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A Study of Public-Private Collaborations in India's E - Governance Infrastructure for Public Goods Provision

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ABSTRACT: This article explores the dynamics of public-private partnerships (PPPs) in the context of infrastructure investment and the provision of public goods in India, highlighting the institutional challenges that hinder effectiveness. It leverages concepts from institutional economics, particularly focusing on transaction costs and information asymmetry. The aim is to identify the conditions that contribute to the success or failure of PPPs. The discussion introduces PPPs as a novel governance framework that offers advantages over traditional structures, particularly regarding contractual standards, uncertainty in transaction costs, asset specificity, and information asymmetry, facilitated by effective monitoring and incentive systems. Additionally, the article addresses certain technological challenges associated with integrating transaction cost and information economic theories into the PPP framework, specifically analyzing the application of the PPP model within the realm of ICT development projects initiated by the Indian government, particularly in the area of e-governance.

KEYWORDS: Public-Private Partnership, incomplete contracts, monitoring, incentives, information asymmetry and costs, e-governance

I. INTRODUCTION

India stands out as the country with the highest number of Public and Private Partnerships (PPPs) at both the central and state government levels, particularly in the realm of infrastructure and public services. Reports from the Department of Economic Affairs, Government of India, indicate that the primary sectors benefiting from PPP initiatives include Energy, Social and Commercial Infrastructure, Transport, and Water Sanitation. As illustrated in Figure 1, the distribution of PPP projects across these sectors as of 2015 reveals that a significant majority, approximately 69%, are concentrated in the transport sector, which encompasses airports, inland waterways, railways, and roads. The remaining sectors exhibit a relatively balanced distribution of the total number of projects.

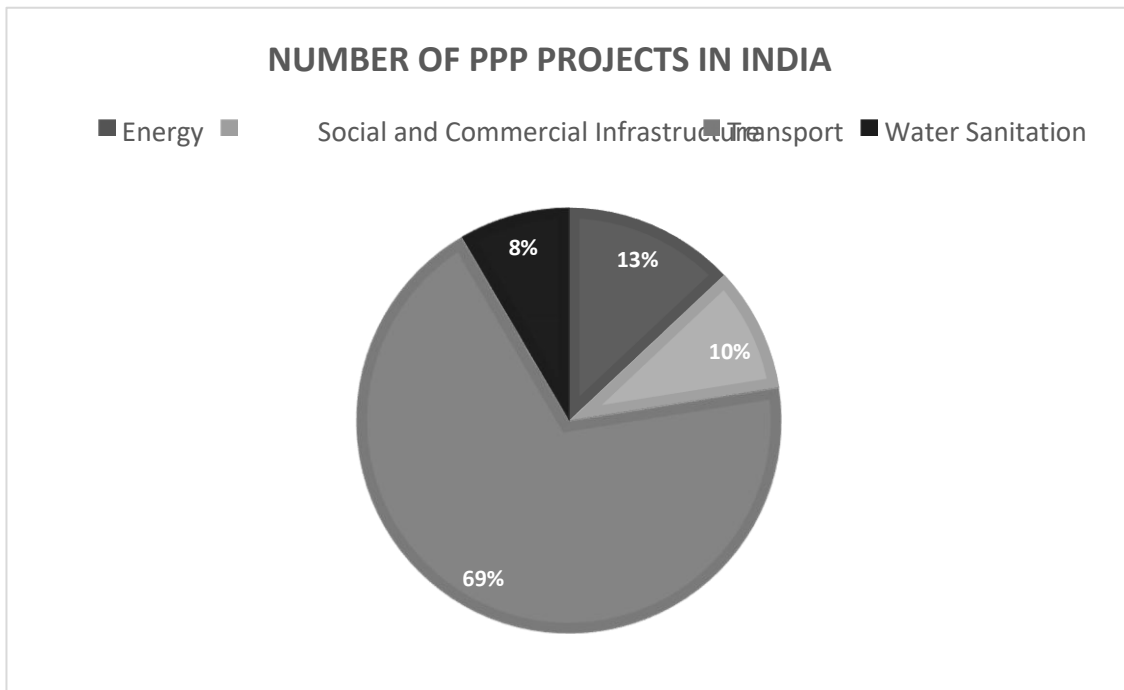


Figure 1: PPP projects distribution in India for FY 2015

The concept of "public-private partnership" serves as a flexible framework for privatization. It is broadly understood as a collaborative arrangement where a government entity and a private organization, whether for-profit or nonprofit, work together to execute activities typically managed by the public sector. More specifically, it refers to a sophisticated relationship that often includes at least one governmental body and a group of private companies tasked with developing substantial, capital-intensive public infrastructure projects, such as highways, airports, public facilities, and water systems, as well as significant civic redevelopment initiatives. These projects are characterized by the involvement of private funding and management throughout the design, construction, and long-term operation phases, ultimately leading to public ownership. 2. The principle of good governance seeks to enhance accountability, professionalism, and reliability in the provision of public services. In pursuit of this goal, various reforms are being implemented, including the reengineering and privatization of state bureaucracies, the decentralization of authority to local communities, and the adoption of managerial practices within governance structures. One effective approach to fostering good governance is the implementation of the public-private partnership model, which aims to improve the efficiency and responsiveness of government service delivery. 3. Public-private partnerships can take on various organizational structures, including User-Fee Based Build-Operate-Transfer models, Annuity Based Build-Operate-Transfer models, Performance Based Management/Maintenance Contracts, and Modified Design-Build contracts. The motivations behind establishing PPPs often include the government's desire to leverage private investment, distribute risks among multiple stakeholders in sectors characterized by high fixed and sunk costs, and harness the organizational and technological efficiencies of the private sector. Additionally, these partnerships can help mitigate moral hazard issues associated with public agents, particularly in sectors where externalities are present. Table 1.

S. No.	Contracting Out	Partnership Contracts
1.	Government and private company are in principal-agent relationship	Government and private company are involved in joint decision making and production
2.	Government defines problem, specifies solution and selects company to deliver the service	Both parties develop joint products that contribute to their interests
3.	Contractual transparency includes rules for tenders, bidding, service provision, inspection and monitoring	Relational transparency includes building trust to align interest goals and decrease opportunism

Table 1: Differences between contracting out and partnership contracts

The PPP model also fits in the principal-agent framework (Jensen and Mekling cite their article) as illustrated in Figure 2. Here, the owner of the project i.e. the government acts as the principal who supervises and inspects the private sector participant, the agent who is the executor of the project. The quality of the project depends on the degree of effort the agents puts in. This effort is unobservable by the principal and thus acts as an information advantage to the agent (Wang and Lui, 2015). However, on proper contracting terms for both parties, PPP is least prone to the moral hazard problem as we shall see from our case analysis.

A report from the World Bank indicates that India emerged as the leading market for Public-Private Partnership (PPP) projects among developing nations. In 2011, India was responsible for more than half of the total investments in new PPP initiatives within these countries, having launched 43 projects that garnered a total investment of \$20 billion (Business Standard, 2013). The Indian government has since entered a second phase of investment focused on operations, which involves the integration of the PPP model into Information and Communication Technology (ICT) for Development, particularly in e-government initiatives. This article elaborates on two successful e-government projects that utilize the PPP framework.

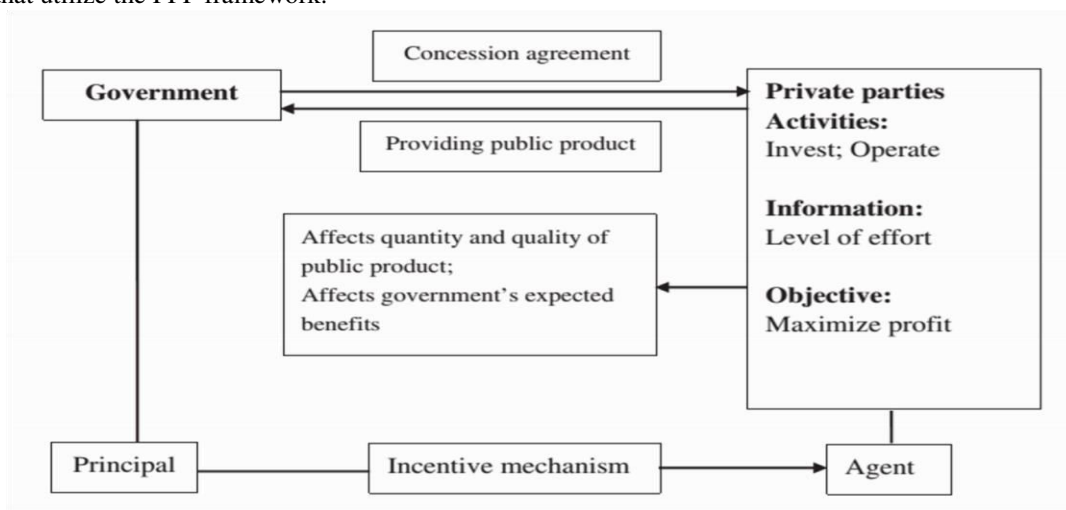


Figure 2: The principal-agent relationship between the government and private parties

The year-wise distribution of PPP projects in India, as illustrated in Figure 3, reveals notable increases in both the number of projects and investment levels, primarily driven by institutional shifts such as changes in government at the central or state level. While the Government of India has consistently ramped up its investment in PPP projects, understanding the status-wise distribution of these initiatives is crucial for a comprehensive grasp of the PPP model. Figure 4 presents the categorization of projects as completed, operational, under construction, or terminated (Database of Infrastructure Projects in India). It is noteworthy that none of the projects recorded in the database have reached completion; however, 44% are operational, 38% are still under construction, and 6% have been terminated.

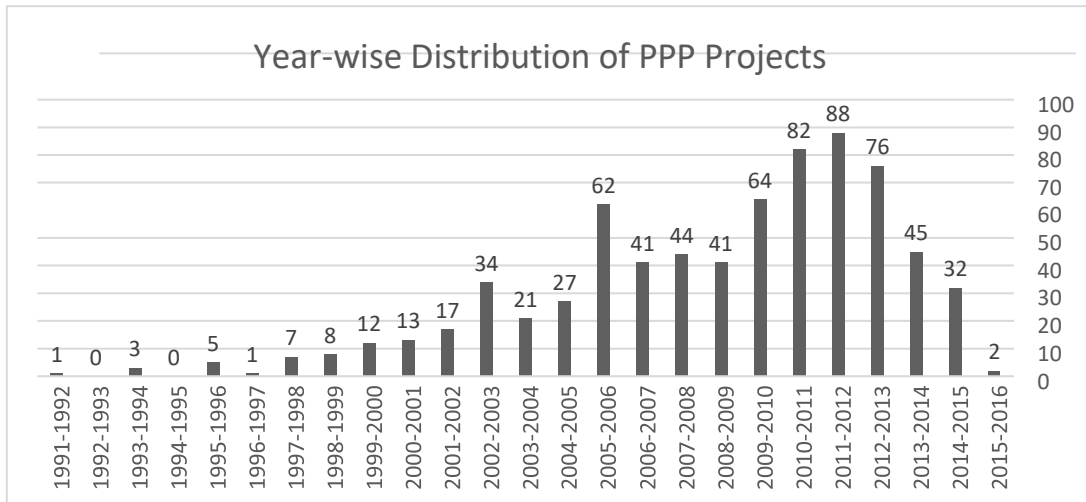


Figure 3: Year-wise distribution of PPP projects in India from 1991-2016

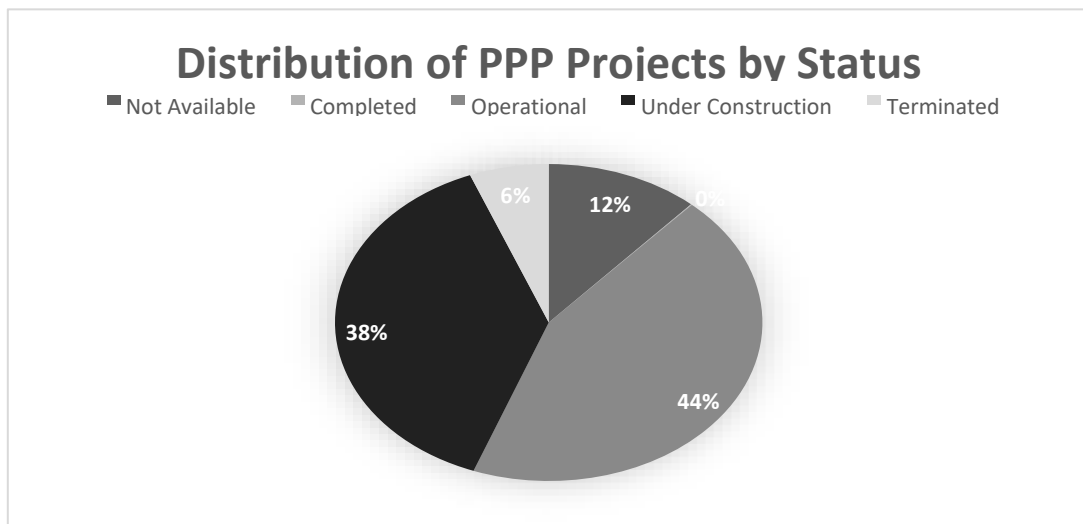


Figure 4: Distribution of PPP projects by Status of Completion in India in 2015

The data illustrated in Figures 1-4 raises two critical inquiries concerning the adoption of the Public-Private Partnership (PPP) model by the Government of India. First, why is there a lack of explicit reference to PPP initiatives in the context of public goods provision, particularly in areas such as Internet and Communication Technology (ICT) driven governance? Second, given the numerous PPP projects that have either been stalled for years or prematurely terminated, what underlying factors contribute to the failures of the PPP model? Consequently, this research aims to identify the essential conditions that facilitate the success of PPPs within e-governance projects.

While many PPP initiatives incorporate ICT models to achieve developmental objectives, they often remain unrecorded in government documentation. E-governance is anticipated to enhance transparency and mitigate corruption in public goods delivery. However, numerous PPPs have fallen short of their targets, failed to secure investments post-contracting, and imposed higher costs than efficient pricing on stakeholders, necessitating an examination of the reasons behind these shortcomings in e-governance initiatives. Our theoretical framework is grounded in Transaction Costs Economics (TCE) from New Institutional Economics, which explores the organizational choices made by private agents in the face of incomplete contracts and potential opportunistic behaviour at the ex post contractual stage. Additionally, information economics investigates how imperfect information can lead to adverse market selection, resulting in subpar service providers. Agency theory highlights the risks of moral hazard and the associated high costs to the public, exemplified by the challenges faced by individuals in obtaining ration cards, which often involve transaction costs such as bribes due to a lack of awareness regarding their rights and government processes.

II. THEORETICAL FRAMEWORK

The core principle underlying market exchanges among various economic agents is the concept of specialization economies. Nevertheless, engaging in market exchanges incurs transaction and information costs associated with identifying suitable buyers and suppliers, evaluating the quality of service providers, and the processes of drafting and executing contracts. Coase (1937) posited that the market mechanism is hindered by transaction costs related to searching, formulating, and executing contracts. As a result of these transaction costs, firms emerge as organizational entities designed to minimize market transaction costs. A firm will internalize economic activities until the marginal costs associated with its internal bureaucratic structure align with the marginal transaction costs present in the market, thus defining the firm's boundaries. Once economic activities are internalized, resource allocation is managed by hierarchical structures rather than solely relying on price mechanisms. The relationship between organization and market exchange essentially represents a balance between the benefits of specialization among economic agents and the internalization of economic activities.

Williamson (1985) examined transaction costs through the framework of contracts, emphasizing their significance in governance decisions while treating technology as a constant. In his 1991 work, he explored three categories of contracting laws relevant to markets, hierarchies, and hybrid structures: classical contracts, neoclassical contracts, and doctrines of excuse and forbearance. His analysis highlighted the nature of incomplete contracts, acknowledging that it is impossible to account for every potential contingency within a contract. The behavioural assumptions underpinning his analysis include bounded rationality and opportunism. Bounded rationality, as defined by Simon (1957), refers to decision-making that is rational but constrained by limitations in information and cognitive capacity. Opportunism is characterized by self-interested behaviour that may involve deceit. Initially, in the ex ante phase of a contract, the market operates competitively; however, once two parties enter into a contract, the dynamic shifts to a bilateral monopoly.

The contemporary property rights framework established by Grossman and Hart (1986) and further developed by Hart and Moore (1990), which builds upon Williamson's theory of incomplete contracts, emphasizes the structuring of collective efforts and the incentives of economic agents. This perspective views the firm as a collection of property rights, highlighting the significance of physical assets within contractual relationships. When two agents, referred to as A and B, possess both human and physical capital, they are motivated to form a contract for collaborative production if the synergy of their assets yields a greater surplus than if they operated independently. This implies that the assets involved exhibit complementary characteristics. Given that contracts are inherently incomplete, each party retains residual rights concerning the use of their physical assets, which arise from unspecified conditions in the contract. The ownership of these physical assets confers control rights. A's motivation to acquire B stems from the desire to assume B's residual rights, particularly when A requires B's involvement to enhance investments in relationship-specific assets, despite B's lack of motivation to invest. A merger would grant a comprehensive control over all physical assets necessary for production. The outcome of such a merger is influenced by the pre- and post-merger incentives of the agents regarding investment and surplus sharing. A's full control rights post-merger lead to an increased surplus for A, which consequently diminishes B's surplus and modifies B's incentives within the newly merged entity. As control rights empower them to assign tasks and terminate employees, effectively restricting their access to the firm's physical assets. Additionally, a merger can strip managers of their control rights, potentially prompting them to leave the organization. In instances where the acquiring firm fails to implement suitable incentives and management strategies, such mergers may ultimately prove unsuccessful.

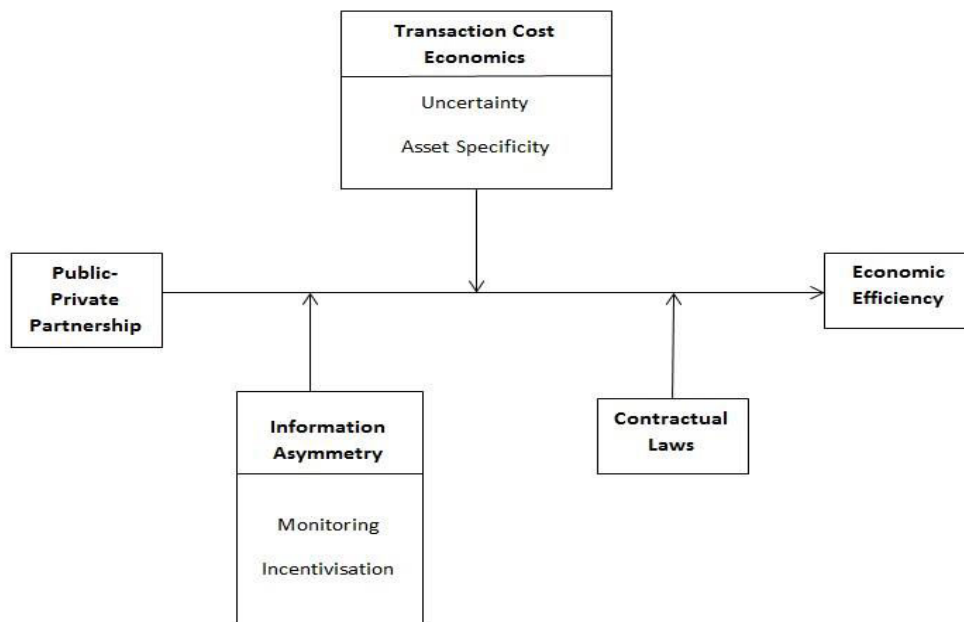


Figure 5: Conceptual Model

III. THE ANALYSIS OF CASE STUDIES

The implementation of Public-Private Partnership (PPP) contracts is influenced by the nature of the relationships between the involved parties within their governance frameworks. For instance, disputes arising from contract failures in market settings tend to be more rigorously addressed through litigation, in contrast to hierarchical structures where issues are typically resolved internally. This distinction arises from the fact that market participants often lack long-term relationships, while those within an organization benefit from sustained coordination. In the context of the PPP model, the interaction between government entities and private firms is governed by explicit Service Level Agreements (SLAs) that focus on outcomes, enabling both parties to negotiate, agree upon, and formalize their deliverables. This arrangement resembles an outsourcing framework, where private firms are contracted for extended periods, generally ranging from eight to ten years, after which the contract may be renewed or ownership transferred back to the principal. The SLA stipulates that the IT firm must deliver specified services in exchange for regular, fixed payments, and any breach of contract by the agent can result in penalties as per the established terms.

Furthermore, the participation of the private sector in these transactions mitigates the financial risks for the government, as both parties collaboratively utilize the assets involved. For example, in the Build, Operate, and Transfer (BOT) model of PPP, the private entity is responsible for the costs associated with constructing and managing the ICT project, which is subsequently handed over to the government, which then focuses on maintenance and operational use. In this scenario, the government can instruct the private firm to establish computer kiosks across various districts in India and manage them with their own personnel. Consequently, the government is relieved from the obligation of investing in specific assets, such as technological hardware and software, as well as human resources like kiosk operators, thereby reducing asset specificity.

3.1 MCA-21

MCA-21 is India's 1st Mission Mode Project (the highest priority rating assigned by the Indian government) under the National e-Governance Plan (NeGP). The Ministry of Company Affairs (MCA) was responsible for the project which was first launched as a portal on February 18, 2006 in Coimbatore, Tamil Nadu with the aim of providing 21st century services to the citizens (G2C), business groups (G2B) and government (G2G). The MCA-21 project was implemented as part of the MCA's vision: "To be a leader and partner in initiatives for Corporate Reforms, Good Governance and Enlightened Regulation, with a view to promote and facilitate effective corporate functioning and investor protection". The stakeholders involved in this project are given in Figure 6. The services provided by MCA-21 to various stakeholders were as follows (Administrative Reforms Commission 11th Report):

1. **Business:** to enable registration of a company and file statutory documents quickly and easily
2. **Public:** to get easy access to relevant records and effective grievances redressal
3. **Professionals:** to enable them to offer efficient services to their client companies
4. **Financial Institutions:** to easily find charges for registration and verification
5. **Employees:** to enable them to ensure proactive and effective compliance of relevant laws and corporate governance

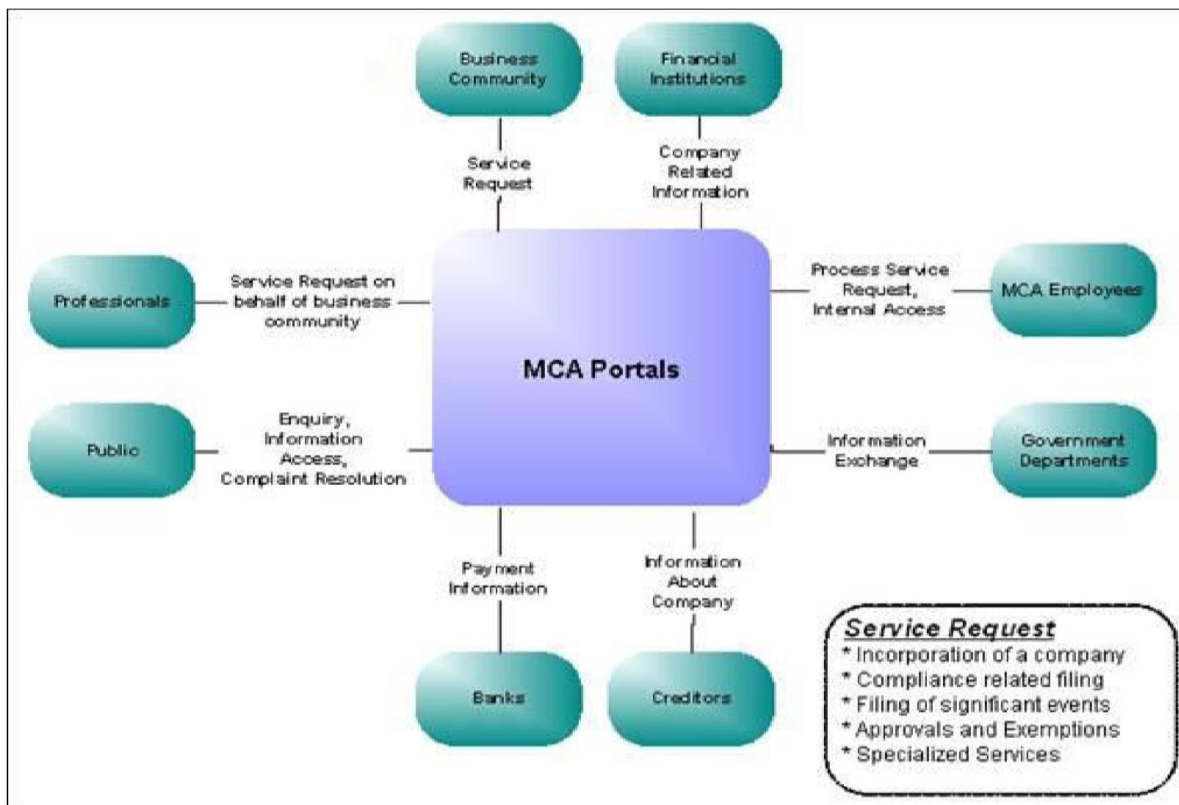


Figure 6: Different stakeholders in MCA-21 (Source: mca.gov.in)

IV. CONCLUSION

This article investigates the effectiveness of Public-Private Partnerships (PPP) as a mechanism for e-governance in India, particularly through the lenses of Transaction Cost Economics and the challenges posed by Information Asymmetry. Additionally, it addresses various technological concerns related to information within this context. The analysis highlights the complexities involved in the relationship between public and private entities, emphasizing the need for a nuanced understanding of these dynamics. Within the public sector, there are two distinct levels of agency issues: the first arises between citizens and their elected representatives, while the second occurs between the government and private entities. This discussion primarily centers on the latter moral hazard issue, delving into the roots of information asymmetry and examining the implications of contracting norms and transaction cost economics. The article aims to introduce a fifth governance structure to complement Williamson’s established framework, which includes markets, hybrids, hierarchies, and public bureaus, as proposed by Patibandla. By focusing on the Indian government’s efforts to deliver public goods and services online, the article posits that the PPP model serves as an effective strategy for mitigating moral hazard issues. This model establishes clear terms and conditions for both the government (the principal) and private firms (the agents), thereby reducing the risks associated with information asymmetry. The analysis includes case studies of two notable e-government initiatives, MCA-21 and Akshaya, with MCA-21 exemplifying a successful collaboration between the Indian government and Tata Consultancy Services (TCS) for the design and implementation of the project.



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