Proposed Technology Strategies Which can Overcome Challenges of E-Governance

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ABSTRACT - The paper is a contribution to the ongoing debate on the appropriate mechanism for good governance particularly in the developing countries like India with the involvement of Information Technology in the system of the government and for the betterment of the society. It focuses on the practices and solution for e Governance implementation and the issues related to its implementation. It highlights the benefits and challenges of implementing e-governance while considering factual speciality, pecularities, growing impact of Information Technology and need of developing and developed countries.

Key Words: Digital Divide, Access, Internet, Cloud Computing, Open source software

INTRODUCTION

India does have an inspiring vision of where e-governance is going; there is a gap between service delivery and reality in that country. The challenge of e-governance in India lies in providing the service to about a billion people. At the moment, India is ranked 87th in the global e-government readiness ranking of 2005 (CIOL, 2006), which indicates significant room for improvement. Research has indicated that the three Indian states leading in e-governance provision are Andhra Pradesh, Karnataka and Tamil Nadu, while the states of Kerala, Gujarat, Maharashtra, Madhya Pradesh, West Bengal and Rajasthan are not far behind (NASSCOM, 2003). These Ten Indian States out of a total of 28, comprise over half the total Indian population.

There are three types of challenges.
1. **Technical Challenges**:-Technical issue involve the following challenges such as
   - Interoperability
   - Privacy
   - Security
   - Multiservice Interaction

2. **Organizational Challenges**:-Organizational challenges include.
   - Lack of Integrated Services
   - Lack of Key Persons
   - Population
   - Different Languages

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3. **Economical Challenges**:-Economical challenges are as:-
   - Cost
   - Maintainability
   - Reusability
   - Portability

According to an officer from NIC, success factors of e-Gov projects
1. 10% Technology
2. 60% Process
3. 20% Change Management
4. Rest is luck

Proposed Future Two Technologies which can overcome challenges of e-Governance

To make E-Governance more efficient and powerful, two technologies can be boon to it. These technologies are
1. **Open Source Software** - Open Source Software (OSS) is software made available in both source code and binary form, under a license which allows users to freely use, modify and redistribute the software without the need to pay royalties to the original software author.
Two entities that are actively involved in open source environment are active and passive entities. Active entities are code developers while passive entities are users who give their feedback openly to e-governance in open source environment. This feedback is bi-directional where an active and passive entity communicates. In this, active entities develop the code in open source environment which in turn is used by e-governance and provide its services to its citizens. Users can give their feedback to e-governance. This feedback is bidirectional. For many governments the world over, the choice of Open Source is a strategic one. Majorities of projects which are based on Open Source technology has been highly seemed in European countries. This preference towards Open Source platforms is because of :

- Firstly because, acquiring and upgrading proprietary software is expensive.
- Secondly, there is also the proposition that it is safer to entrust knowledge in the public domain to Open Source, which is also in the public domain, than to proprietary platforms.
- Thirdly, using open source would enable India to encourage our own software professionals to provide software support in the form of add-on applications that could be written at a cost much lower than that required to buy multi-featured packaged software.

Characteristics that make OSS an ideal candidate to be used by government are:-

1. It provides increased ownership and local autonomy.
2. It also provides increased flexibility to address localization issues and extensibility.
3. There are also numerous cost benefits to be gained from the use of OSS
4. Many open source software projects have been extremely successful (measured by market share), particularly in server/back-office application spaces, and there is enormous industry investment in promoting the growth and improvement of community-based software projects.

2. Cloud Computing - There is no doubt that worldwide revolution in Internet is changing our lives in terms of the way we work, learn and interact. Today not only private sector largely depends upon internet but government sector also depends upon internet. In this internet world, Cloud computing has become one of the hottest technique in the IT area. Today's e-governance is implemented with clouds as clouds provide number of benefits and make e-governance more efficient to use. Cloud computing allows computer e-governance users to conveniently rent access to fully featured applications. .Cloud computing also provides software development and deployment environments, and computing infrastructure assets such as network-accessible data storage and processing model.

Cloud computing is a business model of delivering IT resources and applications as services accessible remotely over the Internet rather than locally. In the traditional, .IT resources and applications are provided in the form of products which are sold or licensed from a vendor to a user and then exploited locally on a local computer infrastructure. With clouds, when loads increase a lot even then its performance doesn't decrease.

Need of clouds for E-Governance

Implementing e-governance without clouds is an old technique and is not too much efficient. There are number of reasons which make cloud computing hottest Buzzword not in IT area but also in e-governance implementation

1. **Data Integrity**:-To deal with large data over the years for E-Governance applications, data should be integrals and scalable at higher level.
2. **Security Auditing**: - As corruption is increasing in government sector also, .some mechanism is needed to keep track on e-governance worker so that no changes in personal data of individual which is on
3. **Data recovery**: - clouds provides an excellent way of data restoring facility which might be lost due to floods, earthquake or from any other disaster.
4. **Performance and Efficiency**: - An efficient e-governance is that in which lacks of access can be done easily without decreasing the performance.
5. **Systems Integration and Legacy Software**:-Not only are the applications that are already providing services to be moved to the cloud, but also integrate with applications deployed in the cloud. Cloud is built on SOA principles and can offer excellent solutions for integration of various applications.
6. **Migration to New Technologies**:-Technology migration is the biggest challenge. Moving to different versions of software, applying application and security patches is the key to maintaining a secure data center for E-Governance. Cloud architecture efficiently enables these kinds of requirements, by co-existing and co-locating different versions and releases of the software at the same time
7. **Environment Protection**:-Air conditioner, power usage, heat generated by powerful machines and electronic wastage by different data centered up to the pollution. This pollution can be minimized to much extend by having centralized database inspire of distributed. This is all what cloud computing do in going green.

Benefits of cloud computing

i. On-demand self-sufficient service
ii. network access
iii. Location independent resource
iv. Rapid elasticity

Some of the requirements for implementing successful e-governance across the nation are:

- e-Governance framework across the nation with enough bandwidth to service a population of one billion.
- Connectivity framework for making the services reach rural areas of the country or development of alternative means of services such as e-governance kiosks in regional languages.
- A secure delivery framework by means of virtual private network connecting across the state and central government departments.
- E-governance and interoperability standards for the exchange of secure information with non-repudiation,

across the state and central government departments seamlessly.

- Datacenters in centre and states to handle the departmental workflow automation, collaboration, interaction, exchange of information with authentication.

For success of an e-governance project and superior service delivery, it is imperative that the government agency focuses on whole citizen experience. Focusing on the citizen is essential for long term success. The govt. agency needs to integrate information from all points of citizen interaction. The overall architecture for e-Governance needs to ensure that the architecture components are extensible and scalable to adapt to the changing environments. The e-Governance applications that are emerging as islands of successes have to be interoperable.

Following are some of the suggestions for the successful transformation from " A" to "e"

a) **Create Literacy and commitment to e-governance at high level -**The most important requirement is a training program for policy makers in E-Governance (Senior Public Servants), politicians and IT task force members. The training program needs to be focused according to the requirements of the policy makers at the top. Such programs can be need based and outsourced when required. In addition it should be made mandatory for all the stake holders in implementation and maintenance of e-governance services to have the general IT skills. There may be specific requirements for training in certain specific projects. Such programs can be need based and outsourced when required. A few suggestive programs include e-governance training, Building web interfaces for citizen interaction, Document management and workflow applications, security and PKI solutions, Office Automation, networking etc.

b) **Conduct Usability Surveys for assessment of existing e-governance projects -** There is a varying degree of development of e-governance among the different states. A few States have leapfrogged into a digital era whereas a few are yet to start with any initiative. There is a tremendous divergence in the extent of implementation of the concept of e-Governance. It is, therefore, not possible to come up with a framework for implementation of e-Governance which is straightaway applicable to all states and the Central Government. Therefore an e-readiness exercise should be carried out in all states, government departments to understand their level of acceptability of the e-governance.

c) **Starting with implementation of pilot projects and replicating the successful Ones -** The pilot projects taken in various states should be accessed for their achievement levels. They should be classified as success or failure according to the desired output written down before implementation of the projects. The study should be carried out by an independent agency for the implementation agency The study should be carried out at each stage of implementation. Bottlenecks and causes of delays should be documented, even though they are removed later. The successful projects should be replicated over the nation with members drawn from the implementing team. The projects, which could not achieve the desired outcome, should be documented for possible causes of failure. Various bottlenecks and causes of delay should be identified.

d) **Follow the Best Practices in e-governance -** The study of Best Practices will bring forward the best practices being followed nationally and internationally. The national and international Best Practices study will give a great momentum to the process of E-Governance. The State Governments will not have to re-invent wheel every time and they can learn from the developments already made.

e) **Build National resource Database of e-governance projects -**This would allow any organization planning an IT project to instantly ascertain whether any such project has already been implemented anywhere in the country. Intending implementers would know who the key people in similar projects are and how to reach them. It is well known that it is much easier to replicate a solution than to evolve it the first time around. So the lead-time to implement projects can be reduced substantially.

If a project is already in operation in a similar environment somewhere in the country, acceptance by all concerned is much faster and smoother elsewhere. So change management becomes much easier and the time and effort involved in such implementations. Due recognition would accrue to the pioneers who created the successes. It would enable others to learn from them if they wish.

For implementing agencies, be they Government owned organizations like NIC, CDAC and State PSUs or private IT companies, it offers a unique opportunity to derive the full return and reward, both domestically and internationally, from their successes and the IPRs/ products that they have created. It would help create an archive of e-governance applications in the country.

f) **Have clearly defined Interoperability policy -** The e–governance architecture needs to ensure that the components are scalable and adaptable to the future requirements. It has also to ensure that the Local

architecture fits into the State level and the same into National and Global architecture. Interoperability is a major criterion while defining the architecture.

g) **Manage and Update content on govt. websites efficiently and regularly -**Content is the 'heart' of any IT project. The govt. agency has to keep in mind some of the important technical guidelines, while developing the software and computerization, to facilitate the future integration. The department also needs to address the security of transactions and messages. The process of content development encompasses a whole range of activities starting with a comprehensive study of the system and identification of the objectives. It ends up with delivery of the intended benefits to the citizens or other users of the IT System. The govt. agencies must ensure that the data on the sites is always updated and relevant.

CONCLUSION

It is evident that objectives of achieving e-governance and transforming India go far beyond mere computerization of stand alone back office operations.

It means to fundamentally change as to how the government operates, and this implies a new set of responsibilities for the executive and politicians. It will require basic change in work culture and goal orientation, and simultaneous change in the existing processes. Foremost of them is to create a culture of maintaining, processing and retrieving the information through an electronic system and use that information for decision making. It will require skilled navigation to ensure a smooth transition from old processes and manual operations to new automated services without hampering the existing services. This can be achieved by initially moving ahead in smaller informed initiatives in a time bound manner and avoiding large and expensive steps without understanding the full social implications. Every small step thus taken should be used to learn about hurdles and improve upon the next steps, both in terms of direction and magnitude. The proposed changes are likely to be met with a lot of inertia which cannot be overcome by lower and middle level officials with half hearted attempts to diffuse the technology. The change in the mindset to develop and accept the distributed and flat structured e-governance system is required at the top level system to beat the inertia.

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