e-Government for the new Millennium

Information Technology is changing the way the society functions. Internet is the biggest revolution in human history. The impact of IT can be felt in all economic and social activities in every conceivable manner. The convergence of all forms of communications on the digital playfield is opening up immense new possibilities of achieving speed, versatility and space-time independence.

Governments are no exception to this phenomenon. In the post liberalization era governments across the country have been engaged in improving internal efficiencies, responsiveness, coordination and integration between various government departments and external agencies, citizens and businesses. The global trends also point out to the emergence of e-Government revolution after the Internet and e-commerce revolutions.

We often hear a number of words coined to describe this newly founded love between the Governments and the computers- " Good Governance", "SMART Government" and "e-Government". It is pertinent to state clearly what they mean.

'Good Governance' connotes the widest meaning of the three phrases. It encompasses the entire process of public administration, the processes underlying the formulation of public policies, the HRD efforts required for re-skilling the government machinery, prioritization, efficient management of public resources and above all re-designing the various instruments used to realize the concept of a welfare state. '**SMART Government'** is an acronym for Simple, Moral, Accountable, Responsive and Transparent Government. It is the image of an ideal government through the eyes of its constituents.

e-Government is a subset of the concepts of Good Governance and SMART Government. It is the very specific task of using the tools offered by Information Technology in various aspects of the process of governance with the objective of achieving efficiency, transparency, accountability and user-friendliness in all the transactions that the citizens and businesses conduct with the Government – that is, providing digital interface in the G2C and G2B interactions.

A number of arguments are adduced against the concept of e-Government. Some of the popular arguments, especially in the Indian context, are mentioned below

" It helps only the rich"
" It can't be done in India"
" Who needs e-Government when labour is so cheap in India?"
" The laws are hurdle"
" The existing infrastructure can't support e-Government efforts"
" It won't be allowed to happen by the vested interests"
" It is too expensive for India"

Real cost of government services: The justification for e-Government stems from an analysis of the *real* cost of obtaining Government services. It is well borne out by experience that in addition to the prescribed statutory levy and the prescribed transaction cost, securing service from a government agency, more often than not, entails any or all of the following *indirect costs* :

- Delay and uncertainty
- Lack of transparency
- Corruption
- Mistrust / ill-treatment at the offices
- Loss of wages / productivity of the citizen / business
- Cost of travel & stay at the place of service

If the government could provide its services, such that the above indirect costs are avoided, then the citizen would be prepared to avail the same even at an additional charge. Tools of Information Technology certainly have the potential of meeting the challenge. The option, clearly, is e-Government. It has the portents of providing high quality government services to citizens and businesses, of providing equal access and equal treatment to the rich and the poor, of bringing in enhanced transparency, speed, reliability and consistency in handling transactions, of opening up immense scope for offering new services, for instance '**any-time, anywhere services'** to the clientele, of making the concept of **Citizens Charters** a reality and, above all, <u>of reducing the real cost of transacting with the Government.</u>

Need to embrace emerging technologies: While the reduction of real costs and enhancement of convenience are arguments for e-Government from the citizen's perspective, there is another set of reasons purely from the organization's position. Several sectors of the economy are embracing the emerging technologies so rapidly that the public agencies that do not choose to fall in line would soon become

'out of place' in the global scenario. In other words, the sheer pressure exerted by the technology-savvy entities in the private sector is enough to compel the public sector to clutch at the modern tools.

Implications of e-Government: Given that e-Government is a highly desirable objective, the immediate questions are – 'Is e-Government easy enough to implement in a reasonable time-frame?' ; ' What are the different dimensions and issues one has to be wary of in this context ?'. Here are some answers.

- **Size,Cost and Complexity:** An estimate of the effort of computerizing the processes in all the departments and agencies of the Central and State Governments in India, puts it at over 130,000 person-years, costing about Rs 35,000 crores. Besides these seemingly impossible figures, the sheer spread of the implementation is daunting and beset with problems relating to logistics of installation, training, maintenance and supervision. Given the existing low levels of computer competency there is a great risk of underutilization and non-utilization of IT assets in a widespread programme implemented by the Government.
  The variety of applications to be implemented is unnerving. We have simple MIS applications, data processing applications of medium complexity and extremely complicated applications like OLTP, GIS, SCADA and the like. Needless to say, we do not have, within any Government, the variety of skills required to develop and implement applications with such a wide spectrum of complexities.
- **Speed of implementation:** Implementation of e-Government applications across hundreds of departments and thousands of offices, could take endless years in the normal circumstances. Given the rapid advancements in the convergence technologies, adopting a normal public sector approach to implementation of e-Government is fraught with the following risks:
  - The technologies originally used in the design of a major project get outdated by the time the project is completed.
  - Projects implemented at different periods are out of tune with each other.
  - The benefit of end-to-end and integrated solutions, especially those involving inter-departmental approach, would be a mirage.

This would necessarily mean that a '*carpet bombing'* approach would be required to be adopted if e-Government has to make any meaningful impact on the users.

- **Integration:** Given the objective of providing integrated services to the citizens on the lines of one-stop shop, it becomes imperative to adopt an overall architecture for e-Government that facilitates such a seamless integration of applications implemented by various departments and agencies of the Government.

- **HRD for EG:** One of the handicaps is the low computer literacy in most of the Government departments. Given the size of the employee population in public sector and also the fact that about 50% of them are in the age group of 35-45 it is somewhat difficult to impart a reasonable degree of IT skills, which is a prerequisite for successful implementation of E-Government.

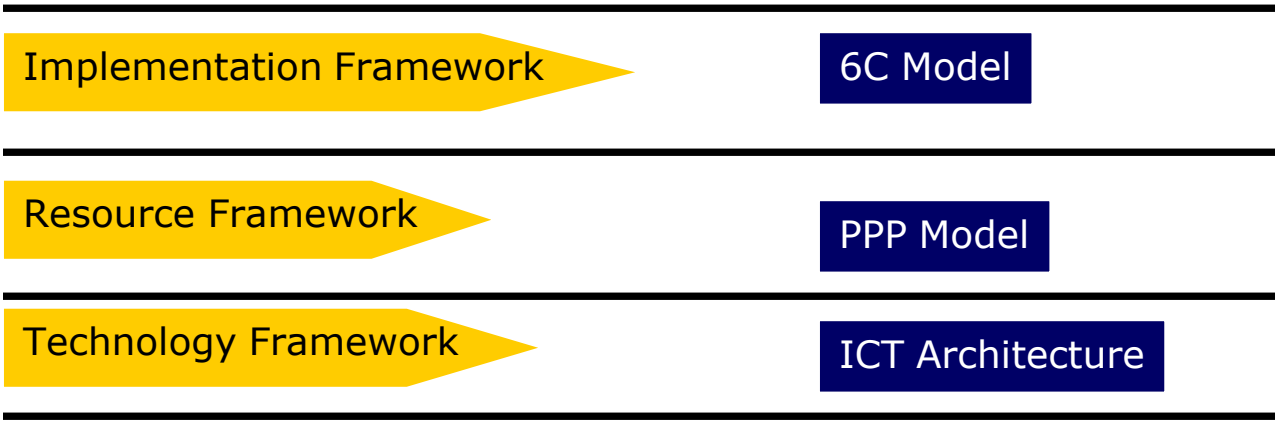
- **Organizational buy-in:** Change Management by far is the most difficult task - more complex than the technology issues. The employees of each department have to be involved and associated with the efforts at each stage starting with system study, design and development of software so as to ensure a buy-in. Extensive training and conducting of workshops at state, regional and district levels are some of the other change management techniques.

- **Additional cost of services due to EG:** The additional investments to be made in government departments to provide electronic services to the clientele, would entail not only a capital cost but also recurring costs. The governments are hard pressed financially and cannot perhaps provide for these costs through a budgetary support. This brings us to the inevitable conclusion that the brunt of the operational costs will have to fall on the citizens or the other end-users in the form of user charges.

Different ways of using IT in Governance: The word e-Government is too general. Specifically, it means using the tools of IT for enhancing the productivity, efficiency of government organizations and quality of the delivery of services, covering the following areas.

- **Citizen Services**
- **Internal Efficiencies**
- **Enforcement of Law**
- **Judiciary**
- **Legislature**
- **Education**
- **Promotion**

Overall Framework for e-Government:
The complexities of realizing the vision of a total e-government necessitates the creation of a suitable framework for effectively meeting the challenges posed by management of technology, resources and implementation. The framework developed by us in Andhra Pradesh for this purpose is relevant. The following diagram illustrates this.



In view of the fundamental importance of the overall framework, I propose to discuss the above models in detail.

I. 6-C model for implementation

We have developed a **6C model** from the experience of implementing/ coordinating a number of projects in the government departments. This model tries to incorporate the essential features of a structured approach to a successful implementation of IT projects. The 6C model comprises of the following

1. **C for Content**

By 'content', we mean the application software that is capable of translating the end objectives of an IT project into visible results. Content is the heart of any IT project. The process of content development encompasses a whole range of activities starting with a comprehensive study of the system, identification of the objectives and ending up with delivery of the intended benefits to the citizens or other users of the IT system.

2. C for Competencies

Implementation and maintenance of e-Government projects through IT professionals hired from the market is likely to result in failure of the project as the organization is bound to disown such outsiders. Departments desirous of implementing major IT projects are required to simultaneously build up the required competencies at various levels. Typically, cadres are to be built at 3 levels – top, middle and cutting-edge levels.
Chief Information Officers, at the top level, should be proficient not only in the domain knowledge of the department but also in the various IT skills. The role of the CIO, after the completion of the training process, is to oversee the implementation of major IT projects in the parent department.

It is also absolutely essential to build a middle-level cadre of technical personnel at the district level in the departments intending to implement major IT projects- in parallel with the design and development of application software to ensure that the department is self-sufficient in most of the technical matters at the field level.
Simultaneously with the design and development of the application software it is necessary to identify the required number of employees at the cutting edge level, who will have to operate the computers when the project is implemented.

Project Management skills

Implementation of major IT projects calls for immense skills in project management. It is necessary to build these skills at the apex level. This not only sharpens the vision substantially, but also enables overseeing the several activities in parallel and thereby reduces the total implementation period.

3. C for Connectivity:

Widespread connectivity is a pre-requisite for provision of services on any-time, any-where basis and to achieve significant productivity gains in government agencies. Besides the APSWAN project, which connects Hyderabad with all district head quarters, the Government is promoting laying of optical fibre cables across the length and breadth of the state, by the private sector. It is expected that in 3 years, connectivity would not be a major issue.

4. C for Cyberlaws

The successful functioning of an IT project should not be contingent upon the whims and fancies of the personal likes and dislikes of those at the decision-making levels. All major IT projects should derive their legitimacy and strength from a suitably formulated cyber law. While the Information Technology Act 2000 provides the basic framework for giving legal support to IT projects implemented within the governments, we are also required to undertake a specific exercise in the departments implementing major IT projects, to identify the legal provisions which need to be specifically amended to take care of the requirements of the IT systems. Besides the above, it is necessary to attempt a detailed examination of all the rules, procedures and forms in use by the department so as to make them compatible with the re-engineered procedures and processes of the IT system.

The need for a separate set of laws to regulate and govern the cyber-economy stems from two factors. Firstly, the subject matter of concern here is intangible and exists in the unseen digital world, that defies the normal, time-tested methods of evidence and assurance. Secondly, the traditional methods of jurisprudence are too slow for the Internet world. The saying - Justice delayed is justice denied' is acutely true in the cyber-world!

The IT Act essentially brings two fundamental changes. Firstly, it gives legal recognition to the records maintained electronically. Secondly, it gives legal recognition to the process of authentication of electronic records by affixing digital signatures.

Though the IT Act 2000 excludes certain classes of documents from its applicability – like power-of-attorney, trust, will,

contracts relating to immoveable property – it is still a major step forward. We have to evolve methods of operationalizing the Act very quickly to derive the intended benefit.

The IT Act brings with it a number of benefits like access control, authentication, data privacy and confidentiality, integrity, non-repudiation and an institutional mechanism for management and audit of electronic transactions. These features are immensely useful in several areas of e-commerce, e-banking, e-Government, telemedicine and the like.

5. C for Citizen Interface

However good the content, competencies, connectivity and cyberlaw may be, it is of no use unless the citizens have an affordable and ubiquitous access mechanism. There are several options like Citizen Service Centres, Internet Kiosks, Home PC's, Set-top-boxes etc. We should plan how the services of an e-Government project are to reach the intended beneficiaries, in a cost-effective manner while conceptualizing the project itself.

6. C for Capital

The implementation of IT projects involves the mobilization of capital investments as well as the funds required for maintenance of the systems on a sustained basis. With increasing pressures on the fiscal systems, governments are not in a position to extend an open- ended financial support to such projects. Against this background, it becomes increasingly necessary and almost imperative to find new and innovative methods of financing the IT projects. A framework for Public Private Partnership for e-Government is described below.

II. Concept of PPP for e-Government

A variety of solutions in the generic name of Public Private Partnerships are being employed today to bridge the gap between the expected levels of speed, efficiency and spread of public projects especially in the areas of creation of infrastructure and provision of services. The concept of Public Private Partnership (PPP) essentially arises out of considerations like, the imperative to provide infrastructure of high quality, shortage of public funds and above all,

the profit motive driving high efficiencies and quality in the privately managed areas. The Public Private Partnership can assume a wide spectrum of shapes like, BOO, BOOT (Build-Own-Operate-Transfer), BOT for specified periods -otherwise called concession contracts, Joint Ventures, private finance initiative (PFI), partial privatization through partnering with strategic investor etc. The idea is to arrive at the right combination of public sector accountability with private sector efficiencies and to also to share the risk correspondingly.

Experiences across the globe show that IT is one of the areas which is eminently suited for PPP – especially, in areas such as driving licenses, utility bill collections, management of land records etc. Investments in information technology by governments have an opportunity cost since there are limited resources of money, time and attention. Investing these in IT would explicitly deny such investments in other development areas like provision of water, sanitation, health, shelter, production technology and skills development. Investments in information technology have therefore to be made very strategically by governments. The Government of Andhra Pradesh has focused its energies on creation of content and digitisation of databases so that transaction based services become attractive for private sector players. For example, in the case of the TWINS project after a successful demonstration of the pilot, private sector partners have been involved to provide services to citizens. In the case of infrastructure creation, government has leveraged assets like land for attracting private sector investments to set up facilities like Hitec City. Similarly, government has used the provision of a royalty free right of way for attracting investments into setting up high-speed optical fibre networks. The possible usage of such networks for e-government applications in the future has in turn enhanced their commercial viability.

User charges

The implementation of IT projects results in delivery of better quality services to the citizen. Citizens derive the extra convenience by making the services speedier, more transparent and easily accessible. For this extra convenience the citizen could be prepared to pay an additional cost over and above the normal statutory fee or charge. The government of Andhra Pradesh has been contemplating the issue of suitable guidelines to the departments in the matter of fixing user charges for providing IT enabled services to the citizens. The implementation of the concept of collection of users charges for providing IT enabled services opens up an immense possibility for

taking up a large number of the citizen services projects, aimed at smoothening the government citizen interface. It is assessed that the user charges will be quite nominal when compared to the direct and indirect costs to be incurred by the citizen in availing the services from government departments and agencies. This model would result in creating IT systems that are in equilibrium by themselves without the government having to invest in the capital costs or in the recurring costs.

Benefits of PPP for EG: Three sets of stakeholders benefit from the Public Private Partnership model applied to e-Government.

Benefits to Government:

- Minimizing financial outgo
- Better liquidity
- Protection against technology obsolescence
- Speedier implementation of e-Government projects
- Efficiencies in management
- Better image

Benefits to Citizen/Business:

- Easy access to services
- Single window/one-stop shop
- 24x7 convenience
- Flexibility in the choice of access methods and devices
- Saving of indirect cost and hardship

Benefits to private sector partners:

- Reliable streams of revenue
- Low risk
- Creation of employment in the development, implementation and delivery
- Capturing business from related sectors (wider market initiatives)

III. Technology Framework for e-Government

IT Architecture: Given the large number and variety of applications to be developed across government departments, it is essential to have the whole picture conceptualized and to lay down a common framework and ground rules for the guidance of the departments. Otherwise, there is the danger of creating islands in different departments that cannot communicate or be interoperable. The concept of providing integrated services would remain a mirage.

A comprehensive exercise has been made in Andhra Pradesh to prepare an overall IT architecture for e-Government, with the assistance of PriceWaterhouseCoopers (PWC). The exercise has yielded highly useful deliverables like application architecture, database architecture, a set of standards including metadata standards, coding and documentation standards, prioritization of applications etc. It is intended to disseminate this knowledge among the key officials and ensure that it get internalized in all the IT projects implemented now and in future. The core recommendations are specified as mandatory compliance requirement for developers of all major IT projects. These recommendations, which should be useful to Governments, developers and IT planners across the globe, have been made available on the Internet at www.ap-it.com .With a sound IT architecture in front of us, there is no apprehension that a rapid-fire development of applications would result in duplication, incompatibilities or other problems.

IPR sharing : implementation of EG projects under the PPP model raises several issues relating to IPR over the products, technologies and models developed during the course of the implementation. It is necessary to adopt a suitable IPR sharing mechanism, which would also bring in the advantage of lowering the upfront costs to the Government or to the end user through the process of productization. The products can be sold in other States and countries by the developer to recover part of the cost of development. A share of 20 to 30 % for the Government depending on the extent of involvement of Government in the development process would be a good incentive for the private sector to implement the projects.

Privacy issues: With rapid computerization and provision of networked services, we run the risk of invading the privacy of individuals. It is necessary to look at the degree of assurance that need to be given to the citizens and businesses on the privacy of the data at the individual or aggregated level and transaction data. This is one area, which could seriously hamper the transaction volumes, if proper answers are not found to the apprehensions of the users.

IT for Poverty Reduction :

Information technology can be used as an enabling tool to fight poverty and its ill-effects, though there are divergent and

contrary views as to the use of IT to mitigate poverty. UNDP states, "Information and communications technology (ICT) has become an indispensable tool in the fight against world poverty. ICT provides developing nations with an unprecedented opportunity to meet vital development goals such as poverty reduction, basic health care, and education far more effectively than before. Those nations that succeed in harnessing the potential of ICT can look forward to greatly expanded economic growth, dramatically improved human welfare, and stronger forms of democratic government." Richard Heeks however opines that the use of information technologies require "a lot of overt resources including a telecommunications infrastructure to provide network access, an electrical infrastructure to make the ICTs work, a skills infrastructure to keep all the technology working money to buy or access the ICTs, usage skills to use the ICTs, and literacy skills to read the content".

However, the widening scope and opportunities in IT and IT enabled services could open up new channels of providing employment and income which could expand the opportunities for the poor too. IT services have the potential to accelerate the growth rate of the economy. Use of IT in rural areas for enhancing agricultural production for example, could prove immensely beneficial as most of the poor live in the rural areas. Moreover, its use in educating the rural masses could not only give them a voice but also improve their prospects for employment thus providing for their upliftment and security.

Most significantly Information Technology can ensure the proper utilisation of funds for the poor by making the government more transparent and accountable, and by putting down corruption effectively. An accountable and transparent government can ensure the proper use of funds for infrastructure development, increases in revenue, and cutting down on wasteful expenditure. Use of IT could also remove red-tapism, and accelerate the decision-making process, thereby attracting investments into the state.

The state government has initiated a number of projects under the concept of SMART government Significant among these are— (1) the CARD (Computer-Aided Administration of Registration Department) project, which has cut down the time for sales registration from 10 days to less than an hour. (2) TWINS, (Twin-cities Integrated Network Services) which offers services

ranging from utility bill /tax payments to issue of certificates and servicing of information requirements of the public, by integrating 25 services on a one-stop basis. (3) FAST (Fully Automated System for Transport) whereby 37 offices of the Regional Transport Officers are being connected, and services like issue of learner's licenses, driving licences and registration of vehicles have been computerised.

A Secretariat Knowledge and Information Management System (SKIMS) has been entrusted to a private sector partner for designing and implementing a knowledge management and workflow automation system for use in the State Secretariat. The system will help to cut down on delays and introduce greater accountability within the Secretariat. The project will be completed by February 2002.

A Centre for Good Governance is being established under the aegis of the HRD Institute of Andhra Pradesh with assistance from the Department for International Development (DFID) UK. The centre will focus on improving the quality of governance in the state through taking up training, consultancy and research programmes. Discussions are currently on with multilateral financial institutions to eventually expand the centre into a major institute focused among other things, on use of information technology for better governance. Tie-ups with leading international universities specialising in public administration are also being worked out to create a world-class institute specialising in the area of SMART government. Recently an executive training programme for senior civil servants was taken up in collaboration with the John F Kennedy School of Government at the Harvard University.

The induction of Information Technology in a third world context poses challenges in terms of management of change apart from technological challenges. As part of the change management exercise, governments will have to inject a sense of urgency into making strategic use of Information Technology for better governance. An overarching vision will have to guide the entire process so that people are inspired to use Information Technology for realising a better future. A guiding coalition will have to be put in place comprising of individuals who understand technology and are willing to champion its cause. Effective

communications will have to be taken up in order to ensure that there is common understanding of goals and strategies for the pervasive use of Information Technology in society. The empowerment of people will have to be an important component in the process of using Information Technology for better governance. This empowerment will have to be achieved through re-engineering processes and procedures. Moreover, in order to sustain the momentum for change, quick wins will have to be accomplished. Unless people see for themselves the tangible benefits from technology it will not be possible to take the process forward. Further, modern ways of working will have to be embodied in society at large and within government in particular so that Information Technology becomes a part of the cultural milieu.

Above all, it is important that the leadership has confidence in itself and in the future. Life's battles are not won by those who are the most capable or most knowledgeable, but rather by those who think that they can!