP council member] who is supposed to represent the residents.108

Complaints in the online grievance module level could be used to understand which wards to target and to better understand ward conditions in advance of canvassing neighborhoods by foot to communicate with residents and potential BBMP council voters.

Because PFM information in the BBMP was fragmented and partial, there were initial problems deciding how to select, analyze, interpret, and translate the information for the public:

How to figure out what to do with the data has been a challenging learning process. It is not self-evident how to present the data to the public. The AAP party identity is centered on anti-corruption so presentation to the public must be filtered through that lens.109

At the same time, they devised a framework to analyze the project data with the goal of conducting a citizen-led social audit of public investment projects in the city. Having access to financial information on so many projects and limited time and resources, the AAP activists had to economize. The solution, given AAP’s political identity, was to audit a particular type of project:

Though there are many forms of corruption that affect governance, present forms of corruption that come at the expense of low-income residents.110

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107 Interview, 18 June 2017.
110 Interview, 18 June 2015.
Having analyzed the information in the GPMS system, the AAP analytics team set selection rules for determining the public investment projects to audit. First, the project had to be what they considered “high value” with a minimum of 20 lakhs ($33,000) pending payment. Second, the project had to be visible “from the street” and the project description in the GPMS system had to be clear. This criterion precluded maintenance projects. Third, the locations of the projects should be scattered across the assembly constituency, zone, or ward because the purpose was to be seen in public doing things. Still, preference was given:

To standing committee heads; we look at their wards for big projects and discrepancies.111

The heads of standing committees are often the most powerful local politicians and therefore highly visible to the public.

The other financial management information AAP had access to was connected to revenue administration from the FMS module. In deliberations on possible strategies, the Indian CST shared reports with the AAP team on the data discrepancies that were contained in the FMS system. These reports focused primarily on the property tax but also their experience with advertisement taxes and the use of duplicate demand drafts that were registered in the system. While developing a framework and strategy for utilizing the expenditure information was not as difficult for the technically adept and politically saavy AAP activists, developing an approach to the potential use of the revenue information was more complicated and contentious in discussions.

The revenue information presented a difficult puzzle for the AAP party. One idea for communicating the revenue information to the public was to present non-compliance according to high profile elected officials, large corporations, and large landholdings. The shortfall to the BBMP could be framed as a loss of resources that could be invested in services. The AAP activists could not agree on how the revenue information might be understood by the public when juxtaposed against the presentation of the project information. An AAP activist stated the confusion in the following way:

111 Interview, 25 July 2015.
The question is how to translate to voters. Is weak collection potentially a revenue gain for the citizen?\footnote{112}

However, many of the biggest corporations are local and run by individuals who grew up in Bangalore. Indeed, as an AAP activist concluded:

\textit{Infosys, for instance, on property tax, will be unpopular to bring it up in the media because it is a company that is a “son of soil” in Karnataka so there is a lot of pride in it.}\footnote{113}

While low collection rates and weak enforcement in revenue administration was a clear indicator of poor performance at the expense of the poor, it was not clear to the AAP activists if this interpretive frame is shared by citizen voters.

As the social audit mobilization took shape, volunteers evaluating the project needed to be trained. This was the first large-scale structured activity for the AAP in Bangalore. They had managed to develop an approach within the timeframe of the elections, but it was not without problems. As one of the leaders of the social audit described:

\textit{AAP is struggling to know who all their volunteers are. Who qualifies? This is a logistical nightmare. We take whoever turns up to do a social audit because this is a political mobilization. We just pick up projects from GPMS and send them to the volunteers to check.}\footnote{114}

The activists started by making initial pilot visits to project sites. Two to three volunteers would make visits to two or three projects on the same day to learn how to replicate the audit on a larger scale. These visits were a form of learning-by-doing, because no one had experience interacting with BBMP engineers on the project site. Specific training would need to be developed to help volunteers deal with a range of potential situations with BBMP bureaucrats and a clear need to avoid offending engineers or causing problems because of a failure to prepare for different types of interactions. The training focused on what to ask of the project engineers present and how to ask it.

\footnote{112 Interview, 24 July 2017.}
\footnote{113 Interview, 18 June 2017.}
\footnote{114 Interview, 18 June 2017.}
During the open campaign period, the AAP activists conducted social audits for 20 projects in total. For instance, they examined a school construction project in ward 98, Jogupalya, located in central Bangalore. The Jogupalya school project was for the construction of an 8-room school building. According to information reported through the GPMS, 40 lakh rupees had already been released. With the additional information supplied by the pending bills file released by the Administrator, the BBMP was scheduled to release of an additional 60.5 lakh. Three years into the project, the school building was only partially completed and the AAP activists, through visual confirmation (civil engineers were connected to the teams) estimated that the total cost should be 40-50 lakh.

Another audit in central Bangalore, a project for renovation and repair of slum housing in Neelasandra (Ward 116), found that no improvements had been carried out in the previous year but the BBMP had been billed 2 crore rupees with another 81 lakh pending payment. The social audit was not without controversy. When participants went to audit a borewell project in Byatarayanapura (Ward 7), the joint commissioner of Yelahanka Zone prevented the executive engineer from visiting the project site with the participants. The story played out in the media and online, but overall the social audit was conducted with no major disruptions. The leaders of the social audit challenged the Administrator to form a social audit committee in the BBMP, but the Administrator responded that it was not necessary. During the open period of campaigning while AAP was carrying out the social audit they did not report to the public any revenue-related details coming out of the BBMP. However, while they did not contribute to public education on revenue administration, they did assist the Indian CST in augmenting the FMS database by incorporating property tax payments from the BBMP’s online property tax system.

5.5 Discussion

These vignettes are useful to consider how transparency, authority, and legitimacy are constructed in context. They exhibit the classic characteristics of polycentric regulatory regimes (Black 2008). First, 115

the activities of all actors are only partially based on national and subnational law. Second, the jurisdictional boundaries are unclear. Third, in principle though activities fit within a formal regime of governance, there are no existing state structures that can render them accountable to specific formalized standards.

5.5.1 Legitimacy Games

The Indian CST had not followed a conventional software delivery model. Joint ownership of the two FMIS modules was intentional from the beginning, but opened the Indian CST up to criticism for not following the conventional policy formula for information and communication technology projects in ULBs. The OpenSaaS approach was partly based on the experience of FBAS, which lost the source code during the political transition following S.M. Krishna’s term as Chief Minister. As an open source (i.e. non-proprietary) system, the Indian CST aimed to limit the risk of corruption in IT contracting and its implications for technology and provider lock-in. All of these aspects of the social outsourcing model built over the course of six years were targets in a legitimacy game.

The Indian CST pushed the need for a bank reconciliation beginning in 2014 and continuing through the integration negotiations, which set up the conditions for the spoiler trap. Although pushing a bank reconciliation would seem counterproductive when positioned against institutional incumbents in a negotiation, the Indian CST’s position was premised on two factors. First, of the three parties in the negotiation, the GPMS-FMS system clearly demonstrated the most pragmatic legitimacy. Indeed, the characteristics of an ideal system that were described by all participating parties in the negotiations closely matched the features of the Indian CST’s GPMS-FMS technology. Second, it was in the Indian CST’s interest to raise the profile of the GPMS-FMS system through a bank reconciliation, which they

116 I set aside both the significant evidence supporting the need for a reconciliation and older recommendations for an audit crafted by the Comptroller & Auditor General (C&AG). At the time, the C&AG’s last audit of Bangalore was in 2009. The ULB-level audits by the BBMP, unless expressly directed by a state government, is a limited technical audit of budget variance in aggregate revenues and expenditures, major accounting procedures, and a deeper investigation of 2-4 departments.
believed a bank reconciliation would trigger public demand for substantive transparency as the technical issues (i.e. the ICT systems in use in the BBMP) surrounding public financial management would transition from a matter of simple fact to a matter of public concern (Latour 2008, 2004).

Stated differently, as a social enterprise, the market for the Indian CST’s services was far larger and more varied than the BBMP or other potential clients in the private and public sectors. At certain times, this aspect of their institutional design confounded the formation and execution of a change management strategy. Nevertheless, the organization perceived its interests to be broadly aligned with residents in Bangalore who held political interest in local public financial management. Such a notion of the market for the Indian CST’s services also drove their assumptions about the new administrator appointed to lead the BBMP following the dissolution of the council. The Indian CST believed that by conforming to national standards for public sector information technology, in particular the parameters for e-governance systems in the Smart Cities Mission and Digital India, the administrator would impose the decision to integrate the Funds Based Accounting System and Integrated Financial Management System into the GPMS-FMS via the new additional commissioner (finance and IT).

5.5.2 Situated Interests, Situated Fiscal Transparency

The increasing use of digital technologies associated with fiscal transparency raise the critical issue of whether they create public value and what that value might be. Can public value be created through mediation of fiscal transparency by extra-governmental organizations? The experience of the Indian CST and Aam Aadmi Party activists portrays a politics associated strongly with new information gatekeepers. These gatekeepers restrict, in part, the flow of financial information to the public, while also serving as organizers that make financial information legible and understandable. This is a transactional politics, not dissimilar to the classic form of deal making that mutually benefits two parties. The emphasis, however, is on transactions in the sense of financial information.

That the analysis of financial transactions was connected to the Aam Aadmi Party challenges conventional notions of expert forms of analysis and representation. The Aam Aadmi Party in Bangalore had a clear agenda for gaining local political power in local office by advocating for reductions in
corruption and increasing basic services to low income urban residents. While assembling the analysis to support the social audit required some form of expertise, the decision rules that went into the selection of particular projects to send volunteers to audit were generally pro-poor. The focus was not on the distributional outcomes of any particular category of public investment projects such as roads and flyovers. The emphasis was on project execution that comes at the expense of the poor.

Still, the justification by the Aam Aami Party activists for not mobilizing around revenue collection and performance is absent from both research on fiscal transparency and the growing literature on taxation and the public political agenda in the global South (Brautigam, Fjeldstad, and Moore 2008; Moore 2004b). The analysis developed by the AAP activists for selecting the projects for the social audit is consistent with the perspective that citizen activism around fiscal issues in the global South focuses on reducing corruption and unnecessary waste of public money mainly by groups “speaking for – or in the name of – citizens defined as potential citizen-beneficiaries of public expenditure” (Moore 2004b, 28). Nevertheless, the AAP activist’s justification for not publicizing or otherwise using the revenue information was not based on a concern over the social costs of exposing revenue mismanagement to wealthy taxpayers who will be empowered to “keep ‘their’ money out of the hands of people whom they are quick to ‘stigmatize’ as ‘undeserving’” (Moore 2004b, 26). Rather, one part of the dilemma is based on the perception of a future loss of an implicit income subsidy. The other part of the dilemma, to which the justification was directed, manifests in terms of a political loss function based on the social identity of taxing entities.

The Aam Aadmi Party’s focus on discrete transaction information in government financial management information systems is a unique type of political activity. For instance, the emphasis is

117 In his study of the origins of the property tax revolt in California, Martin (2008) argues that a similar interpretation – under-collection as a form of income subsidy – was broadly shared by home owners facing the property tax but who, at the time, benefited from lower tax bills as a result of fractional assessment practices. The revolt that ensued was not against taxation per se, but against the loss of an implicit tax privilege that operated as a large-scale social program. While that income subsidy came from widespread fractional assessment practices and not low collection rates like in Bengaluru, the political dilemma of establishing interpretative frames to translate a matter of fact (i.e. under-collection) into a matter of concern on a public political agenda is equivalent in the two cases.
clearly distinguishable from that of the social movements that led to the Right to Information Act in India. The focus is on transactional activity, which is different than on whether or not citizens have received ration cards or final benefits of government welfare schemes (Goetz and Jenkins 2001). This subtle difference points to the potential for rising conflict as private technology firms, or quasi-private software developers organized as social enterprises, increase their involvement in financial management in municipal governments in India. The Aam Aadmi Party’s ability to articulate a pro-poor vision out of the mass of information supplied to them by the Indian CST, and the Indian CST’s ability to connect and work with the Aam Aadmi activists even while facing pressure from internal negotiations in the BBMP, culminated in the social audit of BBMP projects in the midst of local elections.

Could something similar happen with software firms seeking private gain through profits? When private actors develop proprietary tools driven by an investment in speculative norms and ideologies, quite the opposite of information democratization and financial transparency is the result. In quasi-market spaces, firms carve out separate spaces. Technology firms sell proprietary systems to local governments that do not understand, on a collective level, what they mean. As the discussion of the “spoiler trap” showed, the Indian CST had the upper hand on the most relevant rational choice criteria: least cost option, highest social impact, and meeting technical and other standards of national urban policy. Yet, the spoiler trap partially set by the Indian CST’s insistence on reconciliation of the BBMP’s bank accounts threatened their position as a hub of transaction processing and information aggregation in the financial management system of the BBMP.
Ch. 6 Trespassing Boundaries between State and Society

6.1 Introduction

The last chapter revealed how situated fiscal transparency is constructed within issue networks spanning the supply and demand sides of reform. The chapter examined how such issue networks for transparency work in practice, mediated by information technology and path dependency in highly contentious local contexts characterized by high levels of incomplete information. This chapter takes the analysis a step further, examining the progressive expansion of the transparency network to more powerful state actors located at a higher level of the political system. What were the implications for political accountability as a result of the decentered governance of the production of public financial management between institutional incumbents and challengers? The previous chapter concluded with the formation of a transparency issue network aided in part by reciprocal relations between the Indian CST and the AAP activists. The low visibility strategy by the Indian CST to avoid the spoiler trap was aided by pushing for the hard demand for bank reconciliation. This chapter focuses on how accountability mechanisms operate in such a competitive environment for technology services within local public financial management.

Through changes in Indian CST’s strategy as a result of contingent responses to political dynamics, we can observe how the role of municipal accounting shifts away from a neutral technique for managerial control, given cover by the ostensibly rational premises for FMIS implementation that were described during the integration committee meetings in the past chapter. Rather, IT-mediated public financial management shifts to the more radical terrain of counting “not the visible, but the invisible” (Meyer 1986, 351). In doing so, a stronger political basis is formed for fiscal knowledge and for trespassing institutional boundaries that would otherwise reinforce fragmentation of public financial management functions and reinforce information closure in the fiscal domain. This chapter unpacks how the ambiguity of IT-driven public financial management opens up a space for mediation and novelty and, in doing so, a new institutional terrain for political accountability.
6.2 Stranger than Fiction? Social Outsourcing and the Necessity of Asserting Administrative Fact

The distinctions in the building state capability approach between thin and thick information and accountability add up to a particularly stark contention about the possibility of accountability in settings where individuals’ “accounts” and organizational “accounting” diverge. As a form of survival strategy, organizations can “fix” the accounting and in doing so make “administrative facts” of accounting out of total fiction. This is the classic assertion that public sector bureaucrats are incentivized to manipulate financial management information to ensure compliance. When such social norms have taken hold in a particular bureaucracy (private or public sector), there is little possibility for the work of crafting numbers and financial reports out of mass transactions to fix substantive accountability. Yet, as Quattrone (2015) and other critical accounting scholars point out, accounting works not just as a coercive tool of control but can serve enabling purposes. While the building state capability framework asserts that fixing the accounting will likely not fix accountability (Andrews, Pritchett, and Woolcock 2016), where does that leave new social enterprises that are intent on building efficient, effective, transparent, and accountable public financial management systems over time? What can be done?

As this chapter will show, there are a range of purposes to which the selective construction of administrative fact can be put to use in a setting full of fiction. While fixing the accounting may only temporarily fix the principle-agent accountability problems in local public financial management, the question, as Quattrone asked, remains: “how is one able to provide an explanation and an authoritative account if the account cannot produce a positive knowledge of reality and cannot find authority in its ability to generate transparency?” (Quattrone 2015, 13). When the accounting project of an FMIS internal to government has failed, a social reconstitution of accounting requires social relationships and alternative modes of transparency. Put differently, when the different financial management information systems (FMIS) within a municipal government lose legitimacy due to multiple historical and contemporaneous factors, municipal accounting must still continue in some form. This imperative is achieved by continuing to build relationships with diverse internal and external stakeholders through alternative networks.
6.2.1 Reading the Political Moment

The failure to convince the new Special Commissioner (Finance and IT) during the reconstituted integration committee deliberations provoked a reassessment of the Indian CST’s strategy and the prospects for their technological solution in the BBMP. Having worked with five different municipal commissioners and four chief ministers, the organization was accustomed to changes in the senior leadership of the municipal corporation. Based on the governance history of the BBMP, the Indian CST’s OpenSaaS model was purposively designed to withstand frequent changes in senior leadership. The social enterprise was accustomed to changing the behavioral assumptions it attributed to state government officials and various senior officers in the BBMP to guide their organizational strategy, though they were not immune to internal disagreements about whether a low or high visibility strategy was more appropriate. During the interim period between dissolving the BBMP and the council elections, the Indian CST did not always exert a consistent position with respect to their counterparts in the BBMP. As a senior manager in the Indian CST reflected during a strategy discussion:

We have to show them the way and lead them by the nose. But we want them to take ownership so we want them to get the glory to say that they did it. If we say that we did it, we will have one momentary adulation and satisfaction and recognition but it will not get institutionalized. Because jealousies will come in, vested interests will get aroused, and we will get targeted for destruction. I would like to do it by being in the shadows where others think we should lead the way. 118

The personnel in the BBMP had changed significantly. The political context had changed. Almost everything had changed, except the technology organizations supporting the municipal corporation. Both the special commissioner (projects) and the special officer (finance) who initiated the GPMS and FMS projects had rotated out of their positions by the end of 2014, so the organization did not have the internal foothold with senior management it had relied on for the previous six years. Following the show-cause notice issued by Chief Minister Siddaramaiah in March 2015, the Indian CST assumed that the administrator would be inclined to collect as much revenue as possible given two strong local incentives: to clear the backlog of payments to contractors and to spend available resources in the lead up to local

118 Interview, 2 December 2015.
elections were the trifurcation process to fail. As a subcontractor to the BBMP for public financial management, the common refrain about the “cash strapped” BBMP was a baseline incentive to continue to experiment and push for further reforms:

"There is no revenue" this response from the BBMP actually reinforces people’s efforts to go after revenue. 119

The Indian CST requested repeat meetings with the administrator in order to explain their approach to financial management information systems and the value of the OpenSaaS model. While the initial meetings focused on the history of the GPMS and FMS systems in the BBMP, they continued to emphasize the issue of floating funds (i.e. funds not remitted to the nodal bank account) in the BBMP that had been a constant theme of their engagement with the city. The work of the AAP activists augmenting the property tax records contained in the Financial Management System (FMS) allowed the Indian CST to update the bank reconciliation report it had formerly submitted to the BBMP commissioner. Though the Indian CST’s report could only present a partial perspective of the overall financial performance of the BBMP, the organization could define a set of irregularities they thought would merit triggering a bank reconciliation on the part of the administrator.

When the Financial Management System (FMS) receipt module was introduced, the circulars (i.e. directives) issued during deployment demanded that opening and closing bank balances were to be uploaded daily. 120 It was these early design decisions that shaped how the type of accounting service the external IT-provider was able to offer the corporation. In their updated 2015 reconciliation report, the Indian CST included the compliance rate for reporting opening and closing bank account statements, transaction details that confirmed the use of duplicate demand drafts at payment offices, and the

119 Interview, 24 November 2015.
120 According to the circulars, payments must be deposited into a bank account by the end of the day and the bank must reconcile and report the deposit both internally and externally to government accountants. The deposits in the governments accounts are recorded against the obligation of the resident and this record must be maintained in order to avoid tax disputes. The bank must report back to the BBMP, which chooses to use or not use this information in their budgeting, capital planning, and cash management activities. The information originating with the taxpayer and revenue officer’s transaction then must travel up the chain of delegation to mid-level managers in the zones (i.e. deputy commissioners) and from there to managers in the BBMP’s head office.
difference between receipt totals in FMS and reported collection by the BBMP published in the corporation’s budget documents from 2011-12 to 2014-15. The report focused on 15 revenue codes (each corresponding to a different tax or fee levied by the BBMP) in which the actual collection reported by the BBMP was lower than the total registered by the FMS. The difference amounted to 7,997.66 crores ($1.24 billion).^{121}

In one of their final meetings with the administrator before the council elections, the Indian CST presented the updated reconciliation report and argued their case that the BBMP could rely on the GPMS-FMS system not only to mobilize revenue but also to help qualify the city for the following round of the Smart Cities Mission competition. The assumption that the administrator could be persuaded to go after “floating funds” held in the hundreds of BBMP bank accounts and, in doing so, would be receptive to the Indian CST’s demonstration of pragmatic worth proved partially correct. The administrator reported back to the Indian CST that following a review of the reconciliation report, he had collected more than 500 crores ($83.3 million) of floating funds, tax and fee revenue that officers had failed to remit to the consolidated (“nodal”) account of the BBMP. While another small win demonstrating the pragmatic legitimacy of the Indian CST’s technology model, the amount was only a small portion of the funds estimated to remain outside the BBMP’s central account.

The BBMP council elections were finally held at the end of August 2015 and the Bharatiya Janata Party won 100 of 198 seats, serving to rebuke Chief Minister Siddaramaiah and the broader Congress Party’s stewardship of the BBMP. A month later revenue officers received a circular ordering them to cease using the Indian CST’s Financial Management System (FMS) and to begin processing receipts in

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^{121} Report Regarding Reconciliation of All BBMP Bank Accounts. 29 May 2015. It is important to point out that the Indian CST did not have a precise understanding of the status of the BBMP’s bank accounts. The estimate was made in the context of FMS transactions cross-referenced with BBMP budget information. Nevertheless, as I described in chapter five the FMS system was intentionally designed to make these kind of estimates, which are largely operational numbers. In accounting research, operational numbers are understood as “the numerical surface form of an underlying reality which is qualitative in character” (Gillies 2004, 190).
BBMP payment offices through the Integrated Financial Management System (IFMS).\(^\text{122}\) The Indian
CST’s FMS experienced a precipitous decline in use following the order at the end of September, though
many revenue officers continued to use the system over the next two months. In addition to abandoning
the FMS, the BBMP ordered the consolidation and closure of existing bank accounts down to 25, though
it would only report that it had successfully done so months later. The Indian CST’s memorandum of
understanding (MoU) was still in effect (expiring in February 2016) and the organization was beginning
conversations with the Engineer-in-Chief, who wanted to reintroduce the Global Project Management
System (GPMS) to support project management for the “major works” category of projects in the BBMP.

6.3 Advancing the Transparency Issue Network into the Arena of Political Accountability

In consultation with an array of local actors, the Indian CST once again had to carefully adapt their
strategy. Following discussions with accounting specialists in the Indian CST, it was thought that the
decision to consolidate the number of BBMP bank accounts should have triggered a bank reconciliation
and wider financial audit, according to the Karnataka Municipalities Accounting and Budgeting Rules
(2006). While the Indian CST acknowledged the potential reputational consequences as a result of project
“failure,” the integration committee deliberations clearly demonstrated the ongoing operational risks
associated with the financial management information systems that remained in the BBMP. The
transaction intensiveness of Bangalore’s financial system creates acute risk of system failure, with
cascading effects beginning with loss of information and foregone revenue. The value of shared
ownership in the Indian CST’s OpenSaaS model was the redundancy it provided to the existing financial
information infrastructure in the BBMP. Mid-level bureaucrats had already confirmed discrepancies
between their records and those of the head office, which the Indian CST could validate given the
renewed version control achieved by updating the property tax and pending bill payments.

\(^\text{122}\) The circular was reported to have been issued by the IT-advisor, though no instructions were issued to the Indian
CST. The Special Commissioner (Finance and IT) was later quoted in a news article claiming that the BBMP was
developing a web-based information system.
Leaders at the Indian CST considered three main options for action, though approaching the head office was not viable given the order to cease using the FMS to issue receipts.

*Three options are available right now besides bringing it to the notice of the head office or the hierarchy. Take it to public domain. Take it to the legislature or the people who are entitled to ask questions in the legislature who won the election. Or take it to the judiciary for fixing accountability.*

During the summer months, the Indian CST had updated the GPMS-FMS systems based on the deliberations during the integration committee meetings. One of these updates included displaying property tax information, both payment history and arrears, beyond simply the ward scale all the way down to the street level. The idea was that while local politicians may not be interested in aggregate figures, they might be persuaded to initiate property tax collection drives on the basis of disaggregated collection and arrear information. The Indian CST first approached the new mayor and the deputy commissioner (revenue), both of whom were new to their posts, with a separate property tax report that showed the top ten uncollected property tax payments by highest tax liability. The organization continued to approach various political and administrative leaders, including the director of accounting at the Karnataka Municipal Reforms Cell.

They also began a strategy of further expanding the issue network in order to outflank the dominant actors inside the BBMP. Drawing on their resources, the Indian CST began an organizing approach which Clegg (2010, 10) has described as combining “skilled analysis, deployments, and coordination grounded in local knowledge with which to outflank dominant actors with superior resources.” Various pathways of organizing support were pursued, some more stealth than others. The goal was to maintain two fronts: (1) continue attempting to persuade BBMP officers of the value of the GPMS-FMS systems while (2) contributing to a public interest litigation (PIL) case against the BBMP. The latter would need much wider support from various organizations and politicians in Bangalore and have to be carefully considered since it was not immediately apparent what qualified as a legitimate evidentiary basis for such a case.

123 Interview, 15 October 2015.
6.3.1 Right to Information (RTI) Requests

Building on the connections that grew out of the political mobilization around the AAP’s social audit during the summer months, the now durable network of organizations and activists began coordinating a series of right-to-information (RTI) applications intended to increase collective understanding of the current status of the PFM system in the BBMP and support the formulation of the public interest litigation. The RTI requests would not only target a broad range of “thin” revenue and expenditure information in the BBMP, but also “thick information” by triangulating details about service agreements among the FMIS providers to the BBMP and the set of “waivers” or “exemptions” to provisions in two key legal frameworks guiding PFM in the BBMP. Table 6.1 below lists the information that was requested. Individuals from various organizations, including the Namma Bengaluru Foundation, Whitefield Rising, Forward Foundation, along with many of the activists who had participated in the AAP-led social audit, volunteered to submit the RTI applications.\(^{124}\)

<table>
<thead>
<tr>
<th>Information</th>
<th>Relevant Actors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intergovernmental transfers and external funds</td>
<td>Government of India, Karnataka Government, World Bank, Asian Development Bank, Japan International Cooperation Agency (JICA)</td>
</tr>
<tr>
<td>Agency details, service agreements, service levels, compensation for all FMIS in the BBMP</td>
<td>FBAS, GPMS-FMS, IFMS, GIS</td>
</tr>
<tr>
<td>Number of wards covered, steps taken to include additional wards for FBAS</td>
<td>FBAS</td>
</tr>
<tr>
<td>Council approval to open 25 new bank accounts in Canara Bank (closure of 900+ accounts)</td>
<td>Municipal council, Special Commissioner (Finance); Accounts Department</td>
</tr>
</tbody>
</table>

The other objective of the RTI requests was to cross-reference any information provided by the BBMP with information contained in the GPMS-FMS systems. The Indian CST was not concerned about

\(^{124}\) Studies using randomized control trial methods have demonstrated that RTI requests in India are effective for gaining access to public goods among poor or disadvantaged groups in New Delhi (Peisakhin and Pinto 2010). Government institutions have 30 days to respond to a RTI request and the only recourse to refusal is on the basis of national security interests. In practice, there are often delays and public information officers can claim any number of reasons for why paperwork processing was delayed. Some of the RTI requests were ignored by the BBMP, with activists taking recourse to “back channel methods” to get the information.
differences as their information management system was designed to be open to the public and to support “real-time” auditing of the BBMP. Thus, a strategic aim was to get swept up in the bank reconciliation and broader BBMP audits in order to gain normative legitimacy to complement the pragmatic legitimacy they had built up around the functionality of the system. In aggregating as much information as possible in as short a period as possible, the network was also following a core principle of fiscal administration — “that there is a difference between an ‘auditor’ knowing... and having sufficient evidence to sustain a court finding to that extent” (Slemrod and Yitzhaki 2002, 1448). Within a two-month period, the issue network had submitted 34 RTI applications to the public information office at the BBMP and had received responses for more than half of them.

6.3.2 Micro-Inquiries

In order to strengthen the draft of the public interest litigation and lower the “adjudication costs” (Andrews, Pritchett, and Woolcock 2016; Pritchett 2013) of the public interest litigation court case, and to continue building their portfolio of diagnostic PFM services to the BBMP, the Indian CST began a series of micro-investigations on the available information in the Financial Management System (FMS). The first fee base they focused on was rent payments the city received for leasing out space in public buildings. They identified a building on MG Road, the main thoroughfare in the heart of the city. They picked a utility building with 100 tenants, assuming that the monthly yield from such a large public property could potentially be a windfall gain and that with so many units they should expect some errors related to the transaction. For each unit, there are three monthly bills – water, electricity, and rent – and the water and electricity utilities used unique payment ID numbers. Rental fees for the BBMP were not collected on the basis of a unique ID, so each time the city government received payment the assistant revenue officer was required to type in the payee’s business name. In a single year, they found that one shopkeeper had given fifteen different descriptions for their business name for their unit in the city’s MG.

125 Under the Memorandum of Understanding (MoU) held between the BBMP and the Indian CST, these analyses always got written up into short memos or reports and circulated among the commissioner and other senior officers (Revenue and Finance in particular) in the BBMP.
Road property. This made it very difficult to automate the analysis of payment data and limited the traceability of payments unless a dedicated analysis was made.

In their quick investigation, the Indian CST found that the annual yield for that BBMP property had incrementally declined over the previous three years. During the investigation of the rental payments, the Indian CST analyst also discovered that in addition to non-compliance, there were a few data entry errors in some of the more recent receipt payments. For instance, one of the monthly payments was supposed to be for 10,000 rupees. The description portion on the receipt clearly noted “monthly receipt.” However, the assistant revenue officer had entered 1 lakh 10,000 (i.e. 110,000). As this amount was wrong (no rental unit leased for 110,000 rupees a month), any income statement made on the basis of this information would not accurately reflect the BBMP’s financial position. To the Indian CST’s knowledge, no one had tried to correct the entry. The finding was alarming to the organization, though not surprising given they had been steadily isolated from internal management as they pushed for the bank reconciliation late in 2014.

The evidence from these quick inquiries fed into both advocacy efforts with BBMP officers and the development of the public interest litigation. The organization also began contacting joint commissioners (i.e. zonal commissioners) to offer the FMS product as a data analytics service. Over the past three years, the Indian CST had automated a number of reporting formats and with new updates to the code, end users could easily visualize the location of property tax arrears on a GIS map. From the initial design and deployment, the objective of FMS was always to decentralize control over revenue management to joint commissioners (i.e. executive officer of zone) and then to hold them accountable for their performance. Through informal coordination mechanisms, the Indian CST contacted the joint commissioner of Mahedavapura. The joint commissioner had been recently promoted by the chief minister and therefore presented a strong opportunity to promote the new model of FMS as a financial analytics service that could potentially get a direct connection to the chief minister.

In order to demonstrate the new FMS features, the Indian CST asked the joint commissioner to confirm whether ten instances of property tax arrears registered in the FMS system were similarly
registered in the joint commissioner’s system. Of the ten properties, the joint commissioner had collected property tax on seven but they were not reflected in the property tax GIS system. Ultimately, though the joint commissioner experimented with the new version of the FMS system, he declined to adopt the system fully claiming that it would require permission from the head office. Yet, just as the integration committee meetings had provided useful information to the Indian CST, the discussions during these meetings also proved useful to both the joint commissioner and the Indian CST. It allowed the joint commissioner to identify property tax arrears that were missing in the main GIS property tax system and the Indian CST to better understand the suite of technologies the Joint Commissioner relied on for financial management. While the joint commissioner had previously relied on FMS to issue receipts and track daily collection yields, the joint commissioner used a range of software systems to monitor performance in his zone including the GIS property tax system, FMS (until it was repealed), MS Excel, and the set of manual cash books and payment registers.

6.4 Litigating Accounting in the Public Interest

The Indian CST also connected with Namma Bengaluru Foundation, founded by Rajeev Chandrasekhar. The Namma Bengaluru Foundation recognized the Indian CST with their annual award in 2013 for the organization’s work on e-governance and public financial management with the BBMP. Namma Bengaluru Foundation along with Forward Foundation agreed to help coordinate the public interest litigation, including selecting the lawyer to submit the case to the Karnataka High Court. The public interest litigation was considered the last option. With coordination led by the Namma Bengaluru Foundation, MP Chandrasekhar would lead the engagement on the public interest litigation.

The financial management problems of the BBMP were well known publicly, but as the AAP party activists described when designing the social audit, it is difficult to educate the public and politicize the issue if you do not know the “numbers.” As one of the leads managers from the Namma Bengaluru

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126 Rajeev Chandrasekhar (BJP) was in his second six-year term as a Member of the Rajya Sabha, the upper house of Indian parliament. He sat on the Consultative Committee on Finance and was Co-Chairman of District Development Coordination and Monitoring, Bangalore Urban District.
Foundation described, numbers are in many ways simply an answer without a question. Nevertheless, they are essential in order to ground a situated inquiry into a highly contentious, highly opaque area of urban governance. Reflecting on the Indian CST’s position in the emerging transparency and accountability issue network, the lead officer concluded:

> You see they have a MoU with the government. And from that MoU they have information on the projects and how much revenue was collected and by looking at that information I find out answers. And then only can I learn what are the questions I should be asking. \(^{127}\)

The issue network took a ratcheting approach beginning with a simple threat of action. The initial plan focused on writing to officially notify the Comptroller and Auditor General of the status of the BBMP’s financial management systems and issuing a white paper or similar report. In a series of meetings in late 2015, it was concluded that such an approach would neither publicize nor politicize the issue to the degree needed. \(^{128}\) Instead, Rajeev Chandrasekhar issued a public letter (see figure 6.1 below) to the chief minister citing “evidence provided by concerned citizens and NGOs” related to the number of bank accounts in operation and the failure to remit revenue collected to the central account of the corporation. The letter requested the Chief Minister to order an audit by the Comptroller and Auditor General (CAG) and threatened to take legal recourse if no action was taken by Siddaramaiah.

\(^{127}\) Interview, 24 November 2015.
\(^{128}\) Interview, 3 November 2015.
Figure 6.1 Letter to Chief Minister Requesting CAG Audit

RAJEEV CHANDRASEKHAR
MEMBER OF PARL
RAJYA SABHA

09 October, 2015

Dear Shri Siddaramaheswara,

Sub: Request Ordering a CAG Audit into BBMP Accounts

I write this letter in continuation to my letters written to you previously on 16th December 2013 and 2nd April 2015 about the problems facing our city Bengaluru and in particular the rampant mismanagement that is causing these problems.

Most of the problems facing the city today – bad roads, inadequate garbage management capacities etc are being blamed on lack of financial resources. In December 2013, I had highlighted the issue of loopholes in revenue collection and leakages and I am writing again to draw your attention to the rampant and deliberate mismanagement of the BBMP Finances resulting in thousands of crores of rupees of its revenues including tax collected from citizens being siphoned off and not being used for the development of our city.

It has been brought to my notice by several concerned citizens and NGOs that hundreds of crores of tax receipts and revenues collected by BBMP have not been credited into the main bank accounts but deposited in miscellaneous accounts by some officials in BBMP. It is learnt that over 900 bank accounts are being operated by the BBMP officials. Such a large number of bank accounts for one institution located within the same city calls for inquiry as to how these accounts are opened and operated in various public sector and private sector banks. I understand that subsequently these accounts are being consolidated into 25 accounts, but the issue of the performance in the post of these over 900 accounts remains unanswered or unquestioned.

I am enclosing a copy of the letter for your information.

11th Floor, Water Tower, 90 M. Visvesvaraya Road, Sh. S. R. Ambalal Chambers, Bengaluru 560001, India
Phone: 080-29438900, 29438901
Email: rajeev@cbm.in
www.cbm.in

Source: Indian CST

MP Chandrasekhar also wrote to all 28 MLAs from Bangalore (BJP, Congress, JD-S, and independents) to attend a public consultation on the status of the BBMP’s financial management practices. Six MLAs129 attended along with representatives from civil society organizations which were given time to discuss their concerns with water supply, sanitation, and other urban services. The primary objective of the meeting was to explain the financial issues surrounding the BBMP management and to develop a citizen charter that included financial management and a strategy for social mobilization.130

129 Attendees included members of the Rajya Sabha and Lok Sabha, seven from the BJP, one from Congress Party, and one Independent. MP Chandrasekhar is a member of the BJP party, which likely explains why more BJP MPs attended.

130 These discussions would later become the Namma Bengaluru Foundation – Citizen Partnership movement which draws from many of the Indian CST’s principles of transparent and accountable governance of public financial management. See http://cp.namma-bengaluru.org/NBF-CP-SaveBengaluru-Charter.pdf.
6.4.1 Making the Case and a Response: Complexity of the Policy Formula

The Chief Minister initially responded that the Government of Karnataka needed time and would look into the matter. When Siddaramaiah failed to initiate the C&AG audit, the Namma Bengaluru Foundation and MP Chandrasekhar introduced public interest litigation against five parties (i.e. “respondents”): the Government of India (Ministry of Finance, Urban Development Department, and Comptroller and Auditor General), the State Government of Karnataka, and the BBMP. The public interest litigation case was filed on December 19, 2015 in Karnataka High Court. In order to make the case on the merits of the public interest litigation, the transparency and accountability issue network that was building in Bangalore used the public interest litigation to “scale up” accountability claims to the highest levels of the Government of India in an effort to influence higher level decision-making (Fox 2007). Under the prevailing policy formula for public financial management in ULBs in Karnataka, all five parties have a significant role in the governance of PFM in the BBMP.

What is intriguing, however, is that the emphasis on the procedural roles of actors located vertically in the intergovernmental fiscal system heavily shapes how the relationship between public financial management and urban governance is framed in the petition. The writ petition does conclude that:

Thus, maintenance of accounts and its audit is a constitutional function that goes at the heart of local governance. This is the only reference to local governance in the writ petition. Instead, local auditing is framed as an intergovernmental issue. The public interest litigation is filed on the basis that all five respondents (Government of India, State of Karnataka, and BBMP) failed to conduct an audit of the BBMP through the Government of Karnataka. The purpose of the public interest litigation is to ensure that the BBMP is audited, that the process is initiated by the Karnataka government, and that the audit is carried out by the Comptroller and Auditor General (CAG). After describing the expenditure responsibilities and local

131 Karnataka High Court. 2015. Writ Petition 58006.
132 Karnataka High Court. 2015. Writ Petition 56006, p. 17.
revenue assignment (mainly the property tax) to the BBMP, the weight of justification for the audit is based on the BBMP’s dependence on intergovernmental transfers from the Center and state government. The evidence of the need for an audit includes previous CAG reports on ULB audits and news articles over the previous four years that indicate financial irregularities or improprieties in the BBMP.

Grounds for the case in support of the BBMP audit are advanced on the basis of “the failure of Respondent 2 [Government of Karnataka] to manage the accounts of Respondent 4 [BBMP] in a manner envisaged under the Constitution as well as the Karnataka Municipal Corporations Act, 1976 amounts to dereliction of their constitutional duties and a systematic breakdown of the rule of law” (p. 21). These grounds come before the provisions on local accountability of ULBs in the 74th Constitutional Amendment Act (Part IX-A). The public interest litigation goes on to outline the responsibilities of all the respondents with respect to national and state-level laws and regulations. The writ petition concludes by requesting the court to step in and issue an “appropriate writ, order, or direction in the nature of mandamus” to induce the Government of Karnataka to order a CAG audit of the BBMP.

Following the first hearing during which the writ petition was filed, the public interest litigation case adjourned. In the second hearing on February 26, 2016 the BBMP filed their response to the public interest litigation. At the hearing, the Union Government lawyers asked for more time to file objections to the public interest litigation. The CAG filed their response during the third hearing on March 10, 2016. The BBMP responded that it has been continuously audited as per section 150 and Part II of the Financial Rules in Schedule 11 to the KMC Act 1976 (KMC), has a chief Auditor, and has conducted audits as per the provisions of the KMC Act 1956. More importantly, the BBMP replied that it no longer had 900 bank accounts open under its legal jurisdiction, but had closed and consolidated their account structure down to 25 accounts.133 The response of the CAG was that the BBMP did not follow key rules in the Karnataka Municipal Corporation Act 1976 for the submission of their audit reports. Therefore, the accounts as submitted were not “authentic.” As they were not authentic reports, the CAG could not audit them.

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6.5 Discussion

6.5.1 The Paradox of Operational Information

The ambiguity of the financial information circulating in Bangalore did not discourage collective organizing. Rather, for the Indian CST, the operational information incentivized regular face-to-face interaction and, over time, drew actors together in punctuated moments where controversy and other dilemmas rose to the surface of local politics. Though the Indian CST and other actors were aware that financial information available to them was operational in nature, they still managed to make it useful in the context of their interests given the incentives they faced. While the prevalence of high or low-quality information does not directly trigger the functioning of transparency and accountability relations in local governance, the way different actors assembled information for their own purposes suggests skilled actors can find creative ways to use what is available to them to circulate partial perspectives on fiscal performance even in difficult circumstances.

While the financial management information systems initiatives under investigation did temporarily modify levels of capability and managerial relations and improve internal accountability, the expected benefits were not achieved. The complexity and political aspects of generating fiscal transparency were considerable. However, the FMIS initiatives did help with the convergence of a number of actors that, over time, have constructed a durable issue network spanning the supply and demand sides of reform. Such convergence raises questions about the use of financial information for accountability. Did relevant actors connect the vast information accumulated on the GPMS-FMS systems to political exposure of high profile politicians responsible for stewardship over the BBMP’s resources? This did not happen in the case of the public interest litigation. The Indian CST and other actors focused on “outliers” or “aberrant cases” as a device to seek political accountability. However, no specific politicians beyond the executive branch of state government were directly addressed in the public interest litigation.

Thus, neither exposure of well-known politicians in “exceptional cases” nor idiosyncratic, more mundane exposure of the everyday management of financial resources made it into the public view.
While the Indian CST’s politics internal to the BBMP constituted a politics of (partially automated) measurement, the approach was not extended into pervasive and powerful demonstrations in the public interest litigation. Indeed, the public interest litigation relied more on news media reports over the preceding decade as evidence than it did on the visualizations of the Indian CST’s reports to the BBMP officers over the same time period. While the public interest litigation played out following my departure from field research, the avoidance of concrete transaction information that could have easily been tied to politicians and officers perhaps reveals the fault line of private and public “transactions” in public financial management and how these distinctions are currently problematic in the current state of urban politics in India. The GPMS-FMS, like all digital financial management information systems, are powerful devices for recording traces of transactions and aggregating them into new forms and formats in order to elicit accounts and accountability (Ruppert and Savage 2011).

6.5.2 Ex-Post Accountability

Knowledge of public funds not swept into the consolidated account of the BBMP motivated the Indian CST to continue pushing for a reconciliation of the BBMP’s accounts. This knowledge was translated into a public interest litigation by MP Chandrasekhar. Following Fox’s (Fox 2015) distinction between tactical and strategic approaches to social accountability, the strategy adopted by the Indian CST would seem to fall into the latter. The organization connected to a rising political party in Bangalore, while also linking to politicians in state government. That is to say, they jumped between institutional scales when the opportunity was presented, or when previous pathways of change were foreclosed.

The study has classified the assemblage of these actors as an issue network that focuses narrowly on transparency and accountability of local financial management. The issue network is not self-organizing, but rather is mutually constituted by the socio-technical arrangements that pull the various actors together. These actors do not constitute an online “mob,” but rather are pulled together through mutual interests in both information technology and how it gets embedded in local governments (Ruppert and Savage 2011). However, in the case of Bangalore, information technology in the form of financial
management information systems technologies has led to a particular type of accountability through ex post litigation.

For the period under examination, the technology development, the situated transparency, and the broader organizing efforts did not lead to new legal strategies that would negotiate new support for reform and changed policies on the "terms" of the issue network. Citizens were not drawn into financial management at earlier stages of the process, but rather helped contribute to litigating the BBMP's financial management efforts in the forum of the Indian court system. This was not a case of deepening democracy (Appadurai 2001), at least for the period under investigation. For urban politics in the fiscal domain of municipal government in Bangalore, the traditional conservative pathways of accountability triumphed. These are old modes of litigation. Despite more information acquired and legitimized through processes of social inquiry, the reliable tactic for citizen organizations is still the common institution of the judiciary. That enough financial information can be assembled to sue through public interest litigation for an audit is a positive development. It reifies the role of courts because there is so much uncertainty and entrenched interest. In fact, the courts are the only truly independent actor.

Nevertheless, ex post accountability is not enough to stimulate changes to public financial management institutions, at least for the time being. The idea that technology services should have prevented actors from taking the litigation route is a common argument advanced in their favor. Yet, it took three years from the time the Indian CST began recommending a sweep of the BBMP's accounts and bank reconciliation initiative for the matter of concern to be raised in the court system in the form of a public interest litigation. Thus, in order for information democratization of citizens and digital governance, following need to be addressed in policy: (1) entrenched interest (2) path dependency in politics and (3) marketization of tools and actors.

Regarding the latter, that the supply of skilled labor can ensure that municipal governments acquire information technology for financial management at relatively low prices in international comparison would seem to be a net benefit for the country. This structural factor in Indian software markets, however, also suggests that municipal governments have an outlet available when the evidence
indicates they should bear down hard to modify accountability relations. The executive can always order the adoption of a new system that will fix the ills and mistakes of the previous system, and the cycle (at least in Bangalore) of encroachment on the formative information communication technology context met with pushback from institutional incumbents continued on through negotiations and litigation.
Chapter 7: Conclusion

7.1 Introduction

The dissertation has examined the role of technology in local financial management reform in Bangalore by looking specifically at patterns of inter-organizational coordination and accountability following the adoption of new financial management information systems in municipal government. The case of Bangalore is emblematic of larger trends across cities in India, such as growing centripetal dynamics drawing a wider range of new private and nongovernmental actors into core areas of technical administration in urban local bodies. Specifically, the study aimed to understand the organizational effects (i.e. coordination and accountability) of information technology applied to project management, revenue collection, and cash management in the Bangalore municipal government and the overall relationship of information technology to capability for policy implementation.

The Indian Centre for Social Transformation (Indian CST) demonstrated an unusual commitment to supporting public financial management information system design and development in Bangalore, sustaining engagement at multiple levels for more than six years. From 2009 to 2015 the Indian CST made strategic updates to the backend of the software and conducted both supply-led and demand-driven training sessions with BBMP managers, engineers, revenue officers, civil society organizations, and political party activists. They developed monitoring and reporting practices under conditions of pervasive uncertainty and organized issue networks spanning the state-society divide. Though not without imperfections and weaknesses, particularly with respect to the visual design of the user interface, the modular Global Project Management System and Financial Management System were delivered at an extremely low cost on an open source, cloud computing platform.

\[134\] It should be noted that while the municipal finance reform is often theorized and conceptualized as a domain of technical decision-making, actors attempting to implement changes in practice in many urban contexts of the global South confront an array of direct and indirect threats to their work. For instance, during implementation of the Indian CST’s Global Project Management System, one of the server rooms that hosted the system on the premises of the BBMP was attacked by an arsonist. Since the Global Project Management System was hosted on a cloud computing platform, the financial information was not destroyed.

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There was uneven compliance within the engineering hierarchy, even as executive orders (i.e. notifications) were issued by executive officers at the highest levels of municipal government. While the revenue hierarchy largely complied with the Financial Management System, the automated receipts did not end petty corruption. For instance, some distributed bureaucrats in health services in public hospitals and clinics, still managed to shift demand for bribes from the point of initial entry fee collection to the window disbursing the treatment card that doctors use to document care. At a more general level, absent integration with the other PFM information systems, the GPMS-FMS did not achieve the overall goal of management control across the 198 wards of the BBMP.

Cloud computing is relatively new in municipal governments in India, though the technology is integral to many of the Government of India’s national development plans. The expansion of cloud computing technology is an important element of the National eGovernance Plan, led by the MeghRaj component under the Ministry of Electronics & Information Technology (MeitY). In the case of the BBMP it was the combination of cloud computing with the Indian CST’s Software as a Service (SaaS) model that sustained joint ownership over the financial management information system modules and drove down information verification costs in the BBMP. There was a correlation between the cost of information verification and the strongest resistance to the software systems in the BBMP. On the expenditure side of the budget, verification costs were drastically reduced when the municipal commissioner ordered that contractor bills be cleared through the GPMS system. On the revenue side of the budget, adjudication costs had drastically declined by the time the integration committee was reconstituted by the new additional commissioner (finance and IT).

I have framed the analysis and discussion of financial management information systems (FMIS) in Bangalore around process (coordination), outcomes (accountability), and values (the role of the state and non-state actors). I found that coordination occurs through both formal and informal mechanisms and that successful coordination between concentrated and deconcentrated actors constitutes a form of local inquiry (Smoke 2015) and discovery through experimentation. An asymmetric approach to integrating digital and paper-based components of the PFM system was a strategic decision made by senior officers
in government with the external technology provider, the Indian Centre for Social Transformation. The asymmetric integration strategy implied the creation of flexible coordination mechanisms between senior managers and frontline engineers and revenue officers.

The information and knowledge generated through this vertical coordination across concentrated and deconcentrated agents, however did not lead to horizontal coordination among external information technology providers. The mismatch between these vertical and horizontal coordination mechanisms effectively increased the levels of decentered governance in local public financial management. Given the failure of horizontal coordination among technology providers developing or maintaining FMIS systems in functional domains of close proximity, the PFM system in Bangalore has increasingly taken the form of a polycentric regulatory regime marked by complexity, fragmentation, and interdependence between state and non-state actors in which all serve as regulators and regulated (Black 2008). In such a setting, the dividing lines between official and unofficial, formal and informal, planned and unplanned are increasingly blurred.

While the conventional literature rightly points out the political dilemmas and administrative complexity of different revenue instruments assigned to local governments, it often overlooks the organizing, mobilizing, and contesting that occurs below the surface of formal political leaders in local government. Neither does the classic public choice framing of local discretion to comply with policy or shirk responsibility capture the reality of planning and executing information technology projects for local public financial management. I have found evidence that even as local governments remain dependent on intergovernmental transfers, networks of actors carve out substantial autonomy in their effort to make legible, and assert control over, a multiplicity of parallel practices and procedures for local financial management. Actions within these networks gain temporary influence over the internal flow of funds and which urban actors get to participate in foundational processes in local financial reform, but it is increasingly difficult to sustain control over the process through information technology governance alone.
To the extent financial management information systems projects add complexity to the policy process, the highest transition costs are likely to be concentrated in the early years of reform during which contractor and internal managerial arrangements are dominated by non-routinized practices. Transparency sought through outsourcing arrangements can inadvertently add impenetrable layers of bureaucratic organization to the local context. Where specialization in sub-systems promises efficiency and effectiveness, it also temporarily increases problem complexity within the system. During the early stages of change, administrative actors are required to take on extraordinary policy learning efforts. Specialization magnifies the demands of information for transparency and accountability, while simultaneously increasing the number of veto points in the chain of "clearing" solutions, and introduces new coordination problems.

The information set available to the BBMP also changed over time, as the system they installed in the BBMP provided the foundation for developing experimental engagement in various subsystems on the expenditure and revenue side of the budget. Information democratization was setting in because, on a collective level, institutional actors did not fully appreciate what was transpiring. As a result, what information that was released and circulated in the public domain, did so because it was "hidden in plain sight." However, as the verification costs of financial information approached the threshold for adjudication, stress built up in the system and inter-organizational coordination morphed into enterprise litigation in a context of quasi-market competition. Once institutional actors realized the implications of what was transpiring, governance relations actually got worse.

7.2 The Politics of Introducing Information Technology into Local Financial Management

The social and political dynamics that I have chronicled in this dissertation are about how local governments in India increasingly rely on information technology to cope with the dual challenges of governing cities and implementing local financial management reforms. At the most basic level, the narratives are about the creativity, ingenuity, and fallibility of senior officers, middle managers, and external advisors that are forced by necessity to coordinate and make decisions in the midst of both
incomplete information and shifting policy formulas linked to the senior officers that hold managerial positions. The study has demonstrated that mid-level managers exercise substantial autonomy through financial management information system (FMIS) projects.

Like many other cities in India, the BBMP is heavily dependent on intergovernmental transfers and loans from public and private banks and struggles to manage conditions of rapid urban growth. As of 2015 the fiscal position of the BBMP reflected deep structural problems that remained almost a decade after the amalgamation (BBMP Restructuring Committee 2015). The BBMP was collecting around 1,800 crores ($300.0 million) in revenue annually from its own tax and fee base, with a property tax collection rate below 50 percent. The city had pending bills due to contractors estimated at 2,300 crores (U$383.3 million) and maintained a loan balance of around 2,200 crores ($366.6 million). Over 3,000 crores worth of incomplete projects were carried over from 2014. The two FMIS systems that were the subject of this study, the Global Project Management System and Financial Management System (GPMS-FMS), did not solve these structural problems.

As chapters six and seven showed, the adoption of financial management information systems can take attempts to reform the governance of local financial management on a non-linear and tortured path. The limited literature on FMIS has noted the consequences that stem from version control problems when systems remain “stovepiped” along individual components of the local PFM system (Dener, Watkins, and Dorotinsky 2011; Wescott and Schiavo-Campo 1999). These consequences are often framed in terms of bureaucratic efficiency and effectiveness and limits to fiscal transparency. The study reveals a set of other social and political factors that come into perspective, such as spoiler traps and legitimacy games that transcend the internal divisions of the PFM bureaucracy and their relationship to FMIS projects.

In such settings, social mobilization becomes the art of assembling partial perspectives and communicating them within and beyond the state. Ideal types of fiscal transparency, most recently:

\[135\] The last revision of land guidance values was in 2007.
captured by the debate on “open budget data,” are not possible. The presence of technology providers in
the PFM system both constrain and open up new possibilities. All actors seek to enhance their legitimacy
by asserting the value of specific categories of transactions of the PFM system, which contributes to a
series of legitimacy games. Technology providers, whose legitimacy rests on the success of their products
in ULBs, pitch their competition on debates over the pragmatic and normative legitimacy of the
transactions contained on their platforms. Even political parties play the legitimacy game, publicly
elevating certain transactions they are comfortable with while avoiding ones they are not.

In this final chapter I will discuss the theoretical and practical implications of the governance
processes as described in the previous four chapters. Specifically, I will focus on the role of state and non-
state actors and the ways in which information technology providers either support or retrench
transparency and effectiveness in the concurrent accountability relationships at work in the public sector
as outlined by the building state capability approach: management, politics, and compact. Chapters five
through seven have all presented examples of success and failure in coordination, implementation, and
governance in Bangalore. In the following sections, I will critically reflect on these experiences by asking
the following questions: (1) what is the role of IT-mediated accounting in public financial management
accountability?; and (2) how, and to what extent, do financial management information systems
contribute to implementation capability in municipal government?

To answer these questions and conclude the dissertation, I first synthesize the findings of the
previous chapters and present the merits of IT-mediated financial management, which is deeply
embedded in broader policy transitions within the political economy of decentralization in India. The
study relied on analytical components from the building state capability (BSC) framework, specifically
the principal-agent problems of fixing accountability relations in the public sector. The BSC framework,
however, does not readily acknowledge the material attributes of capability in the organizational context.
The material attributes of capability in local government were the emphasis of much of this study,
particularly how information technology can drive down the cost of adjudicating administrative fact. The
study also emphasized how different actors across the supply and demand sides of reform contribute to
reducing adjudication costs by lowering the cost of verification of financial information. Notwithstanding the willingness of common institutions of financial management to convene and make a ruling when claims of irregularities are asserted by political actors, the study identified three components of verification costs. The three components are a (1) technical component, a (2) design component, and a (3) collective action component.

7.3 Capability Traps and the Dilemma of Accounting as Local Inquiry

Are financial management information systems capability traps? Capability traps are defined as “a dynamic in which governments constantly adopt ‘reforms’ as signals to ensure ongoing flows of external financing and legitimacy yet never actually improve” (Andrews, Pritchett, and Woolcock 2013, 235). The conditions which usher in capability traps are: “interventions (1) aim to reproduce particular external solutions considered ‘best practice’ in dominant agendas; (2) through predetermined linear processes; (3) that inform tight monitoring of inputs and compliance to ‘the plan,’ and (4) are driven from the top down, assuming that implementation largely happens by edict” (Andrews, Pritchett, and Woolcock 2013, 235). The dissertation revealed in chapter 3 that ministries and agencies of the national government are increasingly incentivizing the design and adoption of financial management information systems in urban local bodies. Nevertheless, the case of the BBMP demonstrates that it is exceedingly difficult to prescribe predetermined linear processes, generate tight monitoring of inputs and compliance, and assert implementation of financial management information systems through edict.

The process of financial management information system design and implementation followed an experimental trajectory that was open-ended, with neither formal compliance nor performance management as primary aims. The initial implementation of the FMIS systems conformed to the “basics first” tradition of public financial management reform (Andrews 2006; Schick 1998) because key technological and institutional features of the operational context restricted each system to improving financial transaction processing and the redistribution of information. Within the BBMP, the two systems functioned as highly sophisticated bookkeeping devices. Each attempt to extend the functionality of the
system and institutionalize them within the BBMP as accountability devices faced stiff resistance. For local actors that are operating in complex institutional environments characterized by an unclear institutional mandate, aggregating (thin) operational information is necessary to demand a sufficient (thick) “account” of bureaucratic behavior in the BBMP.

Outside the BBMP the process of financial management information systems design contributed to the emergence of novelty in the ecosystem for external organizations. The Indian CST’s SaaS model also afforded the organization the autonomy and flexibility to circulate financial information to improve, albeit temporarily, transparency within the issue network spanning supply and demand sides of reform over time. Higher levels of “mediated” transparency and the collective action required to achieve it in a context of incomplete and asymmetric information also contributed to the public interest litigation case (PIL) in the Karnataka High Court. The autonomy and flexibility sought by the Indian CST model – open-ended customization with open source software delivered through a Software as a Service (OpenSaaS) arrangement – had serious limitations.

7.4 The Limits of Local Inquiry and Implementation Capability

As the Indian CST case demonstrates, technology actors that are external to the intergovernmental system can and do go back and forth across the state-society divide. They are inside at core technical areas for years at a time, but can easily be kicked out. These cycles give rise to catalytic, sometimes watershed moments. These moments are ideologically and normatively driven. Incumbents realize what they have done, but then they create and assert boundaries. Actors like the Indian CST must then litigate to get back inside the state and the cycle begins anew. However, even as the Indian CST sought to get “caught up” in the public interest litigation – via financial audit of the BBMP’s accounts – the state government simply did not comply with the challenge.

Financial management information systems (FMIS), as a mechanism of digital democracy, both strengthens and erodes local autonomy. There are multiple pathways that have been described in chapters 4-6 but I will strengthen the argument. Following the public interest litigation, political interest in public
financial management remained high. Having been pushed out of the BBMP, the Indian CST went searching for a new venue to continue to pursue their agenda. From a strategic standpoint, the State Finance Commission (SFC) was appropriate. They developed a partnership and were granted a contract to aggregate, process, and analyze the property tax receipts for all urban local bodies in the state of Karnataka, including the BBMP.

Table 7.1 describes the characteristics observed in the Indian CST that make them successful political actors, even as they draw on their resources as technology providers. First, even though digital financial management information systems require acute attention to technical specifications, the organizational configurations through which they are delivered to municipal governments require institutional flexibility due to a dynamic political landscape. Technology actors need to be prepared to span institutional scales, such as between municipal departments and state government legislative actors. Flexibility and adaptability to different institutional scales are reinforced by developing a financial management information system tool that is robust to stress.

Necessary expertise extends beyond the technical domain to include social and political knowledge and ability to read the local context. Pushing too hard too soon for organizational activities that will expose the relationships behind powerful actors without having sufficient processes in place to handle them is likely to throw up considerable roadblocks to further implementation. Finally, even as certain powerful actors resist deepening the use of IT-systems, local technology providers must be prepared to move to opportunities beyond the supply areas of reform.

Table 7.1 Characteristics of Local Information Technology Organizations as Political Actors

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Example</th>
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<tbody>
<tr>
<td>Institutional flexibility</td>
<td>Work with actors to build devices that can span institutional boundaries, such as linking citizen complaint modules to revenue collections at the zone, division, and ward level.</td>
</tr>
<tr>
<td>Span institutional scales</td>
<td>When appropriate build connections to political actors that are beyond the immediate project implementation setting, so that local innovations and analyses do not stay local.</td>
</tr>
<tr>
<td>Develop a tool robust to stress</td>
<td>Using the design of revenue collection modules to collect information on practices beyond those captured in direct financial transactions with government</td>
</tr>
<tr>
<td>Come with good</td>
<td>Have knowledge of political, administrative, and fiscal processes</td>
</tr>
</tbody>
</table>
From a governance and policy standpoint, what is puzzling is that urban local bodies seem to exert their autonomy in irrational ways. However, from a political standpoint, the political loss function from more effective internal control was substantial at least in the case of the BBMP. First, cities strategically assert their powers of autonomy by initiating complex information technology projects. Second, just as they can invite organizations at will into core areas of the PFM system, they can close organizations off at will. Third, even as technology organizations demonstrate small wins and generate revenues for city government far beyond their monetary costs, their technology is perceived as a threat to certain interests inside the state. What are the implications for a non-government technology supplier like the Indian CST? As a result of the partnership with the state finance commission, the Indian CST is in a good position to come back into the Bangalore municipal government when these political opportunities open again.

For organizations that are agile enough, this is a positive development. Numerous studies in social movement literature indicate that democratization depends on opportunities that are often randomly distributed over time. From a planning perspective, the picture is more complicated. First, even as the material costs of sophisticated financial management information systems can be driven down to extremely low levels relative to proprietary systems, there are substantial political costs. Information is not free, not least the type of information that impinges on political interests and the path dependent development trajectory of IT firms in quasi-market settings. The dissertation reveals that the cheaper the process is to air an agent’s dirty laundry (to borrow a common colloquialism), the more lethal the process becomes.

Notwithstanding the normative debates between transparency researchers and new public management, the business/organizational delivery platform adopted by the Indian CST ensured that
mistakes were revealed faster and made public by sweeping bank accounts beyond supervision through bank reconciliations and other audits. The administrative behavior of the municipal corporation and the BBMP council indicates that officials and politicians perceive it in their interest to present information in a disorganized format (or not present the information at all). When the Administrator released the information on the pending bills, he did not do so in an easily accessible format. Absent the work of the Aam Aadmi Party activists integrating the information with the Indian CST’s Global Project Management System (GPMS), the scope of use would have been limited.

The Karnataka Municipal Corporation Act (1976) does not require the BBMP to publish internal audits, only that the BBMP carries them out. The Comptroller and Auditor General (CAG) periodically carries out limited audits and publishes the results online. To date, the BBMP has not released the information supplied to it by the Indian CST regarding financial irregularities. The interim institutions (Adler, Sage, and Woolcock 2009) that had been constructed on the Global Project Management System and Financial Management System made them far less effective at shifting the cost of processing and passing financial information onto public interest groups. To the extent that information processing activities can be organized in a minimal amount of time, the verification costs (Pritchett 2013, 2009) of public financial management information are reduced.

7.5 Implications for Theory and Practice

The technological architecture of local public financial management systems has not featured prominently as either a dependent or independent variable in the research on municipal finance reform in developing countries. Yet, over the past two decades there has been considerable growth in large-scale computerization initiatives in the fiscal domain of local governments and the trend, at least in India, will not abate.

7.5.1 Fiscal Information, Power, and the IT Artifact in Local Public Financial Management

While financial management information systems (FMIS) aspire to normative goals like financial control, reengineering business processes, fiscal transparency and accountability, the nature and role of
information technology controls, training, connectivity, integration, and evaluation cannot simply be relegated to the esoteric technical considerations. More importantly, the technical is not simply political. The technical is made political by certain actions, under certain conditions, and following certain justifications.

Recent studies of transparency and accountability initiatives (TAIs) have expressed concern over perspectives that frame TAIs as “tools” that can be divorced from long-term engagement by social actors with the state through institutions of collective representation like political parties. It is argued that the formulation of social accountability in terms of a “widget” depoliticizes the way in intensely political process by which the poor access services (Joshi and Houtzager 2012). While an overly narrow technical framing of solutions to service delivery problems is problematic with respect to concerns over equity and justice in urban service delivery, one of the main conclusions of this study is that the widget makes the watchdog.

As a developer involved in the design of the GPMS and FMS systems remarked:

*Because information is power... if you can have same information without talking to me then I lose this power.*

The modernization of local public financial management confronts a dilemma when situated against the features of contemporary urbanization in India. On the one hand, expansion of the city’s functional geography and associated increases in the complexity of urban management require an increase in “arm’s length” management decisions. Though we have understood for some time the effects of diseconomies of scale in public administration, information technology is a compelling alternative for gaining financial management control in large metropolitan cities. Yet, while chapter 5 showed that FMIS adoption allows engineers and other bureaucrats to manage at a distance, it also changes the nature of face-to-face interactions.

These tradeoffs suggest that, along with contextual conditions, the design of financial management information systems matters for the trajectory of financial management. Digital

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136 Interview, 4 June 2015.
technologies enable the rapid expulsion of information from protected niches, operational information, and transaction information, among other types. In the context of Bangalore and many other cities in India, the quality of that information in and of itself is not very high. The low quality of information empowers organizations to litigate – the more information one gets the more right to information requests one can submit which is good for instrumental accountability. Yet, from a normative standpoint, cycles of litigation feed on themselves, they do not feed the transition to deep democracy. The assumption of deep democracy is false.

7.5.2 Local Control: Public Financial Management-Led Decentralization and the Emergence of Polycentric Regulatory Regimes

While information technology is certainly outside the core competences of public finance, the study has demonstrated the consequences of IT for many of the outcomes of concern to the literature on municipal finance reform in developing countries. In their review of urban governance and finance, Rao and Bird (2010) argue that while accountability may be key to improved performance, improvements to financial information is the key to accountability. The management of financial information, as much as policy design, is foundational to the transformation of municipal finance in India.

The study elaborated how information and information technology feeds into design dissonance in national urban policy. Through the empirical analysis contained in chapters three through six the study shows how this design dissonance creates opportunities for elite capture. The logic of prevailing instruments of national urban policy reform is based on principles of coercive federalism, but without the backing of strong disciplinary power organized in vertically integrated political parties. While the design and management of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) accelerated the centripetal forces drawing technology firms into the core areas of technical administration for public financial management, the 100 Smart Cities Scheme solidifies the trend by the normative legitimization of special purpose vehicles (SPVs). Adopting a top-down perspective, these developments might be construed as mishaps in policy design on the way to plugging the output gap in cities and urban areas. A
bottom-up perspective reveals far more complex dynamics of implementation and implementation capability in urban local bodies.

The study also chronicled the rise of expert systems and expert governance work by examining long-term trends in the design of intergovernmental transfers to support national urban policy and finance services in urban local bodies. There is a clear gap or mismatch between transfer design and institutions of cooperative and competitive federalism that have informed national policy over the previous two decades. This disjuncture has fueled the rise of contracting out arrangements that extend to traditional functions of governance capacity, even as a growing body of planning research in India suggests external support organizations are ill-prepared for the tasks which national urban policy has assigned them (Baindur and Kamath 2009; Kundu 2014). Moving forward, national policy must acknowledge the plural, polycentric regulatory environment at the local level that is being created for financial management in urban local bodies. Such recognition is the first step in determining how to shape “incentives” and “interests” in local financial management information systems projects.

First digital technology is not about incentives, it is about the nature of ownership. Within ownership, sustainable development and use of digital technologies is about clearly expressing the implications. Without ownership over digital technology, resistance inevitably arrives on the stage. Resistance is bad for expenditure management, bad for revenue mobilization, bad, in the final instance, for budgets. The autonomy and flexibility of the Indian CST’s social outsourcing model – open-ended customization with open source software delivered through a software as a service arrangement (OpenSaaS) – has limitations.

The reliance on a strategy of integration through encroachment of the local financial system opened up the Indian CST to antagonistic incumbents that successfully neutralized the Indian CST’s credibility by setting a “spoilie trap” (Kuris 2014). The spoiler trap was set through a through a credible critique of the Indian CST’s approach based on procedural norms. Even though the Indian CST could demonstrate pragmatic legitimacy of their systems to the BBMP, they had far less normative legitimacy given that the Indian CST did not follow a conventional model for contracting out. Moreover, the
Memorandum of Understanding (MoU) signed by the Indian CST and the BBMP did not have terms related to the suspension of services of the Indian CST.

The dissertation also describes the strategic dilemma of the “spoiler trap” for external support organizations working in public financial management. As an external service provider with limited diversification across two subsystems of financial management in municipal government, the Indian CST could not easily push back against the treatment with the threat of public sanction. Walking away from such a high-profile client was a reputational risk for a comparatively small player, particularly one that adopts a Software as a Service (SaaS) model. What are the implications of these findings for national policy?

First, incentivizing the adoption of financial management information systems in municipal governments without improving the institutional mechanisms for the fair and effective management of mistakes that are revealed in the process is a recipe for eventual loss of confidence in the external support organization and overall legitimacy of the aims towards effective management. Consequently, we can say that, in practice, there is no such thing in India as incentivizing the uptake of digital information technology in the fiscal domain. External incentives make no difference (as the spoiler trap discussion shows). It is internal incentives that determine the form, extent, and duration of what digital technologies get taken up or not. What these observations amount to is that the national government needs to offer tools with no condition of uptake along with a truth and reconciliation panel that allows cities to air dirty laundry, recognize path dependencies, and think through their level of comfort with the current status of the public and private domains in urban governance. Until these issues are addressed, the Central Finance Commission will likely continue to express dismay at the inability to collect systemized revenue information for all urban local bodies.

7.5.3 Embedded Values of Implementation

This case under examination was not one of shifting the locus of corruption to the local government-contractor nexus. Rather, the dilemma resulted from the technical specialization of the Indian Centre for Social Transformation – what the building state capability (BSC) approach refers to as the
“technical core” – and the competition that existed between the BBMP and the multiple FMIS providers to the city. The technical core of the Indian CST is captured by their Software as a Service (SaaS) model (and their techniques for organizing data and translating it into actionable information), which created incentives to continue to improve operational information to increase the auditability of the city’s accounting.

By analyzing the Indian CST’s approach to information technology development in complex institutional settings, the study also contributes to implementation of reform with the concept of the embedded values of implementation. The Indian CST, along with the senior managers in the BBMP that expended resources and pushed hard for the systems, adopted values of rational financial management linked to information democratization and accountable relations within urban management. The Indian CST accepted the premise that by using information technology society can push for more rational financial management and urban governance that is responsive to the signals provided in information produced in financial management information systems. Nevertheless, the Indian CST was willing to go beyond conventional boundaries of the municipal government bureaucracy to achieve their end goal of greater transparency and public participation in local financial governance.

As a social enterprise serving a particular client – the Bangalore municipal government – the Indian CST could only maneuver in such a manner to build external connections to increase public awareness and participation by organizing when no one was watching. This leads to a paradoxical position for information technology in relation to democratic control over local financial management. On the one hand, the use of financial management information systems requires accountability for the senior executives that sanction the development and use of the systems in government. On the other hand, forging stronger connections with political and civil organizations in society in some ways requires these same senior executives to not pay attention at critical moments so that technology organizations can informally capture financial information, package it in politically salient ways, transmit it to social actors outside the state, and mobilize issue networks to hold the state accountable. When this process entails moving up the institutional scale to state and national government, as it did with the public interest
litigation in Bangalore, the complexity and stakes of such actions for technology providers increases as well.

Consequently, the case of Bangalore does point to a certain distancing of certain parts of the local fiscal domain from citizens as a direct consequence of the splintering of fiscal transactions across multiple parallel information technology systems. Data from the case also suggests this splintering can be overcome at the margins through distinct forms of social mobilization in which the “skilled analysis, deployments, and coordination grounded in local knowledge” enable institutional entrepreneurs to outflank institutional incumbents (Clegg 2010, 10). How did the Indian CST, a significantly smaller organization than private sector consulting firms such as Tata Consulting Services or the high political profile Bangalore Agenda Task Force, sustain engagement over more than six years? Contrary to dominant propositions that posit the need for sustained high-level political will and commitment for reform, the empirical material presented in the previous chapters reveals a strategy of exploiting tensions “between the attempt to control from above and the striving for autonomy from below…between formal and informal regulations” (Friedberg 1996, 114). Such developments may not transform accountability relations within urban politics, but they do open up spaces for contestation that were previously closed to social and political actors in society.

7.6 Conclusion

The more practitioner-oriented literature on public financial management reform has tended to frame the institutional work chronicled in this dissertation as a happening in a closed structure comprised of generic, universally-accepted budget codes that can, in turn, support either a “basics first” or performance-oriented management system (Andrews 2006; Schick 1998). This has led to an overemphasis on the technical attributes of financial management reform, which comes at the expense of knowledge on the social and political attributes of reform in municipal governments. This dissertation makes an original contribution by unpacking these social and political attributes in a major municipal
government in India – Bangalore – and tracing the consequences for social mobilization around financial management reform.

Political agency and participation in the fiscal domain of local government has tended to be perceived in the structure and functioning (or non-functioning) of government budgets (Andrews 2010; Rakner et al. 2004) or in the particular design and administration of tax instruments (Slack and Bird 2013). Despite acknowledging problems of uncertainty (e.g. incomplete information and control), indeterminacy (administrative and political volatility), and ambiguity (weak institutional enforcement) across the range of factors that influence financial performance in local government, most research treats the foundational process of constructing situated classification regimes in the fiscal domain of local government as a residual category of analysis. To date, most research on information technology for government fiscal operations has considered aspects of information observation and verification narrowly in terms of technical reform decisions, while the broader social process of verification has not been given due consideration as a terrain of dispute and political agency. Moreover, often framed with a bias towards “best practice” and built on outdated assumptions regarding the source of information technology development capabilities in rich countries, research has mostly neglected the potential cohering in techno-institutional configurations based on situated knowledge, deep commitment to reform, and close proximity between information technology intermediaries and local bureaucrats.

Research into financial management reform in city governments in the global South, a necessary though not sufficient state function for improved transparency and accountability in governance, must channel more resources into studies of situated organizing through the use of information technology. Indeed, as the study described in chapter three, IT-driven financial reform is increasingly tied up with decentralization implementation in India. The findings of this dissertation are thus essential to a proper understanding of the relationship between core and non-core areas of local financial management reform and broader implications for municipal finance reform in India. Such investments are more than justified by the amount of resources now dedicated to computerizing the back office operations and linking those information flows to wider venues of public access, whether online or in person. Far more important are
the potential gains and losses at stake for the long-run achievements of local democratization that can, in turn, improve information management and realize the benefits long desired by apex national finance institutions and civic entrepreneurs working in the trenches of basic urban government systems in India.

Future research on information technology and public financial management can focus on the extent to which cities balance their self-interest and baseline duties with these disruptive technologies. Such studies could examine how actors draw out demand for financial information management transparency and accountability while also being reflexive about history and context. Do municipal governments ever voluntarily adopt and institutionalize these disruptive technologies without spawning cyclical litigation? Does such a cycle fence people off through claiming proprietary information over certain financial transactions, thus preventing any possibility for integration of financial management information systems within an urban political economy? This type of organizing activity and institutional work may be “at the margins” of municipal finance reform in developing countries, but it holds significant implications for citizen’s day-to-day interactions with municipal finance systems and therefore the potential for new technology actors and organizations to contribute to incremental change that progressively leads to transformation of important systems for the sustainable and inclusive development of cities in the long run.
Appendix One: List of Interviews and Meeting Observations

Indian Centre for Social Transformation

1. Director, Indian CST (16 March 2015)
2. Lead Analyst, Indian CST (6 May 2015)
3. Founder, Indian CST (7 May 2015)
5. Director, Indian CST (20 May 2015)
7. Project Leader (Lead Programmer) (30 May 2015)
10. Lead Analyst (5 June 2015)
11. On-Site Coordinator (17 June 2015)
13. Project Manager, Indian CST (31 July 2015)
14. General Manager - Operations, Namma Bengaluru Foundation (3 November)
15. Lead Analyst, Indian CST (5 December 2015)
16. Founder, Indian CST (5 December 2015)
17. General Manager - Operations, Namma Bengaluru Foundation (6 December)

Bruhat Bengaluru Mahangara Palike (BBMP)

18. Chief Accounts Officer (29 May 2015)
19. Former Special Commissioner, Projects (3 July 2015)
20. Principal Consultant FBAS Cell, MaGC (15 July 2015)
21. Former Special Officer (Finance) (16 July 2015)
22. Former Special Commissioner, Projects (17 July 2015)
23. Assistant Controller Finance (West Zone) (20 July 2015)
24. Former Special Commissioner, Projects (30 July 2015)
25. Joint Commissioner (Mahadevapura Zone) (16 October 2015)
26. Former Special Commissioner, Projects (29 October 2015)
27. Technical Assistant to Engineer-in-Chief (23 November 2015)
28. Former Chief Accounts Officer, BBMP (8 December 2015)
29. Former Special Commissioner, Projects (8 December 2015)
30. Executive Engineer, Roads (11 December 2015)
31. Engineer-in-Chief, BBMP (11 December 2015)
32. Former Special Officer (Finance) (15 December 2015)

**Government of India**

33. Deputy Director General, National Informatics Centre (3 June 2015)
34. Deputy Secretary, Ministry of Urban Development (3 June 2015)
35. Joint Secretary (E-Governance), Ministry of Electronics and Information Technology (4 June 2015)

**Government of Karnataka**

38. Additional Chief Secretary, Urban Development Department (10 June 2015)
39. Director of Accounting, Municipal Reforms Cell (4 November 2015)

**Aam Aadmi Party Activists**

40. AAP Activist 1 (20 May 2015)
41. AAP Activist 2 (28 May 2015)
42. AAP Activist 3 (18 June 2015)
43. AAP Activist 2 (18 June 2015)
44. AAP Activist 4 (23 July 2015)
45. AAP Activist 5 (24 July 2015)
46. AAP Activist 6 (28 July 2015)

**Experts and Scholars**

47. Dr. Sandeep Thakur, National Institute of Urban Affairs (5 June 2015)
49. V. Ravichandar, Expert Committee to Restructure Bangalore (29 July 2015)
50. Srikanth Viswanathan, Janaagraha (1 October 2015)

**List of Meetings Observed**

1. Indian CST and Personal Assistant to Executive Engineer, CV Raman Nagar (14 May 2015)
2. Indian CST and Chief Accounts Officer, BBMP Head Office (29 May 2015)
3. Indian CST and Additional Chief Secretary Urban Development Department (Karnataka), Vikasa Soudha (9 June 2015)
4. Indian CST and Special Commissioner (Finance and IT), Indian CST (17 June 2015)
5. Integration Committee Meeting, BBMP (22 June 2015)
6. Integration Committee Meeting, BBMP (8 July 2015)
7. Indian CST and Engineer-in-Chief, Chief Engineer, and Executive Engineers, Indian CST (18 November 2015)


9. Technical Assistant for Chief Engineer and Indian CST, Indian CST (21 November 2017)

10. Executive Engineers (Lakes) and Indian CST, Indian CST (23 November 2015)

11. Municipal Commissioner Review Meeting, BBMP (1 December 2015)
Appendix 2: Semi-Structured Interview Instrument

Part I: Establish relationship to GPMS-FMS
Part II: Relationship between GPMS-FMS and work routines
Part III: Assess current status and ongoing use patterns

Part I:

1. What is your position in the office and what are your responsibilities?
2. How long have you been in this position?
3. Have you held a different position in the past? Did that position have public financial management responsibilities?
4. How long have you used GPMS-FMS?
5. How did you first learn how to use GPMS-FMS?
6. Does GPMS-FMS help you to fulfill your responsibilities specific to your position? If so, how?
7. What time of day do you normally access GPMS-FMS to do work?
8. Are you rewarded for your work in GPMS-FMS? By whom and in what way?
9. Were politicians in this area involved in the process of adding information to GPMS-FMS or maintaining the system?
10. Is technical capacity a constraint in this ward office? Is there sufficient technical expertise to fulfill responsibilities?
11. What is the process for entering information into the GPMS-FMS? Can you walk me through the steps?
12. What are the particular characteristics of this ward office that helped you or constrained you?

Part II

1. How does the GPMS-FMS influence your daily work routine? Has this changed from previous years?
2. How did you react to new responsibilities (opportunities) when the GPMS-FMS was introduced into the Bangalore city government?
3. Were there other reactions to the introduction of the GPMS-FMS? How would you describe them?
4. How important is the GPMS-FMS to your job?
5. Do your responsibilities for using the GPMS-FMS affect the work of other departments? How? How do other departments affect your work on the GPMS-FMS?
6. The GPMS-FMS is an open system meaning data entry can be viewed publicly. Does this affect the way you do your job? How?
7. How does the Indian Centre for Social Transformation influence your work?

Part III

1. Other than entering basic information, how else have you used GPMS-FMS in the past? Has that changed over time?
2. Can you explain the process of using GPMS-FMS to engage with citizens or your superiors?
3. Why have you continued to enter project information into the system? Why did you stop entering project information into the system?
4. Has the GPMS-FMS changed the way your department engages in public financial management? If yes, how and why? If no, why?
5. Has the GPMS-FMS changed the way your department interacts with citizens?
6. Have you ever felt pressure to not enter information into the system? Why?
7. What would you need to make updating the information in GPMS-FMS more appealing or effective? Can you rank: recognition, salary, more resources, and/or more training, anything else?


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