

## **eGovernment in India: A Model for Future Success**

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## **eGovernment in India: A Model for Future Success**

**Abstract:** Despite being a world leader in information technology, India's domestic IT infrastructure is limited, particularly within the government. In this paper we examine the key reasons India has until now largely failed in realm of eGovernment, emphasizing the relationship between the government and private sector, structural constraints within the government, and eGovernment leadership. Through evaluation of a few successful Indian eGovernment projects and eGovernment experiences in other parts of the world, we draw lessons for future Indian eGovernment efforts. We then argue that eGovernment projects utilizing private sector development and provision of services on a transaction fee basis offer a potential model for success, particularly in the delivery of services to citizens.

## **eGovernment in India: a Model for Future Success**

### **1. Introduction**

India is known today to be a giant in the field of IT. Indians in many parts of the world develop and run IT systems for corporations and governments and it is believed that they are especially talented in this field. Increasingly the country is being looked upon as a destination to outsource IT services. Noted economist Thomas Friedman, inspired by India's role in IT and IT enabled services internationally, observes that at last "The World is Flat" (Friedman 2005). At the same time, the fear of losing jobs to Indians is creating a backlash in the West with political pressure to ban the outsourcing of IT services to India (Business Week 2004).

One would expect that a country with such skill and an international reputation for building IT services would have the finest IT infrastructure domestically, to serve its private enterprises and government bodies. But the situation is in fact quite different. According to Kiran Karnik, President of Nasscom India (the National Association of Software and Services Companies), "[i]t is a cause of concern that the current focus of eGovernment projects is unfortunately on hardware spending rather than on process re-engineering and software services. About 60 percent of government IT spending is now on hardware, 25 percent on package software and only 15 percent on software services" (Hindu Business Line, 2003).

That India would benefit immensely by introducing IT in various government departments and providing IT-based services to its citizens has been acknowledged for quite some time. Computerization of railway reservations was done in the late Eighties and has made an immense impact on Indian society. This single example has made Indians hugely conscious of the benefits of computerization and early concerns that computerization will result in a displacement of labor in a highly populous country such as India soon faded. In reality, *the scale* of railway operations increased many fold through computerized operations and the impact on

employment was in fact positive. (Box 1 provides further details on the computerization of the Indian Railways)

Despite this positive response to early attempts, progress in other areas of eGovernment has been surprisingly minimal. Since the early 1990s, computerization has been introduced in many other government departments, both at the Central government level as well as the State government level. However with the exception of the introduction of a computerized voter list and an Electronic Voting Machine, no technological intervention has made any similar impact.

[Insert Box 1 approximately here]

This paper analyzes why a country with such remarkable ability in the IT field has so far been able to do so little by way of computerization in the context of its own Government departments and the provision of eGovernment services to its citizens. Section 2 examines this failure in greater detail. However this paper is not meant merely to analyze the reasons for failure, but also to suggest potential ways in which some of these problems can be remedied so that India can move ahead in this sphere. Section 3 therefore looks at eGovernment models in other parts of world from which we may draw lessons. In Section 4, we argue that eGovernment projects utilizing private sector development and provision of services on a transaction fee basis offer a potential model for success. Section 5 concludes the paper.

## **2. Factors Impeding Successful eGovernment**

It is necessary to define our use of the term “eGovernment”. There are a variety of ways in which the term is used in academic and policy literature as well as in government practice. In the simplest sense, eGovernment is the use of information and communication technologies (ICTs) in governance. InfoDev takes a more normative view of eGovernment as the use of ICTs “to transform government by making it more accessible, effective and accountable” (InfoDev, 2002). As we will see from a few specific Indian examples, however, ICTs do not guarantee that

government services meet these standards. The UN acknowledges this limitation, noting that “it will not be ICT by itself that redirects and re-shapes the functions of governments making them somehow different or better. However, ICT can certainly contribute to changes in the ways in which governments operate” (UN 2003, iii). Our definition will rely on the former, more optimistic definition, viewing eGovernment as the introduction of ICTs in government operations, for improving levels of efficiency and reducing corruption.

Typically eGovernment is seen as applicable to three areas of government activity – the delivery of public services, the conduct of government business and the voting process. Digital technologies – including computers, the Internet, mobile phones – and call centers can all be utilized to develop eGovernment services in these three areas.

There have been from time to time excellent individual eGovernment initiatives in different parts of the country, which have been both well conceived and painstakingly implemented, including eSeva in Andhra Pradesh, Bhoomi in Karnataka, and FRIENDS in Kerala (Bhatnagar 2002). The impetus for these initiatives came from particular government officers who were personally committed to overseeing their success. In most cases, however, there has not been any kind of fundamental institutional transformation that ensures the continued success of the project once the specific government officials involved have been transferred out of the region. The initiatives therefore suffer from a great amount of uncertainty, relying on the efforts of particular officers whose tenure may be short-lived or unpredictable (Kumar & Best 2006).

Barring these initiatives, eGovernment efforts in the country have been dismal, despite various departments of the Central and State governments spending large amounts of money on the projects. The Government computerization process today largely involves the disparate purchase of “expensive computer hardware,” “expensive networking equipment” and “expensive

packaged software.” Indeed, word processors have come to replace manual typewriters in Government offices, but beyond that there has been little impact. Even the amount of paper used in government offices has not significantly declined. It has taken nearly 15 years after the introduction of computers and connectivity for some government departments to start using email and even today this is not recognized as an official means of communication. Routine email notices are followed up with a confirmation fax or letter.

In this paper, we identify factors in three key areas that can affect the ability of the government to successfully implement eGovernment projects:

- 2.1) The Relationship Between the Government and the Private Sector
- 2.2) Structural Constraints Within the Government
- 2.3) The Character of Leadership in eGovernment Projects

## 2.1 The Relationship Between the Government and the Private Sector

We will discuss the relationship between the government and the private sector first within the context of eGovernment projects to date, and then more generally, to highlight broader characteristics of the relationship that could affect eGovernment efforts.

### 2.1.1) Characteristics of Government-Private Sector Relationships in Past Projects

a) eGovernment efforts have been influenced by aggressive marketing by vendors. Large multinational corporations have used the opportunity to sell either hardware, networking equipment or packaged software to the government agencies. Local representatives of these companies are motivated more by individual sales targets than the overall success of the projects.

b) The specifications for purchase are also highly influenced by the vendors. Most government officials on purchasing committees have little expertise in the area and are therefore easily swayed by vendors who organize workshops and invite experts in order to influence the specifications to suit their own products. The committee responsible for making decisions on specifications often brings in a few professionals and academics with a relevant background to assist on a part-time basis, but even these persons do not have a complete understanding of how to build a computerization process for a government department within the one-time and recurring budgets available. Such “experts” spend too little time understanding this task, rather helping the government only to decide from which vendor to buy products. Many external consultants clamor for the power to influence such large purchases, and some are swayed by the “latest gadgetry” without due consideration for the usefulness or affordability in India.

c) Related to the previous point, there is no emphasis on a sustainable solution that takes into account what the government can spend to scale the service and on an ongoing basis. The projects tend to focus on a one-time purchase. This “one-time purchase” syndrome stems from the system of budget allocations in the Indian government, where it is easier to get large funds for one-time investments (from the plan funds) rather than recurring amounts. The projects therefore tend to be front-loaded, and heavy purchase of equipment and packaged software is considered the best option.

d) Government officers also enjoy the sense of power in dealing with large budgets associated with the one-time purchases and the vendors who vie for orders. Corruption, in the form of bribes, is not uncommon in these transactions, even among higher ranks. Vendors thus often use aggressive and sometimes questionable practices to win the orders.

e) Recognizing that internal government organizations are unable to effectively carry out the task of computerization, various government agencies are considering the involvement of private companies and the forging of public-private partnerships for this purpose. While this is a welcome step, it is still too little and too late. Further, governments today focus only on large private parties with the Request For Proposals explicitly requiring the participating companies to have considerable size and experience. Risk-aversion or “urgency of the task” is used to bar small and medium sized companies, who may be able to offer a more optimized solution.

While choosing a private company with a proven record is desirable, there is a disadvantage associated with exclusive partnering with larger software solution companies in the Indian context. These large companies have grown largely by providing services to the market in the West. While Western clients demand quality, which enhances the efficiency of service delivery, they are also able to pay “dollar rates”. Such “dollar rates” are unaffordable within India as a whole and even less so in the government sector. This has prevented larger Indian technology companies from participating enthusiastically in eGovernment projects and when they do participate, they most often use their “personnel on the beach” to carry out the task, thereby potentially reducing the quality of output.

The answer to this problem might lie in involving small or mid-size companies who can learn to provide services in accordance with Indian affordability. This is crucial not just for the government sector in India, but also for non-IT private sector companies. In many countries, small and mid-size companies garner government contracts in order to grow. In India, however, by explicitly denying them this opportunity, the government hurts its own computerization process as well as slows down the growth of these smaller companies.

These characteristics of the relationship between the government and the private sector in eGovernment projects show that the computerization of governments in India is more often about purchases than it is about the provision of sustainable solutions to improve efficiency. Additional examples of how these trends play out in practice include cases where expensive Giga bit Ethernet switches from a vendor are purchased to wire-up a department and the only use of the network is email, which even the lowest end switches would be able to handle. The irony is that Internet connectivity to the whole department is limited to 64 kbps to save recurring budgets. In other instances, servers from large corporations are purchased only to provide e-mail services. Hundreds of licenses for operating systems are often bought right at the beginning of projects, taking away 30-40% of the total budget and leaving little money for anything else. Sometimes, expensive workstations are purchased as clients, and by the time they are delivered, installed and put to use, the Annual Maintenance Charge (AMC) becomes equivalent to what it would cost to purchase the same equipment afresh. This is because purchases are often made of the latest equipment whose prices fall to almost 50% in a year's time, which is the time taken to float the tenders, award the orders, take delivery of the equipment and have it installed.

#### 2.1.2) General Characteristics of Government- Private Sector Relationships

a) At a more general level, the government in India has a basic distrust toward private enterprise. Any profit-making organization is looked upon at the first instance as working for narrow profit motives and not considered fit to be a partner in the governing process. This is particularly true with regard to domestic companies. Amongst government officers, there is a sense of superiority vis-à-vis the personnel in the private sector and also resentment with regard to the higher salaries in the latter sector – especially within the IT industry. Government officers therefore often feel

that they are making a “personal sacrifice” in the national interest. As a result of this attitude, government officials often resort to petty behavior and harassment when dealing with individuals in the Indian private sector, and suspicion and disdain are often openly displayed in meetings.

b) Besides the general mistrust of the private sector, the government officers often raise issues of “confidentiality” and “security,” as there is a concern that if a private party were involved in a government project, there is a danger of misusing government data. While this is in fact true in certain strategic sectors, in the case of most other government departments this is merely a fear that is played up to shut out the private sector. Moreover, there is very little thought actually given to what ought to be considered “classified” or “confidential,” resulting in an attitude of secrecy over almost all official documents. There is also a baseless notion that employees of the private sector are more dishonest compared to those in the government sector. In spite of all of this, however, in most departments very little is done to protect the confidentiality of documents. In actual fact there is no reason to believe that the involvement of private parties in computerization, after careful selection of a suitable organization and drawing up of appropriate agreements, would in any way compromise government security.

c) Despite the policies of economic liberalization that the country has adopted since the early Nineties, the transition of government mindset away from a controller of private enterprise to a facilitator has been a slow one. A consequence of the aversion to “profit” and the fear of a compromise on “confidentiality” is that the government, using its own resources, builds many computerization processes internally. The National Informatics Center (NIC) is a government entity whose primary responsibility is government computerization. While NIC has done a creditable job in several cases, limiting the choice of implementer to NIC has been one of the

main bottlenecks in government computerization. While at one time NIC got top quality professors, this is no longer the case, as highly skilled individuals are drawn to the private sector. Besides NIC, there are several other government-owned companies and societies involved in the task of computerization. Unfortunately the disadvantages pointed out in the case of the NIC are present in equal measure with these other organizations. The computerization of the government therefore begins with a disadvantage and, as a result, most projects merely become about demonstration, where presentation or exhibition of the product is all that is achieved, and benefits to citizens become a secondary issue (see Box 2).

## 2.2. Structural Constraints Within the Government

Internal government factors also affect eGovernment initiative outcomes, in particular a lack of integration across departments combined with low levels of resources in many departments.

a) There has been little sharing of information and integration of projects across departments. While citizens might benefit from a single access point where they can receive multiple government services, the departments themselves have rarely been able to coordinate with each other in order to provide these integrated services. One exception is the eSeva initiative in Andhra Pradesh, where citizens can visit an eSeva center and gain access to more than 66 services across departments. Even with this successful model in place, it has been difficult for other states to achieve the same level of integration. This lack of integration across departments prevents both knowledge sharing and economies of scale from joint projects, in addition to creating the risk of duplicated efforts by multiple departments.

b) Varying availability of resources across government departments also constrains eGovernment development. Observations of historically successful eGovernment projects show that the most viable initiatives often come from revenue-producing departments such as Internal Revenue or the Railways. These departments use revenues from basic operations to establish eGovernment projects. They also have an added incentive to build eGovernment projects in order to decrease operating costs and potentially increase revenues (as we saw occurred in the Railways case).

Non-revenue making departments do not have the same kind of resources, despite the fact that eGovernment services in areas such as social services could produce efficiencies that would directly benefit the most needy citizens. They also do not have the direct measure of increases in revenues to gauge project success. Finding models to make eGovernment viable in these departments could provide significant improvements in key government services.

Another constraint on eGovernment implementation in India is that the Central Government has most of the revenue while the revenues of the State Governments are small and largely committed. However, it is the services that the State Governments could provide that would largely benefit citizens. The state governments therefore wait for resource allocation from the Centre, and the uncertainty associated with the allocation prevents any effective long term planning at the state level. When allocations are made they are made suddenly, in large amounts, and there is pressure to spend money immediately. This reinforces the “one-time purchase” syndrome discussed in the previous section.

### 2.3. Character of Leadership in eGovernment Areas

The last area of problems in eGovernment initiatives that we will consider in this paper is leadership. As we note below, leadership has been highlighted as one of the key factors driving

success in eGovernment around the world, and the same is true in India. But early eGovernment leadership can also limit success, rather than ensuring it, as we saw in initial Indian efforts.

a) Often in early Indian eGovernment projects, departments were allowed to maintain the parallel non-digital processes they had used in the past. The expectation was that this would smooth the transition to digital processes, but in practice parallel systems generally prevented the transition from occurring because people were more comfortable simply sticking with their old systems. Without leaders who demand a full changeover to new systems, the chances are slim that an eGovernment system will ever be fully implemented. These leaders must implement thorough change management processes and ensure that they are utilized in order to support eGovernment success.

b) The frequent transfer of personnel within the Indian civil service is another serious issue. Often eGovernment projects are led by a single individual champion, and if that person is moved to a different post the projects typically collapse (Kumar and Best, 2006).

With this context of the Indian experience in mind, we now expand our view to eGovernment systems around the world. This broader perspective will show how Indian trends fit within the global context, and what opportunities might exist for India to improve its eGovernment efforts.

### 3. Theories and Experience of eGovernment

#### 3.1) The eGovernment experience

The Indian experience must be understood within the context of broader eGovernment activities in the world. For the purposes of benchmarking, multiple efforts have been made to gauge global

progress in eGovernment, including studies by Darrell West, Accenture, and the United Nations. These reports evaluate eGovernment experiences over time in both developed and developing countries, thereby providing perspectives on key trends and themes emerging from eGovernment efforts.

In large part these surveys gauge the maturity of eGovernment initiatives while also considering factors that have made these projects more or less successful. In reference to the maturity of applications and services, West (2005) finds that the most common eGovernment offering is information and publications, with 89% of government websites providing access to publications (West 2005; 4). Only 19% of eGovernment websites provide online or ICT-enabled services to citizens. Service provision is also dominated by the West and Asia, with 56% of sites in North America, 38% of Asian sites, and 20% of Westerns European sites providing services, compared to only 7% in Africa.

The types of information and services being offered also reflect few changes in back office processes, despite digitization. The UN's Public Sector Report (2003) notes that around the world, "applications tend to reflect low levels of back-stage re-engineering or inter-departmental co-operation. They tend to be based on a single capacity of ICT or a combination of a limited number of capacities" (28). Thus, while many countries are attempting to develop eGovernment initiatives, these initiatives are still limited in the depth of services provided and the quality of process re-engineering that is incorporated into the effort.

Another important finding is Finger and Pecoud's (2003) observation that a general shift toward the outsourcing of government services is aligned with eGovernment service provision by private sector operators. They note "the State no longer produces the services, but manages the providers of the services, including the new services that the private providers increasingly develop. From now on, the State has to monitor the provision and the quality, their prices, as

well as citizens' accessibility to them" (5). With eGovernment the role of government itself can shift from direct service provision to supervision and regulation of non-state eGovernment service providers. We discuss below the benefits of this eGovernment model.

Richard Heeks (2003) provides a general overview of factors driving the success or failure of eGovernment initiatives. The main areas he emphasizes are the overall drive for the project, strategy, management, design, capacities, and technology. In terms of project drive, there may be internal and external actors supporting eGovernment initiatives. The most successful projects will have drivers in both categories. It is also important that these drivers have a clear vision and strategy for the project, because even the most well-meaning and well-funded projects can fail without a clearly defined plan. Once a project is designed it must also be managed well and operated by people with the appropriate competencies for the technologies and processes involved. Heeks' analysis is supported by the UN (2003), which also emphasizes the availability of funding, the presence of an appropriate legal framework for eGovernment transactions, public engagement in the project, and utilization of private sector partners to support initiatives.

In sum, these trends highlight the progress being made in global eGovernment, but also the many difficulties faced by governments attempting to utilize ICTs in their activities. In the next sub-section we highlight some examples from developing countries that help to illustrate the particular difficulties faced by countries such as India.

### 3.2) Examples from developing countries

There are a few studies of specific eGovernment implementation efforts in developing countries that highlight many of the trends noted above. In South Africa, de Tolly et al (2006) emphasize the difficulties of providing even basic government information online. The Cape Gateway portal initiative collected government information that was made available online, through a call center, and in a downtown Cape Town office. While the Government of the Western Cape received

largely positive reviews for the initiative, the project experienced key difficulties in the areas of content development, data collection across many government departments, and low levels of access to ICTs in the local population.

The Colombian government initiated a major eGovernment initiative in 2000. By Presidential mandate all departments were required to create a website, offer all public procedures online, and conduct all purchasing online. These services are accessed through a government portal that was launched as a part of the same “Connectivity Agenda.” This initiative is seen as a successful effort to encourage e-services development through the use of both required implementation and assistance from a centralized technical support team (Porrua & Rinne 2001). In contrast to the South African example, the Colombian government did not incorporate access initiatives into its eGovernment project, despite an Internet penetration rate of 2% at the time of its launch. Government policy makers were working under the belief “that producing a supply of useful material on the Internet can stimulate greater demand for Internet access, and thereby help to increase the penetration rate” (Ibid.).

In Brazil the state government of Bahia implemented Citizen Assistance Service Centers (SAC) to provide the services of multiple agencies in a single location. The number of available services varies across large and small centers, as do the operating hours. Analysis of the initiative notes that “[w]ithout strong pressure from the Governor of Bahia, individual agencies likely would not have joined in the SAC experiment” (Rinne et al 2001). Initial financial support was also seen as important to participation. One potential downside of this model is that citizens must still interact with multiple representatives, and perhaps stand in multiple lines, if they want to access services from different agencies.

Within India, the eSeva initiative of Andhra Pradesh, offers an even more unified example with a private sector twist. The state government supported eGovernment service

development across agencies and contracted with external companies to deliver these services in local centers. Thus the citizen can access multiple services at a single point of delivery, but they interact with an employee of a private company, rather than a civil servant.

Tamil Nadu's state government experience with the STAR initiative highlights the difficulty of eradicating corruption. As Vasudevan (2006) reports, digitization of land records, birth certificates, and other government documents limited some earlier corruption opportunities, but corruption emerged in new forms. As noted above, Kumar and Best's (2006) analysis of telecenter-based eGovernment initiatives in Tamil Nadu highlights the reliance of many projects on a single individual, making them susceptible to collapse if that person leaves the project.

Finding a model or models for eGovernment that help to alleviate some of the difficulties in implementation is the key focus of this paper and it is to these models that we now turn.

#### **4. A Potential Model for Success**

Given this context for eGovernment in India and examples from other parts of the world, we now want to discuss the specific models being used to implement eGovernment initiatives. This will allow us to highlight the strengths and weaknesses of each model. We subsequently propose that a transaction-fee based build-own-operate or build-own-operate-transfer model has the greatest potential to resolve many of the difficulties discussed above in a large number of eGovernment situations. Utilization of this model offers the opportunity for more efficient and effective provision of government services through the use of ICTs.

##### **4.1 Models of eGovernment**

There are three main models being used to implement and manage eGovernment programs. The first model involves complete ownership and operation of eGovernment systems by the government. The second model uses government ownership of the hardware and software, but incorporates outsourcing of maintenance and often operations to a private company. The third

model involves no government ownership of technology, with the government paying an external party on a transaction basis for providing services. We argue, based on the factors considered above and outsourcing experiences both inside and outside of India, that the latter model is the most viable for most eGovernment service provision, particularly for the provision of services to citizens. In this section we discuss each model and provide examples from India and other countries to highlight the pros and cons in each case.

In the government ownership model of eGovernment, a government department will purchase the hardware and packaged software needed to build an eGovernment system. The government will also subsequently develop any relevant software in-house. As discussed above, the NIC in India often develops the software for use on government systems. But this model is not used as frequently now as in the past. One of the key problems with the government ownership model is that this requires significant IT expertise within the government to make choices about technology purchases and development, and, as noted above, there is typically not this level of expertise available inside the bureaucracy. Especially within India, where there is a strong draw from the private sector for IT professionals, it is difficult for the government to offer competitive salaries and benefits to people with many other opportunities. Because of these limitations there are few areas of eGovernment where this model is appropriate.

In the basic outsourcing model, the government continues to purchase and own its hardware and software, but it contracts with an external entity to maintain and operate its systems. In this way the government does not require internal IT personnel to manage its systems. Payment to the vendor is most likely by a set fee based on the character of activities to be conducted on a regular basis. The benefit of this model is that it reduces the management burden on the government and allows experts in the field to be in charge of the system.

The third main model uses an external company to design, develop and implement the project at its own cost, with a guaranteed time period in which it can operate the system (Satyanarayana 2004, 86). This is typically called a Build-Own-Operate or Build-Own-Operate-Transfer model, depending on whether the government has an option to take over ownership of the assets at the end of a specified period. The expectation in this transfer model is that the initial period will be sufficient for the private partner to recoup their expenses and earn some additional revenues before turning the assets over to the government. In some cases the government will put out a new tender for operating the system at the end of the agreed period, which may or may not be won by the company who built the system. The private party gets some revenue for each transaction. Depending on the price, the user is charged for the transaction with the government and the implementer sharing the revenue so obtained. In other cases, the government subsidizes the service and pays the implementer a fixed amount for each transaction carried out. The example of Afilias India Ltd. taking over the registry services associated with the '.IN' country code Internet domain in Box 2 shows the tremendous improvement in performance that can be brought about by such outsourcing. [Insert Box 2 approximately here]

How does this model help governments to deal with some of the eGovernment difficulties discussed above? There are benefits to this model for eGovernment in each of the three problem areas considered above. In terms of the relationship between the government and the private sector, we can note multiple benefits. First, placing responsibility for revenues in the hands of the private sector reduces the risk of excessive and inappropriate equipment as well as software purchases. Projects should be less 'one-time-purchase' focused, and more centered on developing ongoing revenue streams. This also reduces the need for the government to acquire large amounts of capital to implement and maintain a project, which touches on the resource constraint issues also discussed earlier. The use of external technology partners also makes

access to high quality technology talent more likely than within the government. Finally, government concerns about information security can be resolved through service level agreements and incorporation of security measures into system design.

Structural constraints within the government can also be alleviated to some degree with this model. A single external agency may have more flexibility to build relationships across departments in order to build an integrated service delivery platform. While this will of course require the willing participation of departments and a clear allocation of fees, an external party may be able to avoid some intra-departmental politics. The revenue model for service provision, discussed in more detail below, also helps to alleviate the divide between revenue-producing and non-revenue-producing departments.

In terms of eGovernment leadership, transfer of operations to an external party with the mandate to digitize operations should alleviate both the potential of parallel processes and the dominating importance of a single individual champion. Once the contract is passed to the private partner, that partner's success is dependent on developing a single electronic process. Additionally, the contract between the provider and the department should hold even if the government representative who negotiated it is transferred. While this may not always be the case in practice, the chances are greater that the project will survive a personnel change than without a private sector partner.

In addition to overcoming some of the barriers inherent to many Indian eGovernment initiatives, this model also helps to achieve the main goals of eGovernment projects in general: reduced corruption and increased efficiency and effectiveness of government services. Management and operations by an external entity helps to increase transparency in government operations and reduce the potential for corruption in the system. While corruption may not be eliminated, the implementation of specific processes and service level agreements between the

government and its private sector partner helps to reduce the opportunities for corruption. The government is also less likely to allow its private sector partner to be corrupt, thereby making it more difficult for the government to be corrupt as well. The role of the government shifts from direct service provision to decision-making, regulation and monitoring, thereby reducing the number of occasions on which corruption could occur.

This model helps to improve service to citizens by automating processes and introducing private sector incentives for efficiency. The profit incentive helps to ensure that private sector operations run more efficiently and take better advantage of new technologies than may occur otherwise within government (Satyanarayana 2004, 80).

Given these potential benefits, the key difference we want to emphasize in this model from the other eGovernment models is the fee structure. There are two main models used to provide revenues to the vendor in BOO/BOOT models. The first model is based on a set fee, which is paid to the vendor on a regular basis. This fee structure makes the most sense when there are set activities for the vendor to perform which can be evaluated in terms of their ongoing costs, such as computerization and maintenance of government back-end systems.

The second type of fee structure is based on revenues paid to the vendor on a transaction basis. These transactions may be paid directly by citizens in cases where the vendor provides citizen-facing services, or by the government itself. In this case there is no guarantee on the revenues that will be made by the vendor in a given time period. While this implies some risk on the part of the private partner, the transaction model is particularly promising because it allows the outsourcing partner to take advantage of business opportunities present in citizen services. In other words the implementing private party now has a stake in ensuring that the citizens make maximum use of the services. It strives to exceed expectations, in fact, to ensure that the citizens are happy with the services provided. In order to be most successful, the model should utilize

low fees in a high volume environment, such as a Citizen Service Center in which many government services are being offered in a single location. This high volume, low cost model makes the transactions economically feasible for Indian citizens while taking advantage of the large number of services needed by each citizen.

While the transaction fee model is not yet prevalent in Indian eGovernment, this model could be the most appropriate for the significant number of citizen-facing eGovernment projects currently being developed by the national and state-level governments. In addition, this model has already proven successful in a few cases, both in the public and private sector. The following example shows how Bharti Tele-Ventures benefits from outsourcing its IT operations to IBM using an innovative revenue-sharing model.

[Insert Box 3 approximately here]

The transaction fee model presents many potential benefits to the government and private sector partners, but there are some key barriers to successful implementation that must be overcome. As discussed earlier the current dominant Indian IT players are accustomed to working in a western environment where the transaction fees that can be charged to citizens are higher than what is viable in India. Either the large IT services providers will have to modify their revenue expectations for the Indian context, or the government will need to pursue small and medium sized IT enterprises (SMEs) to fulfill their eGovernment needs. In either case, given the magnitude of potential eGovernment opportunities in India, it is likely that both large companies and SMEs will be required to fulfill the government's IT needs. The key is to understand that India has to be a 'low cost, high volume' game.

Widespread implementation of transaction fee BOO/BOOT approaches to eGovernment will also require a change of mindset within much of the government. As discussed above, government actors have often resisted external participation in eGovernment initiatives because

of a desire to retain control over government processes. In the BOO/BOOT model, government bureaucracies will be required to turn over much, if not all, of the daily operations of providing citizen services to an external party. This may be a difficult shift for many bureaucrats and will require conscious change management processes to ensure that the implementation of the system and changeover of operations runs smoothly.

Despite these barriers to implementation there is a significant additional benefit to this fee structure model for eGovernment outsourcing. The transaction model allows the provider to potentially earn more money based on high volumes of services. While there is also the potential that the vendor could make less money than with a monthly fee, the business model for the project should be developed to minimize this risk.

## **5. Conclusion**

In conclusion we want to consider some of the assumptions and implications of our proposed eGovernment model. A key factor to highlight here is the relationship, or lack thereof, between eGovernment initiatives and access to ICTs. We see eGovernment and access as separate aspects of evolving Indian ICT use. eGovernment initiatives may take access characteristics into consideration, such as through the provision of service centers, rather than relying on home computer and Internet access. Actors driving eGovernment may also see access as a component of the infrastructure for developing eGovernment, such as we see with the plans to provide 100,000 Common Service Centres in villages as a part of India's national eGovernment plan. But it is not necessarily the case that these two aspects of ICT use be tightly linked as they develop.

Instead of the government including access development as a part of their eGovernment projects, the introduction of private-sector provision of high quality eGovernment services could itself encourage the private sector to promote access. The competitive nature of service provision would mean that the partner company would make more money if more people utilize the

service, thereby creating incentives for access. However this may also demand that the government requires service provision in rural areas where profit levels could be lower. Ensuring broad access to eGovernment services is an important piece of requirements for external providers. But it would be counter-productive if the Government mandates that its services only be available in certain designated centers, rather than anywhere on the Internet.

The relationship between services and access is also reflected in the fact that the providers of government services will have the opportunity to modify the character of their services to meet changes in access levels and types of access. For example, given limited access to computers, but much higher access to mobile phones in India, it is possible that providers will develop service applications for mobile, rather than computer, access. Individuals might be able to go to a shared access service center for initial services, particularly those requiring significant data entry, and then follow-up on these services using mobile phone applications that provide immediate access to their application status with no data reentry required.

The model presented in this discussion is of course already being utilized in eGovernment initiatives. It is the success of these efforts, particularly in comparison to the many failures of other efforts, that helps to highlight the benefits of a mixed public-private approach to eGovernment service provision. In particular we argue that a model which transfers the delivery of services to a private actor who is incentivized through per-transaction fees will be the most successful in overcoming the public-private sector relationship difficulties, structural barriers, and leadership constraints which have impeded Indian eGovernment in the past.

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### **Box 1: The Indian Railways: An Early Example of Successful eGovernment**

India has a large geographical area and in the 1970s and 80s the only means of travel available to the 200 million middle and upper-middle class Indians was the Railways. Private road transport was still at its infancy and expensive, and air travel was even more unaffordable. At the same time travel was becoming a necessity as increasingly the middle class population wanted to move from one part of the country to another in search of a better education or jobs. The Indian Railways provided a decent standard of “sleeper class” travel, but lacked availability of seats. Even if travel was well planned and bookings done much in advance, it was extremely difficult to be assured of a reservation. Corruption was rampant and agents would buy tickets in bulk and resell them to the public at a sizeable profit. This frustration was accepted as a part of the life of a middle class Indian until the late 1980s, when computerization transformed the landscape of travel in the country.

The introduction of computerization and later connectivity by the Indian government in the Indian Railways is the largest and most successful example of such an attempt within a government department. The credit for this enormous endeavor is attributable to the erstwhile Railway Minister, Mr. Madhav Rao Scindia, who was able to counter substantive vested interests on the part of government officials. The reason for such resistance was the fear that computerization would lead to large scale redundancy and displacement of labor. Given that the Railways Department even today is the single largest employer in the country, this concern could not be easily dismissed. With computerization, however, there was in fact an increase in the scale of operations, with the number of reservation booths increasing at least four fold and the need for manpower to staff these counters increased.

Prior to the system of computerized ticket reservation, Indian Railways owned and operated a telegraph network, which handled reservation requests manually. The system was not real-time and lacked transparency. In other words, a reservation request could easily be declined by the officers on account of lack of availability of seats, but there was no way to verify if the seats were in fact fully booked. The officers were also able to falsely report the volume of sales to the railway authorities, thereby pocketing revenues. With computerized reservation, and the ability to instantly book tickets between any two sectors of travel from any ticketing counter in the country, the scope of corruption and discretionary behavior were greatly reduced. This benefited the customers and revenues to the government increased.

As a result of computerization, there is also an enormous database of customer information available to the Railways Department, which allows for a system of Passenger Profile Management, the study of patterns of travel between sectors, and maximization of overall passenger traffic. The Indian Railways has also incorporated the use of computers extensively in its internal operations through an interactive information system for its personnel. E-tendering, e-procurement of materials and e-payments to suppliers and contractors are now the norm. The Centre for Railway Information Systems (CRIS), an organization under the Ministry of Railways, also offers consultancy to other government departments and public sector units, both within the country and abroad.

## **Box 2: The Outsourcing of .IN Internet Domain Registry Services**

.IN domain names were sponsored by the government registry operators NCST until December 31, 2004. The process of registration during this regime was arduous and frustrating, as illustrated by the experience of one user trying to register a domain name for a non-profit organization. On filling out an online form, a notification was received by email with a reference number three days later. Another three days followed, and an email was received stating that there had been an error in the information entered. The application was resubmitted by the user, this time via email, and three days later a reply was received, with the following message “Returned mail: see transcript for details”, evocative of a bounced back message. In fact this was an email from the domain registrar of NCST, with the following message: “There is an error at description. Please resubmit. Please do not alter the form anyway up to marked (:).” However, upon reviewing the form fully, no mistakes were found and a half an hour conversation with the NCST office followed. It was finally found that the text in the description field was too long. Another email was sent with the requisite alterations, and after the proverbial three days the following message was received: “The domain is interested in database. We will process it and let you inform.” At this point, with no plausible guesses as to what the intended communication was and with two weeks having lapsed since the beginning of this attempt, the user gave up and opted instead for a ‘.org’ registration that was inexpensive and could be completed on the same day. This story possibly echoes the experience of many thousands of users across the country and overseas at the time. It is little wonder that under the NCST the total number of registrations did not reach over 6200 in multiple years.

The announcement to hand over the .IN domain name registry to the National Internet Exchange of India (NIXI) was made by the Government in August of 2004. NIXI is a not-for-profit company set up by the Department of Information Technology (DIT) along with The Internet Service Providers Association of India (ISPAI) to provide improved Internet services in the country. The registry services were then fully outsourced to Afilias India Ltd by NIXI. In the first three months of operations, the number of registrations under Afilias had reached 100,000 and today, and after twenty months of operations, it stands at 200,000. The number of new monthly registrations is growing at 6000 to 8000 per month.

This example clearly illustrates that a private party with the right expertise and incentives will provide a much higher level of efficiency in services, and eGovernment efforts can therefore scale at a much more rapid pace.

### **Box 3: Bharti Tele-venture's Outsourcing Deal with IBM**

In early 2004 Bharti Tele-ventures decided to enter into an outsourcing contract with IBM to entirely own and manage its IT operations. At the time, telecom industry penetration was only 5-6% in India – in other words, there were only about 50-60 million subscribers for a population of one billion people. The biggest players in the landline space were VSNL and MTNL and private players had just begun to enter into the mobile space. Bharti had begun operations 9 years before.

The basic premise for Bharti's decision to outsource its IT operations has to do with increasing capital efficiency. IT is required to manage nearly every aspect of the telecom network and the order of magnitude of investment required by telecom companies is huge. Inflows on the other hand tend to be slow. Matching revenue inflows and outflows presented a clear case for outsourcing. Moreover, in the context of a changing regulatory environment – with privatization and increasing competition – Bharti needed to ensure that it had an effective strategy in place to ensure profitability and sustained growth.

The key drivers of fast growth in the telecom space are the ability to provide differentiated products and integrated services. IBM was an ideal partner since it had both the expertise and experience in this field.

But there was a risk. Technical sales of an equipment vendor generally tend to maximize their sales of hardware and software and configure the IT system towards this. In this case however, IBM was selling to itself. Bharti had mitigated this risk by luring IBM with its large volume of subscribers and negotiating to pay IBM in terms of the percentage of revenues earned by Bharti. IBM then had an incentive to develop an optimal technology solution. This also made it in IBM's interest to see Bharti's revenues grow, which would then benefit Bharti.

While there was speculation over how this partnership would work out, the growth of Bharti over the past two and a half years is clear testimony to its success. Since outsourcing to IBM, Bharti has grown from a company with 5 million subscribers to one with approximately 25 million subscribers. Its market share increased 22% overall and the company has grown from a regional to a national player. This example once again demonstrates the large potential benefits from outsourcing - in this case using an innovative revenue-sharing model to leverage subscriber volumes - that can ensure the right incentives and safeguards to both parties.