

**Bridging the void: how institutional entrepreneurship can overcome institutional voids
in Indian public organisations**

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Abstract

There is limited research on the role of institutional entrepreneurship in public organisations, especially in the context of institutional voids. The public sector entrepreneurs' engagement with regulatory, normative, and cultural-cognitive institutional voids in a developing economy is, therefore, examined using institutional work. Through an in-depth longitudinal case study of Delhi Metro Rail Corporation in India, institutional creation and disruption processes are identified as interrelated means to address voids in this context. The boundary work supported promising entrepreneurs in challenging settings, whereas legitimacy work helped to spread change outside organisational boundaries. Insights into public sector entrepreneurship in developing countries are offered.

Keywords: public entrepreneurship; India; institutional work

1 Introduction

Entrepreneurship as an area of research and policymaking has gained considerable interest in the recent decades, with a growing appreciation of its role in economic development and growth, as well as its potential for social impact (Decker et al., 2014; Tobias et al., 2013; Sridhar and Jasrotia, 2021). Institutional theory has become one of the leading lenses to study strategy and entrepreneurship in developing countries, not only in the context of private firms but also in public organisations (Meyer and Peng, 2016; Su, 2020). Whilst it has been widely applied to study social entrepreneurship (Dacin et al., 2011), with some exceptions (Baez and Abolafia, 2002; Liu and Dubinsky, 2000), institutional perspectives on entrepreneurship in public administration have been less frequent (Ashworth et al., 2013), especially outside of Western economies. Studies of responses to government reforms have often framed policy changes as an exogenous shock to which industry and non-business actors respond through various institutional strategies (see, e.g. Reay and Hinings, 2005). Yet, public organisations are ideal candidates for institutional work, given the societal benefits their transformation can generate (Fouracre et al., 2003; Biygautane et al., 2019). The context of a developing country is particularly salient: although templates for solutions to their local challenges may exist elsewhere, they cannot simply be transposed in their original form by the local actors due to the complexities of the developing countries' institutional environment (Tracey and Phillips, 2011).

Organisational scholars have examined ways in which institutional contexts shape entrepreneurial strategies and resources and increasingly turned to the mechanisms through which entrepreneurs themselves shape institutional contexts (Bruton et al., 2010). To appreciate how such change might take place, research in organisational theory has drawn on the concepts of institutional work, which examines how individual and organisational actors create, maintain and disrupt institutions (Battilana et al., 2009; Lawrence and Suddaby, 2006).

Much of this research has been carried out in the private sector (Khavul and Bruton, 2013) or in the context of public-private partnerships (George et al., 2015), largely overlooking actors in public administration. The public administration literature on entrepreneurship, on the other hand, had often been concerned with entrepreneurship in the form of policy creation (Leyden and Link, 2015), not least aimed at encouraging entrepreneurship (see, e.g. Audretsch et al., 2002), whereas some scholars have also examined managerial entrepreneurship in the public sector (Moon, 1999). In this study, we bridge the gap between these two areas by focusing on public entrepreneurship, which “contributes to building a public organisation or increasing its ability to deliver services and create value” (Bernier and Hafsi, 2007: 489). Unlike private entrepreneurs’ pursuit of profit and risk-taking, the goal of public entrepreneurship is to address public interest (Bellone and Goerl, 1992; Dobel 1995; Durst and Newell 1999; Teske and Schneider, 1994). We draw on the concepts of institutional work to examine entrepreneurship in public services in India. In doing so, we address the recent calls for a broader application of institutional theory to the study of public administration in non-Western contexts (Ashworth et al., 2013; Bernier and Hafsi, 2007; Xing et al., 2018). Specifically, our paper seeks to answer the following question: *How do public sector entrepreneurs use institutional work to institutionalise solutions to local problems in developing countries?*

Our empirical case concerns the construction of the Delhi Metro, an example of a mass rapid transit system (MRTS), by Delhi Metro Rail Corporation (DMRC), studied by combining secondary data analyses with an in-depth process study of a single case study over 20 years (Pettigrew, 1990). We focus on India since, as a developing country, it provides a unique natural setting for our study as the underlying factors present in the local system can attune the decisions arising in these conditions. Our paper makes the following contributions. First, we examine the mechanisms underpinning institutional work through which entrepreneurship in the public sector can address institutional voids in developing countries. Our unique empirical

setting helps us to study institutional change in-depth and over time. From the institutional work perspective, the internal mechanism within the boundaries of an organisation acting as an institutional entrepreneur is developed to overcome strong inertial and cultural barriers for the adoption of new ways of aligning organisational capabilities for symbiotic outcomes. This entailed resource mobilisation and institutional work driving the institutionalisation process. Second, we observe how institutional work to overcome the institutional voids is orchestrated by a local actor by managing networks of public organisations, financiers and contractors through capability building in respective institutions. Capability building through institutional work targeting all three institutional pillars and across various stakeholders helps to address the issue of institutional weaknesses. Lastly, our work also addressed the pertinent issue of external legitimacy in this context which is crucial for the diffusion of institutional changes that engage with institutional voids. Our study offers insights as to how public organisations in Indian settings might evolve over time to meet the challenges of voids in their institutional environment. In doing so, we contribute to the current efforts to extend this literature beyond private business actors as institutional entrepreneurs (Marquis and Raynard, 2015), as well as to the recent work on institutional entrepreneurship in developing countries, which has highlighted the “constituent factors of success” of institutional actions (George et al., 2015: 61). Based on our theoretical insights, we also offer implications for practice.

The rest of our paper is structured as follows. We begin with an overview of institutional voids as a challenge to public administration entrepreneurs and advance the notion of institutional work as a response to these. Having set up our theoretical framing, we then describe the research context and methodology and present our findings. In the final sections, we discuss the theoretical and practical implications and consider the limitations of the study and future research directions.

2 Theoretical Framing

2.1 Institutional voids and public administration & Entrepreneurship in developing countries

Institutions are “those (more or less) enduring elements of social life that affect the behaviour and beliefs of individuals and collective actors by providing templates for action, cognition, and emotion, nonconformity with which is associated with some kind of costs” (Lawrence et al., 2011: 53). Institutions comprise regulatory, normative, and cognitive pillars (Scott, 2008) and have, for a long time, been considered as generally stable and enduring. As such, a considerable amount of work has been dedicated to understanding their consequences for organisational strategy and performance (Peng, 2002). Yet, scholars have recognised that not all the change in institutions is evolutionary, and even their maintenance requires effort. Purposive actions by individuals and organisations can contribute to institutional creation and disruption (Lawrence et al., 2013). This suggests a co-evolutionary potential interplay between entrepreneurship and institutions, particularly in developing economies where institutional context is in flux (Su et al., 2017; Qi et al., 2019; Su, 2020).

As institutional environments differ across countries (Busenitz et al., 2000; Kostova, 1999), institutional work in both private and public settings requires sensitivity to the local context (Hwang and Colyvas, 2011). For instance, in a study of the United Arab Emirates, Nasra and Dacin (2012) draw on the institutional work perspective to portray the state as a “culturally competent actor” who understood the difficulty of establishing a modern entrepreneurial environment in a conservative society. The authors discuss how by creating free economic zones, states can balance international (national) and external (international) legitimacy enabling them to operate parallel institutional frameworks (e.g., conservative and progressive). Using the case of Dubai, they show how that, in turn, can encourage economic growth and address the impediments created by well-established informal institutions, such as religion.

In developing countries, (institutional) entrepreneurs in the public sector face a particularly large number of challenges (Marquis and Raynard, 2015). Jain and Sharma (2013), for instance, explore how the state acted as an institutional entrepreneur in India by migrating a logic of the telephony industry from a socialist to a market one. They propose that constraints inherent to the developing country context and interest-driven tensions between constituents enable the state to only spark limited institutional change at a specific point in time, resulting in a gap in the intended and the realised logics. Using the example of China, Su (2020) suggests that although the government can undertake efforts to reform formal institutions, the divergent paths of formal and informal institutional change can be attributed to the need for informal institutions, such as public perception, to evolve.

Aside from resource constraints and political tensions, public service entrepreneurs in developing economies operate in a setting characterised by absent, incomplete or still forming institutions. Scholars have termed this feature of developing countries as *institutional voids* (Khanna and Palepu, 1997), arguing that void results in risks and uncertainty for organisational actors (Doh et al., 2017; Khanna and Palepu 2000; Khanna et al., 2005). For private entrepreneurs, voids may hamper market functioning, market development and market participation (Mair and Marti, 2009). It is well established that in the absence of formal market-supporting institutions, entrepreneurs in China use *guanxi*, whereas Russian entrepreneurs may find themselves relying on *blat*; both these informal practices are based on personal relationships (Puffer et al., 2009). Moreover, the absence of other supporting institutional infrastructure (such as relevant professional norms) may equally create difficulties for entrepreneurial actions, particularly the implementation of innovation and change (Jennings et al., 2013).

2.2 Bridging voids through institutional work

Recent thinking suggests that voids do not entail an absence of institutions in a particular setting per se, but rather the relative absence of arrangements supporting a specific objective, with alternative, often informal arrangements in their place (Mair and Marti, 2009). Institutional voids can thus be regarded as opportunity spaces (Doh et al., 2017), consistent with the view that the developing country institutional settings are more malleable than the more rigid (Tracey and Phillips, 2011) yet also characterised by “institutional complexity” (Mair et al., 2012). Dhanaraj and Khanna (2011) argue that managing in a developing country entails a change in “mental models” when attempting to address such absences. Institutional entrepreneurs need to navigate these spaces by adjusting their strategies to the extant context, as in the aforementioned example of *guanxi* and *blat*. Recent work also considered the role of local intermediaries (Mair et al., 2012; Dutt et al., 2016) and foreign firms (Newenham-Kahindi and Stevens, 2018) in “working” the voids. Other scholars have highlighted the role of the state in remedying imperfections that inhibit entrepreneurship and economic growth by developing the missing or imperfect institutional infrastructure (Busenitz et al., 2000; Spencer et al., 2005), particularly formal institutions (Su, 2020).

However, due to the complexities of the developing economy context, we expect institutional work in the public sector entrepreneurship to be multifaceted. When considered in the context of public organisations, voids could impede timely completion of large projects due to a lack of efficient regulatory and legal mechanisms to implement projects, resolve conflicts, and limited access to resources such as human capital or the latest technology (George et al., 2015), but also the lack of relevant norms and practices. Unlike private companies, in the public sector, usually there are no service alternatives. In developed economies, large-scale infrastructure projects can often be undertaken only by or with the direct involvement of the government agency. If public infrastructure provision involves contractors, there might be a conflict of interests between the public organisation and the service provider (Sminia, 2011). Although

public ownership of resources can generate social benefits and potential innovative activities (Gil et al., 2012; Mazzucato 2013), it can also lead to bureaucracy and top-heavy organisations that resist institutional change. Prior studies have argued that large public organisations are resistant to mobility in both ideas as well as people, and organisational changes are few and far between (Fouracre et al., 2003).

Therefore, we argue that public service entrepreneurship in developing economies will require multiple forms of institutional work to be pursued, at times simultaneously (Micelotta and Washington, 2013), and target all three institutional pillars (Fortwengel and Jackson, 2016) to create a supportive institutional infrastructure where it might be incomplete or absent. In an example from the private sector, Carney and colleagues (2016) discussed how Ciputra Group built institutions in Vietnam to influence the urban planning practices that were not supportive of its business model. However, as an outsider with limited legitimacy, Ciputra was careful not to disrupt existing institutions. In a study of the institutionalisation of public-private partnerships in China, Xing and colleagues (2018) found that the local government of Wuxi established new institutional arrangements by modifying existing institutions (that is, its own routines and rules) and separating them from the newly established ones. However, given the relative paucity of examples, we lack a comprehensive understanding of how multiple forms of institutional work allow public sector entrepreneurs in developing economies to address specific institutional voids. It is this challenge that motivates our study.

3 Method

3.1 Research Approach

To understand how actors in the public sector act upon institutions and institutional voids, we adopted a constructivist view, which “focuses on how social reality [...] is constructed, by whom and [...] the social practices involved (Zilber, 2013: 84). This, in turn, entailed a choice

of qualitative methods of inquiry (Ospina et al., 2017). In order to grasp the complexity and temporal aspects of institutional work, we adopted a single longitudinal case study approach (Langley, 1999). This facilitated the discovery of temporal order, pattern, and sequence of events, investigating how and why they progress as they do by shaping a historical narrative (Van de Ven and Poole, 2005). A single, in-depth case study approach is useful when the case represents an extreme case or when a case can shed light on a phenomenon of interest that is otherwise inaccessible (Yin, 2008). This approach is also helpful to probe deeply into processes by collecting fine-grained data of complex and ambiguous real-time and retrospective interpretations of events and organisational contexts. In-depth stories were constructed from comprehensive primary and secondary datasets collected to achieve high accuracy, focusing on stories, meanings, and mechanisms over time (Langley, 1999). Our study involved several sub-units of analysis: DMRC itself, external contractors, and financiers. We used this embedded, single-case design to explore the occurrence of institutional work in a public organisation involved in an urban infrastructure development project over time.

3.2 Research setting: Delhi Metro construction

We selected our case – the Delhi Metro construction project – as an example of an institutional project, a “purposive endeavor to change rules and regulations in a nested and relatively bounded political-institutional setting” and in which institutional work could be observed (Granqvist and Gustafsson, 2016: 1014; see also Holm, 1995; Biesenthal et al., 2018). In doing so, we followed Kraatz (2009: 84), who argued that “individual organisations are important venues for institutional work.”

There are several reasons for which we chose India as the country setting for our study. First is the aforementioned paucity of research on public administration entrepreneurship in developing economies, despite their potential to help uncover novel theoretical insights into the institutional dynamics of these contexts. We chose to focus on infrastructure development

as previous work in public management and entrepreneurship has been dominated by healthcare sector studies, which limits the applicability of theorising on mechanisms of institutional change in the public sector setting (Xing et al., 2018). Second, although institutional voids exist across most developing economies, a number of recent paper have documented the challenges to entrepreneurship and change in India (see, e.g. Jain and Sharma, 2013), particularly in the public sector (Goetz and Jenkins, 2001). Although the case of Delhi Metro construction has been previously documented elsewhere in studies of global projects (Mahalingam and Levitt, 2007a, b), we selected the case of successful institutional work that allows the enterprising public sector actors to overcome the lack of enabling resources, as well as constraints associated with informal institutions.

Over the years, metropolitans in India had seen inadequate urban planning by city officials (Fouracre et al., 2003; Mishra 2000). Hoskisson et al. (2013, p. 1300) lamented that “traffic problems in Indian cities create congestion” and “narrow and underdeveloped streets are a constraint.” In a 1990s’ survey in Delhi, it was observed that 75% of commuters found the bus service grossly inadequate (Chopra, 1994). Yet, there was no rail network in Delhi to manage the paucity of the Mass Rapid Transit System. The idea of metro for Delhi was first suggested by the Central Road Research Institute in the late 1960s (Siemiatycki, 2006).

In the case of Delhi Metro construction, dealing with “infrastructure voids” (Fernandez-Mendez et al., 2015) entailed tackling regulatory, normative and cultural-cognitive institutional voids in the absence of institutions supportive of the project aims. Regulatory voids included the lack of regulatory mechanisms to manage large projects. Organisations had to engage with local and federal governments to meet regulatory requirements. These governments might belong to different political ideologies and create issues, in terms, of divergent local and national regulations. Normative voids included lack of professional management for large projects, absence of institutionalised worker’s welfare management, sustainability and talent

management norms and practices and limited monitoring practices to facilitate improved productivity. Cultural-cognitive voids included the absence of a culture of stakeholder management, especially the transfer of practices between the organisation and the sub-contracting organisations. Additionally, the complex institutional interface (Mair et al., 2010) faced by the entrepreneurs included prohibitive informal institutions: hierarchical leadership, corruption and temporal norms described as “time surplus” (Zellmer-Bruhn et al., 2001) not conducive to punctuality.

Despite these challenges, the Delhi Metro was constructed on schedule, within the budgeted cost, and was well accepted by local commuters (Mishra 2000; Lakshman 2007; Sadana 2010; Thatchenkery 2009). This contrasts with Kolkata, where the metro took more than 20 years to construct, faced severe cost overruns and ridership issues (Lakshman, 2007; Sadana, 2010). The timeline of events during the Delhi Metro construction is presented in Table 1.

[INSERT TABLE 1 ABOUT HERE]

3.3 Data Collection

Our case had a number of unique qualities that made it a logical candidate for in-depth, empirical investigation (Eisenhardt and Graebner, 2007) using a multi-method data collection approach (Vaara and Monin, 2010). Primary and secondary datasets were collected by following intra- and inter-organisational developments over extended periods of time. Fieldwork was conducted while the case study was a “live development,” allowing us to capture rich real-time data on decisions and perceptions of the future course of events and retrospective case data. The case also enjoyed comprehensive press coverage, providing a considerable amount of secondary data sources which helped to triangulate our findings. Secondary data include organisations’ internal reports and presentations, government reports,

a commissioned book, newspaper and trade press articles. The study offered an opportunity to observe in fine detail the on-going developments in a public organisation in a developing economy.

Our cumulative primary evidence included 30 interviews with key stakeholders within DMRC but also considered the wider network of external stakeholders such as contractors and financiers. Interviews were conducted over a period of four years, from 2008 to 2011, and lasted between 60 to 120 minutes (see Table 2). Interviewees were drawn from multiple levels of the organisational hierarchy, different functional areas and across different points in the relationship's history. We also conducted interviews with various stakeholders to capture their perspectives and complement organisational data. Interview questions included questions about key concepts such as organisational background, capability development within the public organisation and across the network and specific change initiatives.

[INSERT TABLE 2 ABOUT HERE]

Archival data collection was split over several stages. We first undertook a detailed analysis of official promotional materials as well as over 200 articles pertaining to the Delhi Metro construction in several independent English and Hindi-language newspapers and websites of TV news channels like The Times of India, The New Indian Express, Hindustan Times, New Delhi Television Limited (NDTV), Telegraph, Businessweek and Zee news (Francis et al., 2009). This also included data and information on financiers for this project as well as external contractors. Using search engines, we found over 200 articles that were written during the earlier stages of the Delhi Metro construction. Lastly, in 2010, one of the authors conducted three observational visits to the Delhi Metro construction sites to observe how daily activities and interactions between project managers, engineers, and construction workers.

3.4 Data analysis

After initial analysis, we triangulated information from interviews, secondary sources, and extant literature, obtaining a more coherent set of codes. This process can be defined as that of latent analysis, where authors interpreted the data using what they knew about the particular topic, country-context, and the situation within which the data was gathered. The findings were written up in an in-depth case study report of over 30 pages in length, which formed the basis for discussions with interviewees to verify the accuracy of our empirical findings. It also enabled us to construct a case narrative and a chronology of key events and actors involved in these (Langley, 1999).

We followed a grounded theory approach to analyse our data (Gioia et al., 2013), in which our objective was to identify forms of institutional work associated with addressing institutional voids. In this process, we were guided by the literature on institutional work (Lawrence and Suddaby, 2006) to code processes of institutional creation. We identified processes as resembling attempts at disrupting, rather than creating, institutions, including a strategy (which we term *sanctioning backsliding*) not discussed in previous literature. Creation aimed at the three institutional pillars was termed “regulatory work,” “normative work,” and “cognitive work,” respectively, in line with Lawrence and Suddaby (2006). We employed the concept of boundary work (Zietsma and Lawrence, 2010) to explain strategies and tactics aimed at distancing the entrepreneur from the field and creating space for experimentation. Finally, we combined externally oriented activities to legitimise the project under the label of external legitimacy work (Gawer and Phillips, 2013). Table 3 presents the results of first-order coding and second-order coding, and aggregate theoretical dimensions.

[INSERT TABLE 3 ABOUT HERE]

Below we present the findings from our interviews and secondary data and link it to the conceptual framework presented earlier. We draw on these materials to discuss how various institutional voids, regulatory, normative and cultural-cognitive, were addressed by DMRC during the construction of Delhi Metro.

5 Findings

5.1 Enabling institutional work

Our analysis suggested that the success of the project was enabled in part by the government's ability to identify and support the entrepreneurial leader who was not attached to prohibitive informal institutions (particularly corruption) and provide him with space to experiment around institutional voids. Secondly, it was enabled by resource mobilisation (Battilana et al., 2009), which involved bringing together internal and external actors and symbolic and material resources to overcome constraints.

Boundary work. Breaking away from institutional arrangements is one of the major challenges for institutional entrepreneurs in settings with highly institutionalised beliefs. Boundary work entails “any strategic activity aimed at constructing, defending or disrupting distinctions between collectives of actors” that “delineates the inside of a space from the outside” and enables actors to “engage with models that diverge from institutionalised scripts” in protected settings (Cartel et al., 2019: 68; see also Kellogg, 2009; Zietsma and Lawrence, 2010; Bucher and Langley, 2016). We found that in a setting characterised by corruption and absence of supportive norms; it was not sufficient for the government to identify a potential entrepreneur (Dr. E. Sreedharan) to head the project, but also essential to support them by creating a space to innovate, which would be shielded from external pressures.

The DMRC engendered to align the capabilities of private actors with those of public institutions and of various intra-governmental organisations. Given the nature of polity in India,

it often leads to situations where projects run by state governments compete against those executed by the central government, and regulatory problems are created due to conflicting interests between the two parties. For Kolkata Metro, the state had not provided subsidies for the metro operations because it was a central government project which made the project expensive. However, the state government provided a subsidy for electric power to the tram service. Thus, Kolkata Metro faced low ridership as it was expensive to travel by metro instead of subsidised trams.

To avoid such problems for the Delhi Metro, a new organisation was imperative that would impel the State and Central governments to cooperate and collaborate. The DMRC, created in 1995, is owned by both Central and Delhi State Government, which at that time belong to two different parties, and in 1997, 30% of the 1st phase of the funding for this project was generated by a 50:50 equity partnership between the Central and State government. Among the 14 Directors of DMRC, five are nominees of the Government of India and five belong to the state government. This was echoed by a DMRC Manager: *“Delhi Metro has managed to make a profit without being a burden on the government while maintaining one of the lowest fare structures in India.”* Another manager suggested that the *“50-50 partnership between the state government and the central government was unique. Public organisations, in the past, did not have this. This cause problem to both the organisation and their contractors. There were delays. Look at other metro construction in India. Too much bureaucracy.”* (Middle Manager, DMRC)

In 1997, E. Sreedharan, the manager chosen to lead DMRC, had an illustrious career with the Indian Railways and had a record of unimpeachable integrity. This acts as a signalling mechanism to outsiders that this organisation would adopt different behaviour than traditional public organisations. Dr. As one DMRC manager asserted, *“he would not tolerate any interference and talks of corruption and bribery in this organisation. In this country, people*

follow by example, and such incorruptible leadership is inspiring, and everyone wanted to follow his example.”

As a result, the Managing Director was able to select his team without political pressures. One anecdotal incident mentioned in the DMRC-commissioned book *Delhi Metro - A Dream Revisited* (Dayal, 2003) talks of a highly qualified candidate who declined a job offer for a senior management position stating his misgivings are pertaining to the successful completion of the project in an environment of conflicting interests and political meddling. When the candidate conveyed this decision to the Managing Director, he responded with the words, “*When will you join?*” The individual joined DMRC and built a very successful PR department that was essential to the success of the DMRC. The book cites his admission that “*There was something magnetic and a force which is difficult to describe in words which ultimately made me decide to join DMRC after meeting him.*”

Innovative ideas were encouraged from employees, and those ideas that were found suitable were implemented rapidly with the organisation. As P. K. Pathak, who runs Delhi Metro's training institute, mentions (NDTV, 2010), “*in the Metro even the lowliest employees’ ideas are taken seriously... When trainees at the institute, which is packed to the gills to try to churn out enough employees to staff its new lines, suggested staggering lunchtimes in the cafeteria to ease crowding, ... made the change that very day... In the railway, change was very difficult... In Metro, we are open to all ideas.*”

This, in turn, enabled experimentation (Cartel et al., 2019) within the organisation. Managers were able to adopt and adapt their managerial practices from previous experiences in private organisations and use them within the public organisation, DMRC. Managers with experience in other public organisations were, therefore, surprised to find out the independence and flexibility that they were accorded in the new organisation. One DMRC manager stated, “*We used best practices from other public organisations. We had worked in these organisations and*

in the past, we were restricted from using our initiative and drive. In the DMRC, we were encouraged to use our ideas...” (Middle Manager, DMRC)

Resource mobilisation. The interviews also indicated that external organisations and DMRC engaged in mobilising resources and developed a shared vision for project delivery (Xing et al., 2018). For example, one top DMRC manager mentions that *“DMRC added dynamism to this system. There were too many old ways of doing things. DMRC changed it. They also wanted their contractors to change.”* (Top Manager, DMRC). DMRC motivated its contractors and partners effectively for goal convergence. For example, JICA and DMRC worked in close cooperation on this project. A shared vision can drive effective project execution. An Executive at JICA identified this as “becoming a robot”: *“If the working culture is so structured, everything is working, you become a robot, you just fall into line and follow.”*

Another subcontractor discussed the award conferred by DMRC: *“Contractors are appreciated when they do good work. For example, contractors are given recognition in public events... Contractors feel like they belong to the Delhi Metro family.”*

DMRC hired foreign consultants in areas where no local experts were available. Pacific Consultants International (Japan) was hired in 2000 to provide advice on engineering matters. The introduction of freelance foreign consultants in the organisation imparted efficiency in project management and effectiveness in litigation management. Along with providing talent and professional outlook missing in the institutional environment, consultants helped to avoid the deadlock between DMRC and contractors due to misaligned objectives, and freelance consultants managed to keep the project on schedule by communicating between different parties involved in this project.

Similarly, DMRC engaged in the strategic employment of freelancers, which helped in the timely resolution of issues. The freelancers were able to oversee that the contractors were paid on time. For example, DMRC had set rules in the contract for ways in which the project had to

be implemented. The contractor concentrated on results and completed the work without being concerned about the rules. Due to this, contractors were denied payments. Freelancers would negotiate between DMRC and its contractor. When DMRC's managers asked the contractors to implement things that were outside the contract, it would often lead to an impasse. Freelancers at the senior level escalated the issues to DMRC management. Sometimes the freelancers would postpone the impasse and convince both sides to continue work.

DMRC made strategic use of secondments within the organisation. The best talent within the organisation was sourced for the effective running of the construction project. This type of secondment was also extended to cover other public organisations, and DMRC was able to access talent from other public and private organisations to meet its project requirements. As one manager mentions, *"Top employees were moved from Railways at short notice"* (Top Manager, DMRC). This strategy was further highlighted by benefits of inter- and intra-organisational learning, and one employee suggested that *"Employees were quickly sent on secondment between different sections depending on the need of these departments. There was a lot of learning in the organisation and knowledge exchange..."* (Low ranking employee, DMRC)

As well, DMRC actively sourced technology and capital from foreign countries like Korea, Japan, and France, among others. Korea's Rotem and Japan's Mitsubishi supplied the initial shipment of coaches and technical support, while France's Alstom led the consortium responsible for the design of the automatic train control system.

Resource mobilisation was further supported by both the local and federal governments. As a JICA project development specialist points out – *"This creates balance and power-sharing and everything is well managed here...from the state government, there are subordinate debts like providing land.. estate tax... Government of India has some provisions like customs duty relaxation..."*

5.2 Disrupting to Create

Actors in our study engaged in intertwined processes of institutional disruption (of informal institutions as barriers) and creation (of new institutions to “fill” voids).

Undermining assumptions and beliefs. The first type of disruptive work (Lawrence and Suddaby, 2006) involved challenging beliefs and norms underpinning practices that hampered change. DMRC used practices that undermined current norms, like temporal norms and corruption, and also introduced several changes to foster professionalism within public officials. Since 1997, a lean organisational model with few hierarchical decision-making layers was chosen as best suited to realise the necessary developments. According to DMRC, it is amongst the leanest public transport organisations in the world; it has 38 employees per km compared to a world average of 45 employees. One manager from DMRC said, “*The management decided to have a lean organisational model with few hierarchical decision-making layers as it is best suited to realise the necessary developments in a quick project management environment.*”

DMRC also reduced the development time from ten to seven years to improve the viability of their project and make it more competitive to attract the best contractors to their projects. DMRC, therefore, in 1997, convinced the authorities that regulatory arrangement for approval would have to be completely different from the government’s normal style of decision making (The Hindu, 2007). The Managing Director said: “*We finalise deals in 24 hours. The average duration of major tenders was 19 days, compared with the three to nine months that is the average in Indian public organisations.*” A government source affirmed these stringent deadlines and targets (Ramachandran, 2007) – “*The DMRC Managing Director is very particular about meeting deadlines and time management. To meet their targets, they want their requests for being granted land in certain places and permission to cut trees processed immediately. The DMRC has been pushing for their requests to be dealt with speedily.*”

Indeed, these new processes could not be implemented without infusing new human resource talent into the system. To achieve these objectives, DMRC decided to attract top-quality talent to the Delhi Metro project. DMRC scouted around the world to attract people who could lead this metro project. Individuals were selected on the basis of their experience and skills and not just on social and political connections. Thus, recruitment was driven by merit. A DMRC manager reveals that *“People were selected on their qualification, merit and suitability. Though you could recommend someone, it was because of their experience and merit and not because of relationship. There was no “sifarish” (nepotism) here. People have to prove themselves...”* (Middle Manager, DMRC). Another manager presented the following motivation for this strategy - *“... the idea was to move from bureaucracy to professional setup. It was the same process of tendering, contracting, but some changes made them more professional.”* (Middle Manager, External contractor).

Sanctioning backsliding. We observed forms of disruptive institutional work aimed at preventing actors from backsliding towards prior institutional arrangements similar to those defined by Lawrence and Suddaby (2006) as forms of institutional maintenance, deterring, and policing. For example, in the case of external contractors, non-compliance with the deadlines resulted in payment penalties for the contractors. Defaulting on the deadlines had monetary as well as reputational consequences for external contractors, whereas employees were subjected to disciplinary actions. This introduced in employees a sense of time management and adherence to organisational rules. As Dr. E. Sreedharan points out, *“Corporate objectives needed to be implemented with the development of corporate culture in DMRC.”*

DMRC also introduced corruption mitigating processes, and these were introduced at every level in the organisation. The leadership and their approach to corruption were useful in engendering corruption-free practices across the whole organisation. DMRC introduced resource accountability. As one manager asserted, *“In this country, people follow by example,*

and such incorruptible leadership is inspiring, and everyone wanted to follow his example.” Colebath (2013) mentions that *“tenders were broken into smaller contracts rather than big ones, so the organisation never lost control.”* Similarly, in 2007, the United Kingdom Accreditation Service conducted a surveillance witness audit of Delhi Metro. Also, as Colebath (2013) highlights, the *“politicians used to pulling strings to get jobs or contracts for their allies found their strings were cut.”*

The JICA project development specialist highlights the close monitoring of the funding provided by JICA and its utilisation in the Delhi Metro project. He stated that: *“There are quarterly reports. There are monthly expenditure plans, and contractors and project management had to meet these spending targets. If these are not met, we ask the project in-charge why the money was not spent. So, they can release the funds, the funds have to be released on time. We examine cases of under-spending. There are also Ministry of Urban Development reviews of this project.”*

The next three types of institutional work we identified were aimed at filling in institutional voids by creating regulations and norms and new cognitive associations and beliefs.

Regulatory work. DMRC engaged in regulatory work with various governmental and public organisations to create a litigation and conflict resolution mechanism for their infrastructure development project. Since 2002, the “Delhi Metro Railway Operation and Maintenance Act 2002” gives DMRC an unencumbered right to acquire land.

Another regulatory change related to customs duty, the central government reduced the customs duty on foreign imports, which meant that foreign technology could be easily and cheaply imported into the country. This helped Korea's Rotem and Japan's Mitsubishi to supply the initial shipment of coaches, while France's Alstom led the consortium, which provided the design of the automatic train control system.

In 1997, DMRC introduced an original regulatory sanctioning model, which consisted of two committees. The first one was called the empowering committee and headed by the Cabinet Secretary (CS). The CS is the head of the bureaucracy and was able to bring the proposal to closure by passing them on to the right secretaries. The second group, called the Group of Ministers (GOM), was responsible for all cabinet-level decisions. GOM was headed by a cabinet minister and had been given the authority to make decisions and approve proposals without referring them to the cabinet. The managing director realised that the governmental style of decision-making could not be inherited by DMRC as it would be impossible to meet the time and budget targets. DMRC, therefore, in 1997, convinced the authorities that regulatory arrangements for approval would have to be completely different from the government's typical style of decision making (The Hindu, 2007).

Normative work. The normative work involved changing normative values both with the organisation as well as those normative values in partners, which might impact the operations of the DMRC (Lawrence and Suddaby, 2006). Within the organisation, for example, to achieve sustainability and encourage green movement, DMRC achieved the International Standardisation Organisation (ISO) 14000 certification in 2002, which takes into account the environmental management system. As a DMRC Manager mentions: *"The auditor said in a media report that the fact that DMRC included occupational health and safety in an integrated management system is good. [...] DMRC's efforts on water harvesting and energy saving are a model for other organisations."*

To attract, manage, and retain talent, DMRC introduced several initiatives that did not involve direct monetary benefits since as a public organisation, it was prevented by regulations from providing bonuses to its employees. In 2008, top-performing employees were sent on the postgraduate diplomas in Metro Technology and Management – at IIT Delhi (Business Today 2010).

Taking a holistic view of project management, worker welfare was built into the contracts. Not only did most of the construction workers lack knowledge of safe construction procedures, they also lack fundamental knowledge of safe personal choices. For example, taking into consideration the high incidence of HIV infection among migrant workers in India, DMRC organised AIDS awareness programs for migrant workers on Delhi metro construction sites. An average Indian construction worker has no hospitalisation insurance, but on this project, it was built into contracts with engineering companies. One DMRC manager mentioned: *“This program has been very popular and important. Now, this has been made into a workplace policy. It is in the contract.”* As the JICA project development specialist points out, these worker-focused initiatives introduced in 1998 into contracts were driven by DMRC with workers’ welfare in mind. The UKAS auditor Andrew Marlow highlighted the organisational innovation undertaken by DMRC, who said: *“The fact that DMRC included occupational health and safety in an integrated management system is particularly laudable.”* Similarly, a DMRC Manager mentioning that: *“The auditor said in a media report that the fact that DMRC has introduced health and safety in integrated management is good. This is very encouraging to us. We want to introduce other welfare schemes for our employees.”* (IBN-Live, 2007)

Cognitive work. The development time for this project was compressed from 10 years to 7 years to make the project more enticing for outsourcing engineering and construction companies. DMRC’s employees were, therefore, introduced to time management principles and corporate culture via courses. They were also given support and provided learning opportunities across the organisation, which was not possible in other public organisations. As one DMRC Manager stated that, *“There is no better organisation than DMRC. I am paid less here than in my previous organisation, but it is the work culture that is driving me ... I can make decisions quite fast here, and that has ensured job satisfaction. DMRC's management is 100 per cent committed to its employees.”*

DMRC managers were also encouraged to make quick and independent decisions. As Colebath (2013) mentions, *“If anything went wrong, there was no hunt for scapegoats, only for solutions.”* This approach by the top management team encouraged managers to be independent in their decision-making activities. Similarly, speedy payment was made to the contractors to prevent delays. As a manager explained, *“Normally, contractors have to run behind contracting organisation after project completion for money. But, it was different in the Delhi Metro case. DMRC went to contractors asking them to clear their money 1 or 2 days after completion of work, and this does not usually happen in projects. This gives contractors a good supply of funds.”* Further, DMRC realised that temporal pressures are needed to provide stimuli to change employee mindset. DMRC decided to install clocks in offices and work sites that counted towards the deadline, which the first author observed in person during site visits. DMRC treated contractors as development partners in this project. As one manager points out the positive impact of proactive engagement by DMRC with its contractors – *“Contractors were always paid on time. They were very motivated because of this. Contractors were considered as ‘Development Partners’...”*

External legitimacy work. Lastly, entrepreneurs attended to the external legitimacy of the project (Gawer and Phillips, 2013). We observed that DMRC’s various activities to improve the inter- and intra-organisational process and its leadership greatly changed the perception of public organisations in India. For example, the quick tendering process reflected in the external actor’s satisfaction with DMRC. Also, high priority given to key partners resulted in high priority being given by the partners to DMRC. The managing director with the impeccable record was respected by contractors. Dr. E. Sreedharan articulates it as follows (Jha, 2008) – *“Whatever we have been able to achieve is through team spirit and other important factors including punctuality, reliability and viability ... Delhi Metro has managed to make a profit without being a burden on the government..”* Another senior manager opines, *“There is Dr. E*

Sreedharan, and, of course, his team, who lead from the front. If the top official is working and showing the way, others follow. The top did its job and lower officials were doing their job, contractors too... The top official is innovative...down the line, the team will work."

DMRC also started an education program in schools and colleges on the Delhi Metro route. They also organised street plays to educate the local people on the virtues of a clean and healthy environment. A commuter on Delhi Metro remarked on the responsibilities of local commuters, *"I was absolutely stunned by the cleanliness of the compartment as well as the platforms. The onus also falls squarely on us commuters to keep Metro clean."* (TOI, 2003a)

6 Discussion

We set out to understand how public sector entrepreneurs engage in institutional work to institutionalise solutions to local problems in developing countries, particularly in the face of institutional voids. In the case we presented, entrepreneurship involved creating a new organisational form to address a public infrastructure need in a challenging context. We have argued that one of the challenges to this process is the complex institutional fabric of developing economies, which includes informal institutional arrangements (Estrin and Preverzer, 2011). Because informal institutions operate at the level of cognition and norms, they are difficult to disrupt, especially by actors socialised into such settings. Therefore, previous work, particularly in the fields of international business and management, examined how voids in developing countries are filled by external actors, such as multinational companies (Doh et al., 2017), or intermediaries with international roots (Mair et al., 2012). Our paper departs from these studies by discussing how change occurs in highly institutionalised, resource-constrained local public organisations driven by insiders. Indeed, whilst exploring institutional work in the context of the Delhi Metro Railway Corporation, we observed that the major proponent of change in this organisational field was the incumbent organisation, whose

focus and vision to predict and implement the change were pivotal to the success of the project (Graffy, 2013).

6.1 Institutional creation and disruption to fill in institutional voids

Our paper makes several contributions to literature. First, we contribute to the debate on the public sector entrepreneurship in developing countries by extending the work on the interplay of (public) entrepreneurship and institutions that examined how governments act as institutional entrepreneurs in fostering private entrepreneurship by transforming formal and informal institutions (Stephan et al., 2015; Sum, 2020). We do so by showing how the Indian state-supported entrepreneurship *within* the public sector and highlighting the multiple forms of institutional work (Micelotta and Washington, 2013) required of the institutional entrepreneur in settings where institutional voids and informal institutions may not be conducive to change efforts. By examining the interplay of resource mobilisation, institutional work and institutionalisation processes surrounding the project, we demonstrate how public sector entrepreneurship contributes to the evolution of institutions and filling in emerging voids in developing countries through institutional work and resource mobilisation. In our case, DMRC set the agenda in partnerships and devised strategies to attract the best infrastructure development and engineering companies to this project but also engaged in the dynamic creation of the institutional infrastructure to support its implementation.

Secondly, we show, specifically, that the interplay between disruption and creation was necessitated by the complexity of the institutional interface (Mair et al., 2012) and pursued *concurrently* rather than sequentially to implement the project and enable institutional change around it. Previous work has shown that successful institutional experimentation and change benefits from powerful actors' efforts to create experimental spaces to shield the entrepreneurs and emergent institutional arrangements from external institutional influences (Cartel et al., 2019; Xing et al., 2018). Scholars previously suggested that in spite of the high embeddedness

of incumbent organisations, they can initiate and lead institutional change (Greenwood and Suddaby, 2006). Powerful actors realised that forming a new organisation with the gene of an existing one would loosen the embeddedness faced by the older organisations in this sector and provide the new organisation with the legitimacy required to pursue system-changing processes. In our case, incumbent organisations were deeply embedded in the local organisational networks, and organisational changes were infrequent, whereas informal institutional arrangements were highly entrenched. We identify a novel strategy, *sanctioning backsliding*, which adds to the repertoire of boundary and disruptive institutional work by discouraging actors from engaging in disrupted practices and thus enabling the institutionalisation of novel regulatory, cognitive and normative arrangements.

Finally, our analysis demonstrates the need to legitimate the institutional project and diffuse the new norms that emerged within the (public sector) organisation for successful institutionalisation of change. External legitimacy can act as a hindrance or catalyst for successful institutional innovation (Gawer and Phillips, 2013), in our case, a norm-breaking infrastructure project. The sources of legitimacy for DMRC were two-fold. First, legitimacy was provided by the governments' engaged in the project. In an emerging economy, power is an important precursor to institutional innovation and can promote widespread institutional change. Second, the leadership was incorruptible. Public organisations in developing economies are often reported to be riddled with corrupt officials whose performance is not regularly monitored. By introducing merit in the system, the leadership of DMRC answered the conundrum of legitimacy and effectiveness.

From a practical standpoint, our study highlights the importance of entrepreneurial leadership (Teske and Schneider, 1994) in public organisations in developing countries. In Indian public organisations, leadership tends to be directive rather than empowering (Graffy, 2013, Schmidtchen, 2013, Brewer and Walker, 2013, Uygun and Gupta, 2020). There are structures

and processes in place that drive employees, and these employees are directed by their managers rather than by being self-motivated (Schmidtchen, 2013). The job guarantee in a precarious job market is provided by a public sector job, where the slack in the organisation generates a kind of “caste system” that also prolongs the decision-making time. The employees at the base of the organisational pyramid are entrusted with minimal decision-making powers. Also, the roles of people and departments tend to be loosely defined, leading to the transfer of responsibility. This leads to weak organisation structures and the production of more managers than leaders (Brewer and Walker, 2013). Thus, the large and top-heavy organisations needed to be replaced by an organisation that was lean and flexible and could implement decisions quickly. Our empirical results refine previous observations in large infrastructure development projects in India (Ray and Ray, 2010). They suggest that in challenging settings, particularly those characterised by corruption and informality, providing social and financial resources but crucially, space for experimentation, is important for empowering promising entrepreneurs. India has a history of political opposition deeply impacting the success of private and public projects. But, inordinate delays in project development were avoided by DMRC. Our findings suggest that close cooperation between competing political interests can generate positive outcomes in large infrastructure projects. Setting up practices and regulatory basis for cooperation, as we show, can bring competing political actors together.

As a single qualitative case study, our research does have a number of boundary conditions and limitations. Although our outcomes can be generalised to other developing countries with managerial inertia, we hasten to add the importance of national characteristics and case idiosyncrasies on public infrastructure development. Future research would benefit from comparative designs, which could elucidate the specific conditions under which the strategies described in this paper are more – or less – successful.

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Table 1. Timeline of events related to Delhi Metro Project

| Time period | Key events |
|-------------|---|
| 1960s | The concept of metro for Delhi was first formalized in the Delhi Master Plan Central Road Research Institute recommends an MRTS for Delhi |
| 1970s | Metropolitan Transport Project recommends an MRTS network comprising of 36km of underground and 97km of surface-cum-elevated corridors Legal framework was laid out in the Metro Railways (Construction of Works) Act |
| 1984 | The Delhi Development Authority's "Master Plan Delhi – 2001" recommends the construction of 200 km of Light Railway Transit, 10 km of Tramway and extension to surface rails and roads |
| 1987 | A task force was appointed to assess the choice of an exact construction technology |
| 1990 | Rail India Technical and Economic Services' feasibility report recommends a network of 198.5 km |
| 1995 | DMRC was established as a special purpose vehicle for implementation of the Delhi metro project |
| 1996 | Union Cabinet approves Delhi metro, Central Government gives \$1.4 billion (in 1996 \$s) |
| 1997 | Dr. E Sreedharan takes charge as the managing director of DMRC, Planning of works begin |
| 1998 | Physical construction work started |
| 1999 | Metro Rail launches website |
| 2000 | Order for 240 coaches placed with Mitsubishi, ROTEM and Mitsubishi Electric Corporation The DMRC agreeing to the broad gauge decision of the Ministry of Railways |
| 2001 | DMRC appointed consultants for equipment procurement process for Delhi Fire Service Delhi Metro asked to advice Bangalore, Hyderabad, and Mumbai metros First coach from the Mitsubishi consortium arrives in India Education program launched in colonies schools and colleges on the Delhi Metro route |
| 2002 | Delhi Metro Railway (O&M) Bill was passed by the parliament First line opened : inaugurated by Prime Minister of India Delhi metro achieves a ridership of 1 million on the first day itself OECD and the Japanese bank (Japan International Cooperation Agency) fund phase II Tax waivers from the central government and tax rebate from the state government |
| 2005 | Phase I of the project was completed |
| 2010 | Phase II of the project was completed |
| 2011 | According to a study conducted by the Central Road Research Institute (CRRI), in the year 2011, Delhi Metro has helped in removing about 1.17 million vehicles from the streets of Delhi |

Table 2. Information on data collection stages and interviewees

| | | | | |
|-------------------------------|---|-------------|-------------------|-----------------------------|
| | Stage 1 & 3: data collection from the secondary sources | | | |
| March – September 2008 | DMRC official printed material as well as material from their website. Google search led to the collection of over 200 articles related to the DMRC's construction activities. The material was obtained from several independent English and Hindi-language newspapers and websites of TV news channels. | | | |
| March 2011 | | | | |
| | Stage 2: Interview Stage | | | |
| | Respondent | DMRC | Financiers | External contractors |
| October 2008 | Top management | 1 | | |
| | Middle managers | 2 | | |
| | Low ranking employees | 1 | | |
| March 2010 | Top management | | 1 | |
| | Middle managers | | 1 | 2 |
| | Low ranking employees | 5 | | 3 |
| January 2011 | Middle managers | 2 | | 2 |
| | Low ranking employees | 5 | | 5 |
| | Total | 16 | 2 | 12 |

Table 3. Dimensions, themes, categories and data

| Second-Order Themes & First-Order Categories | Representative Data |
|---|--|
| <i>Overarching dimension: Enabling Institutional Work</i> | |
| <i>1. Boundary Work</i> | |
| <p>A. Creating a new organization</p> <p>B. Managing Director with the impeccable record was appointed to head the DMRC</p> <p>C. Managing Director selects his team without political pressures</p> <p>D. Employees were encouraged to share innovative ideas for change</p> <p>E. Avenues for experimentation</p> | <p>A1. “This partnership between the state and central governments was very revealing. They were willing to work together because they saw something good will happen here. They wanted to create a new organization, a new way. A different way.” (Top Manager, JICA)</p> <p>B1. The Managing Director mentions about the nature of Indian polity as that which is inclined to corrupt - “...politicians tried to interfere; they wanted to milk the project. Later, when they found that this is not possible, they started respecting it.... I would say that I stand firm in my convictions. I don’t budge just to please somebody else. That’s the main thing.”</p> <p>C1. Dr. E. Sreedharan asserts it as being a case of professional attitudes in infrastructure development. He says (IE, 2007) – “It’s been a good example for the politicians of what the professionals can do if they are given a free hand.”</p> <p>C2. The DMRC spokesperson highlights this by saying (IBN-Live, 2007) – “It is the management style which is unique. It is based on the practical experience and experiences of its leaders. The credit goes to the managing director and entire DMRC team.”</p> <p>D1. One DMRC Manager mentioned that “to most employees, the responsibility of handling a national level project with enough freedom proved to be a very rewarding task.”</p> <p>E1. Dr. E Sreedharan points out (Joshi, 2001) – “The DMRC is also busy exploring its commercial aspect where the idea was to raise funds by opening cafeterias and other shops at stations.”</p> <p>E2. As DMRC’s Chief Vigilance Officer stated (Mukherjee, 2002) – “Even in the US, Paris and London, poor people try to look for shelter inside metro stations. We took a lesson from that and decided to create a system in which only commuters with tickets will be allowed inside the paid area.”</p> |
| <i>2. Resource Mobilization</i> | |
| <p>F. External organizations and DMRC developed a shared vision for project delivery</p> <p>G. Use of Foreign consultants and Freelancers</p> <p>H. Strategic use of the secondments</p> | <p>F1. JICA manager highlights the profound working relationship shared between DMRC and JICA – “JICA gave high priority to Delhi metro project as DMRC gave high priority to Delhi metro. There was agreement on how important this project was... We are proud to be part of this (Delhi metro project) organization. This Delhi metro project is a showcase for Japan-India cooperation...”</p> <p>G1. As one executive concurs – “This project was also supported by consultants... good consultants.”</p> <p>H1. “The employee secondment was also used to avoid delays in projects. People with experience were moved into right places to keep the project moving and avoid delays...” (Middle Manager, DMRC)</p> |
| <i>Overarching dimension: Disrupting informal institutions</i> | |
| <i>3. Undermining assumptions and beliefs</i> | |
| <p>I. Lean organization with few layers of decision making</p> <p>J. Development time reduction</p> <p>K. Creation of a meritocracy system</p> | <p>I1. According to a DMRC Manager: “Unproductive layers of peons, clerks, stenographers and so on were avoided.”</p> <p>J1. One executive further highlights this issue – “The decision making on this project was quick independent and transparent.”</p> <p>K1. Another external development partner reveals that – “Dr. E Sreedharan will not take anyone; he looked for certain quality in his people. This is important.”</p> |
| <i>4. Sanctioning backsliding</i> | |

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|--|--|
| L. Non-compliance with deadlines led to penalties | L1. "We were encouraged not to waste time and ask people for help if we were stuck in projects." (Low ranking employee, DMRC) |
| M. Corruption mitigating processes | M1. "Sreedharan ignored the rule book on competitive tenders to award tenders to firms he trusted - but if they failed to deliver on time, quality and budget, they, too, were out" (Colebath, 2013). |
| N. Managing underspend in projects | N1. "We were told by our managers that time is money." (Low ranking employee, DMRC) |
| Overarching dimension: Creating institutions to fill in voids | |
| 5. Regulatory work | |
| O. Creation of a litigation and conflict resolution mechanism | O1. Special legal processes to facilitate efficiency in project delivery - 'Delhi Metro Railway Operation and Maintenance Act 2002' |
| 6. Normative work | |
| P. Introduction of waste management systems | P1. As Anuj Dayal, DMRC spokesperson points out (TOI, 2002) – "We do not have much paperwork. A filing system is almost non-existent as decisions are taken in consultation with the bosses and taken within an hour. The same efficiency is executed in the field where we have introduced new work practices and safety." P2. DMRC's sustainability credential was highlighted by another DMRC employee who said that "Since 1997, DMRC supported green practices in their offices." P3. The UKAS auditor Andrew Marlow highlighted the organizational innovation undertaken by DMRC, who said (IBN-Live, 2007) – "DMRC's efforts on water harvesting and energy saving are a model for other big organization to follow." |
| Q. Talent Management | Q1. DMRC Employees were offered a free place on a one-year full-time programme - postgraduate diploma in Metro Technology and Management |
| R. Welfare of employees | R1. "For DMRC, it was key to introduce welfare clauses in their project..." (Top Manager, JICA) |
| 7. Cognitive work | |
| S. Employees are given independent decision-making rights | S1. As Dr. E. Sreedharan puts it – "In very complicated projects, you can't put a generalist at the top... the most competent person has to be found, empowered, and trusted." S2. "Deadlines and budgets had to be realistic and achievable, but once set, they were not to be altered, save in compelling circumstances. Once a decision was made, it was final" (Colebath, 2013). |
| T. Speedy payment made to the contractors | T1. "DMRC was quick to pay, which helped us a lot..." (Middle Manager, External contractor) |
| U. Improving work ethic among employees | U1. The clocks were visible in offices and in public areas when the staff was working to a crucial deadline (observed by the researcher on the project site). |
| V. Contractors treated as development partners | V1. "Contractors have apprehensions. It is important that DMRC people understand this. Delhi metro people will talk to their contractors. There is mutual trust between contractors and DMRC...Contractors feel like they belong to the Delhi metro family" – A development partner. |
| 8. External legitimacy work | |
| W. Creating value for public consumption | W1. As a Delhi resident observed (TOI, 2003b) – "When I sat in the Metro, it felt like I had stepped into another country. You expect countries like Japan to have such technology and efficiency, but this just keeps getting better." |