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Introduction

e-Governance has the potential to benefit India's citizens exponentially and maximise the return on the government's investment in it.

The contradiction in India is that the country is rightly recognised a global leader in the delivery of IT services, but it suffers from very little internal IT development in the country. Where as technology leads, it tends to be in the private sector, by companies, corporations and non-governmental groups. Where it is the weakest – and where it can have the greatest impact - is in the public sector.

- The Economist Intelligence Unit's annual e-readiness ranks India at 54 out of the World's 69 largest economies along with the Philippines. India has moved down by one rank since 2006.
- The NASSCOM report on Information Technology on the Economy of India highlights that, despite India's global IT dominance, internally, the country has a low level of IT investment - only 3.5 per cent of total capital - and minimal dispersal of IT capital of 30 countries evaluated.
- The World Economic Forum (WEF) Global Information Technology Report (2006-2007) ranks India at 44 (out of a total of 122 countries). Ahead of India are countries including Tunisia, Qatar, Thailand, Italy, Lithuania, Barbados, Slovak Republic, Latvia and Cyprus.
- The WEF's 'Global Competitiveness Report (2007-2008)' also ranks India at 45 out of a total of 122 countries. India has come down by 3 ranks from 42nd in 2006-2007 to 45 in 2007-08.
- The World Bank's Doing Business 2008 report data positions India at 120 (out of 178 economies) in the overall "Ease of Doing Business" ranking.

The Global Scenario

The World Economic Forum's league table measuring the impact of technology on the development of nations, places Denmark at the top of the list for technological advancement, with other Nordic countries Sweden, Finland and Norway claiming second, fourth and 10th place respectively. The same report notes that:

"Denmark, in particular, has benefited from the very effective government e-leadership, reflected in early liberalisation of the telecommunications sector, a first-rate regulatory environment and large availability of e-government services."

So, for a country to be considered to be technologically advanced, e-Governance is a key requirement and measurement.

e-Governance is defined for the purposes of this paper as the application of electronic means in the interaction between government and citizens and government and businesses, as well as in internal government operations to simplify and improve democratic, government and business aspects of governance.

But e-Governance is not just about improving delivery of services to citizens, businesses and government employees. It is also about blending Information and Communications Technology (ICT) with administrative reforms to make government more efficient, drive down costs and increase transparency in how government departments work. If implemented properly, it can be an asset for the un-served and under-served areas in India and help drive new levels of efficiency to government services in India.

Electronic invoicing in Denmark saves businesses an estimated 50 million Euros per year, and administrations – hence taxpayers – between 120 to 150 million Euros. If this example could be replicated across all of the EU it could save 15 billion Euros per year.

In Japan, the e-Japan Strategy emphasizes the development of local e-governance schemes, including self-evaluation of online government services, allowing citizens' feedback and participation

In Africa, many countries are developing National ICTs Strategies that, in some cases, are already producing positive results and are leading (or can lead) to success. Some examples are: Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, South Africa and Tunisia. Many other countries are embarking on national ICTs strategies and programmes, often "mixed" with administrative reforms, good governance strategies, or decentralisation programmes

The project of "Application of Hand-held Computers in the Delivery of Health Services in Uganda", managed by the Uganda Health Information Network, aims at determining cost-effective ways of enhancing access, sharing and communication of critical health and medical information in a timely and efficient manner for the benefit of health care providers, managers and planners, in the Ugandan technological and institutional context.

UK is using e-government services to deliver local democracy and reaching out to the next generation of voters with councilor blogs, democracy themed games and national school level debates and voting programmes.

e-Governance in India

India's central and state governments have tended to follow a silo approach to e-Governance - some implementation has taken place but has tended to be piecemeal and disjointed and, consequently, having little impact. This has prevented the absolute necessity for the benefits of IT to percolate to the grass root level and has left the disjointed silos ineffective and (relatively) unused.

Today, there is a proliferation of portals in India. Most states have their own portals. But a majority of these portals cannot be considered to be anywhere near the 'one-stop-shops' that should provide end-to-end services to citizens. Ministries and individual departments have separate websites. But, again, these are not always linked and joined up in any meaningful way.

The official website for the Delhi government *http://delhigovt.nic.in* is a case in point. The website makes available information and downloadable forms to citizens and businesses. There is also a provision for filling up forms and checking their status online. However, the next step involves sending the printed copies of these filled up forms by post to the concerned government official or department. Moreover, citizens or business representatives have to go

personally to collect the certificates or licenses requested. The site, instead of functioning as a one-stop-shop for all government information and services, directs citizens to the websites of public bodies like Municipal Corporation of Delhi, Delhi Development Authority, Land and Building Department, Delhi Transportation Corporation and Delhi Metro Rail. Ideally, the official website should serve as a single window for providing all government information and services, thus negating the need to visit multiple website. The site should also allow submitting application forms and carrying out transactions online.

In a majority of government departments, computerisation exists to the extent of having desktop computers for the required staff and department-wise applications. These applications, however, cannot interface with each other and significantly impact interoperability not only currently but also in future when integrated and holistic IT implementation will become the norm of the day.

Towards Implementing e-Governance In India

India's poor position in all the meaningful world rankings clearly indicate a need to take some serious measures to improve the e-Governance scenario in India. The central and state governments need to ensure that the e-Governance initiatives taken are in tune with the best practices recognized the world over. Most of the countries ahead of India in the World rankings tend to have a few common strategies in place that have helped them deliver effective e-Governance from governance at a national level or central level to dedicated e-Champions to deliver e-Governance policies thorugh to completion.

Based on these global experiences, this Paper recommends that the Government of India adopts a five-point plan to implement effective e-Governance in India. They include:

- A nationwide mandate to allocate a fixed percentage of annual budget to e-Governance
- The need to adopt a mature, integrated and holistic solution/services based approach
- National level governance of the e-Governance programme
- Key Personnel appointed for the entire term of an e-Governance initiative
- Standing committee in government

A nationwide mandate allocating a fixed percentage of annual budget for e-Governance initiatives

[1] A Study by Springboard Research indicates that while IT spending in the Public Sector is growing across Asia, there is still a wide gulf between the more mature and emerging countries in the region. Countries such as New Zealand and Australia are spending close to US$ 200 per capita on IT in the public sector, while countries such as India and Indonesia are spending as little as US$ 1 per capita.

[1] *Source: Springboard Research, a leading innovator in the IT Market Research industry – Study on 'IT Spending in the Public Sector in Asia: Opportunities Abound, 2005'*

Table 1: Per Capita Public Sector IT Spending (in US$) of countries in Asia

Country	*Per Capita Public Sector IT Spending (US$)*
New Zealand	198.78
Australia	193.82
Singapore	152.89
Hong Kong	67.22
Korea	52.96
Taiwan	45.22
Malaysia	21.92
Thailand	7.41
China	3.67
Philippines	2.94
India	1.29
Indonesia	1.10

[2] The Government, while recognising IT as a thrust area for growth, had given a directive to all government departments to allocate up to 3 per cent of their annual budgets to computerization.

The directive has resulted in the IT policies of many states necessitating all government departments to spend 3 per cent of their annual budget on computerisation. A sample clause taken from the Government of Orissa's IT Policy (2004) states:

All government departments will be obliged to allocate 3 percent of their Annual Budget under the head 'IT Budget' for procurement of hardware and software and 5 percent for building up the IT infrastructure by their own initiative or in conjunction with combined budget allocation of two or more.

However, without some form of an apex central steering committee, the directive is likely to remain on paper alone. It should be made mandatory for all government departments to earmark and spend at least 3 percent of their annual budgets on IT initiatives.

The need to adopt a mature, integrated and holistic solution/services based approach

[3] Springboard Research found that within IT spending in the public sector, spending on hardware accounted for the lion's share of expenditure with 60% followed by IT services at 23% and software at 17%.

[2] Based on the recommendation of the National Task Force on Information Technology and Software Development ; Source: Tenth Five Year Plan 2002-2007

[3] Source: Springboard Research, a leading innovator in the IT Market Research industry – Study on 'IT Spending in the Public Sector in Asia: Opportunities Abound, 2005'

The study indicates the fact that most government departments have so far followed a commodity-based approach while finding answers to their IT related needs. This approach is counterproductive and more often than not turns out to be more expensive in the long-run.

Hitherto, the in-house IT arms of various government departments have followed the practice of purchasing hardware, software, services and networks from multiple vendors. Many years of following this practice have left these departments with disparate computer systems, standards and technologies that cannot interface and consequently prove to be an obstruction to intra and inter departmental information sharing and collaboration.

What is required in India's government sector is a strategic shift from the commodity based IT approach to a mature solution/services based approach. The central and state governments need to start procuring IT services rather than procuring hardware, software and services.

With this new approach, the IT related needs of government are addressed in conjunction by an IT partner and after a thorough consultation process. This Public Private Partnership (PPP) model for managed services enables government to concentrate on core-mission critical value-adding activities while moving the technology-related requirements to IT professionals (IT partner). In other words, it can focus its attention on what it does best; and use the IT partner to deliver what it is most experienced at delivering.

The caveat for such an engagement has to also be based on clear service level agreements (SLAs), that are completely outcome-driven, allowing both client and IT partner to decide and agree on deliverables. And based on these SLAs, the IT partner provides services to the client and is paid periodic fixed amounts. This allows the government department to understand exactly what it is paying for and hold a provider accountable to deliver. If the IT partner breaches any of these SLAs, the department, ministry or state office is able to penalise the provider according to the agreed norms.

This total outsourcing model works around the world in government and private companies where the deal tenor is long-term (8 to 10 years ideally). At the end of the tenor, either the deal is renewed or the legal and financial ownership of the IT infrastructure is transferred back to the client.

Projects such as *MCA21* and *APOnline* offer examples and explain the dynamics of a successful PPP. And the advantages offered include:

I. Technology risk is borne by the IT partner while government bears the business risk only (today both risks are borne by government).
ii. Governments are absolved of IT responsibility, ownership, obsolescence and upgrades and can focus fully on its core business.
iii. IT infrastructure optimised and sharing possible among departments and state governments
iv. Single platform and synchronised deployment becomes possible
v. SLAs ensure service standards with the government paying only for desired service
vi. Project related risks move entirely to the partner as the Govermnment pays only for desired/acceptable outcomes
vii. Cost of technology is converted into cost of service
viii. SLAs ensure outcome-based investment in technology leading to tangible results and increased stakeholder value and perception.

National level governance of the e-Governance programme

A predicament of a narrow e-Governance view, which often overrides the enterprise-wide perspective in the government sector, is the piecemeal approach that leads to government departments focusing on development of systems in isolation – the silo short-sight effect.

The aim should be to implement e-Governance projects as part of an integrated, joined-up approach.

The e-Government portfolio must result in a set of interoperable applications that have standardised interfaces and similar architecture for similar functionality. Wherever possible, e-governance solutions should be replicated. e-Governance should lead to the integration of departments in central and state governments.

Best-in-class private sector IT players leverage best practices in their areas of specialisation and make major investments in people, methodologies and technology based on those best practices. These IT players are exposed to many client environments and develop a perspective that allows them to apply what works best to their engagements with government clients as well.

Moreover, accountability increases in an engagement based on penalty driven SLAs. An IT partner from the private sector can have the financial capability to support the initial implementation of the project. For instance, MCA21 was funded on a BOOT model and the PPP partner had invested in the initial implementation of this project.

Key Personnel appointed for the entire term of an e-Governance initiative

It is vital to ensure stability of tenure of the key personnel championing an e-Governance initiative. Many government projects have faced problems when the administrative officer responsible for a specific programme leaves or gets transferred and some of the more successful e-Governance initiatives have faded into oblivion because of this 'brain drain'.

For instance, The results from Gyandoot could have been much more had the eChampion continued in the district . Apart from other problems like subsequent improper implementation, very often the successor has little interest in sustaining the project. The success of Bhoomi, a very simple project in terms of software innovation, is only because the e-Champion continued to steward it for a long period of time.

Standing committee in government

A standing committee having apex level representation from the private and government sector should be formed to oversee the performance of key e-Governance initiatives in the country. It should be a national level body having eminent representatives from political entities, bureaucracy, IT industry and academia.
This committee should be made the key authority involved in both planning and execution of e-Governance initiatives in the country.

It should also be responsible for providing a nation-wide blueprint for e-Governance initiatives. It would ensure that the central and state governments follow a holistic approach towards achieving ICT-led transformation of the states and subsequently the country on the whole. The committee would make certain that the various technological advancements are planned by taking into account the need for interoperability of state governments and the various ministries within a state government. It would also enable governments to implement e-Governance programmes successfully by leveraging the PPP model. The committee would also encourage and assist in replication of successful e-Governance projects across the country.

Recommendations given in the Eleventh Five-Year Plan (2007-2012) for Improving the Efficiency of e-Governance Initiatives:

- Encourage the use of IP/products developed by Indian companies in e-governance projects.
- Encourage the central and state governments to procure e-governance services rather than procuring hardware, software, services, and networks separately. This will bring about a more outcome based procurement model as compared to the current outlay oriented model.
- Encourage reusability in e-governance projects at both the infrastructure and application level.
- Encourage banks and financial institutions to fund e-governance projects above a certain size as a priority sector funding.
- Faster replication of already successful e-governance programs.
- Define interoperability standards/criteria and ensure that e-governance applications adopt these standards irrespective of the vendor supplying the technology.
- Incentivise citizens for using online services.
- Prepare a detailed e-governance plan for each central ministry and state which details a time-bound schedule for implementing e-governance. The budgetary support from the central government for the e-governance initiatives can be linked to achievement of specific milestones.
- Ensure that e-Governance applications are IPv6 ready.
- National programme on replication of already successful e-governance projects having potential to enhance citizen services.
- Bring private sector investments and expertise into the e-governance domain by evolving sustainable PPP models.
- Maximize Government transactions online through development of content in local languages.
- Sensitising citizens for using online services
- National Citizen Database with the National ID card will prove to be the corner stone for the e-governance drive in India.
- Delivering e-services to the villages by using, existing infrastructure, to the extent possible, such as post offices, village STD booths and telephone exchanges etc.

Conclusion

Information and communication technologies have a valuable potential to help Indian central and state governments deliver good governance to their constituents. Yet that potential remains largely untapped to date and there are various gaps hindering effective implementation of e-Governance in India.

The recommendations made, if implemented, can help India become a leader in the e-Governance space.

Globally India has been known to be a leader in the IT arena but the government itself has had a very fragmented approach, a very 'siloed' kind of view where every department did its projects separately. This approach has not allowed government, employees, citizens and businesses reap optimum benefits from a majority of e-Governance initiatives taken so far.

[4] *IPv6: Internet Protocol Version 6*

[i] *Source: Economist Intelligence Unit's 2007 E-Readiness Rankings; quantitative and qualitative criteria (and their weight in the model) are connectivity and technology infrastructure (20%); business environment (15%); social and cultural environment (15%); legal and policy environment (10%); government policy and vision (15%); and consumer and business adoption (25%).*

[ii] *Source: Information Technology in the Economy of India 2005; conducted by Sallstrom Consulting & Nathan Associates Inc*

[iii] *Source: World Economic Forum's 'The Global Information Technology Report,' 2006-2007; uses the Networked Readiness Index (NRI) to measure the degree of preparation of a nation or community to participate in and benefit from ICT developments.*

[iv] *Source: World Economic Forum's 'Global Competitiveness Report (2007-2008)'; for assessment of countries' competitiveness, offering insights into the policies, institutions, and factors driving productivity and, thus, enabling sustained economic growth and long-term prosperity. Comparison between countries common to reports from 2006-2007 and 2007-2008.*

[v] *Source: World Bank's Doing Business 2008 data; the overall "Ease of Doing Business" ranks of 178 economies are calculated by taking into account the economy's performance wr.r.t. starting a business, dealing with licenses, employing workers, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and closing a business.*

Some Successful E-Governance Projects in India

Project Akshaya

'Akshaya', an IT dissemination project, was launched on 18th November 2002 as a pilot in Malappuram, a district in Kerala. The project envisaged development of 5000 networked Multi-purpose Community Technology Centers - Akshaya e Kendras - to provide ICT access to the entire population of the state. The objective of this project, was to make at least one person in each of over 65 Lakh (6,500,000) families in the state e-literate. Run by private entrepreneurs, each e-Kendra was envisaged to be set up within 2-3 kilometers of every household to cater to the requirements of around 1000-3000 families to make available the power of networking and connectivity to the 'common man' or citizen. Akshaya is a social and economic catalyst focusing on the various facets of e-learning, e-transaction, e-governance, information and communication. The success in Malappuram has led to a state wide roll out of the project.

In Malappuram alone, the project has trained more than 5.9 lakh (5,900,000) people (out of the 6.5 lakh households). 65 per cent of the trainees are women. Akshaya e-pay has recently touched 4 crore (40 million) transactions in Malappuram. A total of Rs. 32.2 crores has been invested by entrepreneurs, local self government and state government. The first phase of the state wide roll out is estimated to train 25 lakh (2,500,000) persons. An investment of Rs. 76 crores has been made for this phase by entrepreneurs, local self governments, beneficiaries and state government collectively.

MCA21

The Ministry of Corporate Affairs (MCA) is responsible for administration of the Companies Act, 1956, other allied Acts and Rules & Regulations framed for regulating the functioning of the Corporate Sector in accordance with law.

The programme was implemented in a record time of 78 weeks. This project is India's 1st mission mode project (the highest priority rating assigned by the Indian government) under the National e-Governance Plan (NeGP).

MCA21 has enabled 100% electronic filing, electronic payment mechanisms, use of Digital Signature Certificates for all transactions, delivery of more than 90% of services by MCA offices within charter defined by Ministry, significant increase in rate of compliance, green project resulted in saving of ~ 60 acres of forest land till date.

The programme has phenomenal success with more than 90% of e-filing being done by stakeholders (as against the target of 25%), total transparency for service delivery to stakeholders through online reports, more than 40% electronic on-line payments , very high level of stakeholder satisfaction.

The implementation of such a large-scale transformation project, in the shortest possible time, is a landmark and has established a benchmark for such a program not only in India but across the world.

APOnline

APOnline (www.aponline.gov.in) is a digital gateway of the Indian state of Andhra Pradesh to provide multiple government services through multiple channels, anytime and anywhere to citizens and businesses through a single

window. The bi-lingual portal has redefined government-citizen interface and government-business interface by providing information, interactive and payment services to the citizens. The APOnline solution is based on the lifecycle event model, dictated by events in the citizen's lifecycle.

APOnline has a self-sustaining delivery model and is currently working through 1300 kiosks and franchises. APOnline delivers government information and services through Internet, manned and unmanned kiosks and collection agents. The model had generated employment for over 2000 people in the state.

APOnline has developed a host of applications for the benefit of rural citizens and farmers. It has also helped bridge the digital divide to a great extent.

The portal has resulted in greater transparency, convenience, accountability and responsiveness for citizens and businesses and lower overall costs for citizens and businesses. It has also helped governments enjoy an improved image and cost-savings by reduced delivery cost.

E-Choupal

The E-Choupal model, http://www.itcportal.com, is centered on a network of 'e-Choupals' which are information centers armed with a computer connected to the Internet. The e-Choupals, information centers linked to the Internet, represent an approach to seamlessly connect subsistence farmers with global markets. e-Choupal has helped link the largest labour force with the mandis, the international markets as well as the final consumer at much reduced transaction costs. The e-Choupal initiative; one of the largest information technology-based intervention in rural India has transformed the Indian farmer into a progressive knowledge-seeking netizen. It has enriched the farmer with knowledge and elevated him to a new order of empowerment.

Given the low levels of literacy in the rural sector, the role of the lead farmer of the village, in facilitating physical interface between the computer terminal and the farmers is central to project e-Choupal. e-Choupal delivers real-time information and customised knowledge to improve the farmer's decision-making ability, thereby better aligning farm output to market demands; securing better quality, productivity and improved price discovery. The model helps aggregate demand in the nature of a virtual producers' co-operative, in the process facilitating access to higher quality farm inputs at lower costs for the farmer. The e-Choupal initiative also creates a direct marketing channel, eliminating wasteful intermediation and multiple handling, thus reducing transaction costs and making logistics efficient.

Smart Cards enable farmer identification to provide customised information on the echoupal.com website. Online transactions are captured to reward farmers for volume and value of usage.

Milestones: Commencement of initiative in 2000, 9 states covered, 38,500 villages covered, 6500 e-Choupal installations.

Agenda for 2012: 15 states to be covered, 1 lakh Villages to be covered, 20,000 e-Choupals to be installed 10 million farmers to be e-empowered.