

Factors Responsible for Effective Implementation of E-Governance in Indian Context

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Abstract

Among the developing countries, India have increased the use of Information and Communication Technologies to improve citizen services delivery and dissemination of information to citizens. Mostly the developed countries are in the advanced phase of e-governance implementation while the developing country like India have increased their focus only in the last decade. The India is one of the pioneered country which providing the government services through the online service centres and these centres are called Common Service Centres. Common Service Centre is one of the most popular project of the government which is rolled out throughout country by the respective state governments. In this research paper, researcher identified the factors which are responsible for the effective and sustainable running of the e-governance initiatives in India context.

Keywords: CSC, GeM, GPR, DLF, Agile Methodology.

1. Introduction

Based on the study undertaken on e-governance initiatives in Satara district, there is a wide scope for effective and improving the e-governance services in terms of saving the cost, time and efforts. For the success of e-governance projects and citizen centric service delivery, government should focus on stakeholder's experience. Hence, the following factors are point out for long term sustenance of the e-governance projects and effective service delivery. Although India is ahead in public delivery of services in the country but there are some issues at ground level. There was a lack of involvement of the real implementers of the e-governance projects like district administration and revenue department officers [1].

2. Factors responsible for effective implementation of E-Governance

A. Start Small, Think Big and Go Fast:

The government having limited resources i.e. in the form of technology and human capacity. Therefore, e-governance projects should be backward compatible with the existing ICT resources. Instead of directly implementing in the large scale process re-engineering and backend computerization, go with taking small steps is more probable to succeed. The government should initiate the projects by the simple provision of information on the web and slowly work our way to achieve the long-term vision of an integrated platform for delivery of e-services.

B. Avoid Traditional Models, Follow Agile Methodologies:

Traditional model starts with the requirement gathering and communicated to the software development team by the business analyst. Software development team translates these requirements into software.

Once the development of software is completed, the client checks the product against the requirement specifications then acceptance testing is carried out. The software is deployed on the client side without much change in requirements from one phase to another phase. This model is more or less technology oriented but on another hand e-governance project is more management oriented. In the e-governance project development, an application runs the risk of failure so this method is not capable of catering to the change in requirements and the priority. Government departments involve in multiple functions and officers involve in handling multiple portfolios. In addition to these new schemes, tasks and projects are added. Actually, one office doesn't cooperate with another though within the same department. So the problems arise while requirement gathering from the stakeholders in the departments in a single cycle. Required information is not provided at the time of the initial phase. The software development team may become redundant by the time the concerned department is readied for user acceptance. This would cause initiation of next phase, development and testing, causing the interruption in the project implementation. By the time the next upgraded version of the project is presented, the government or departmental officials may have lost their interest or priority may have changed, especially when the boss changes. This may lead to an endless loop of requirement gathering and subsequent development, may result in failure of a project. Therefore, waterfall model for e-governance project development likely to be time consuming.

Conventional waterfall model taking many years to complete the automation of all the processes of the government departments instead government should use agile methodologies to succeed in project development. Applying agile development methodologies on e-governance project development increases the chances of project success.

C. Government Ownership and Private Facilitation:

E-Governance projects require external support and facilitation; in fact, e-governance project may not be designed and developed without private players support. In this DIT plays important role in coordinating and cooperating with the government and the private companies. The government should be promoting the involvement of the stakeholders of the society. Mahaonline portal is the perfect example of this concept [2]. The government should adopt PPP model for implementation and sustain the e-governance projects in the public sector. Various private companies are playing an important role in providing e-services to their private clients and government departments. By adopting PPP model, it is feasible to enlarge the resource pool without compromising on the security issues.

D. Low Cost Based Selection:

Wherever possible, no need to develop the module which is already developed the solution; integrate the solution with minor customization and save time, effort and money. Use the ready-made Government eProcurement Solutions of NIC (GePNIC) solution developed by National Informatics Centre for the quick procurement process. Also, the government departments can direct purchase product or services from Government e-Market Place (GeM).

E. Digital Literacy Programs:

People can use the electronic services when they have the basic knowledge of the computer and internet. There is a need of minimization of the digital divide in the society. Government agencies or NGOs should helps in teaching the computer basics and the Internet to the people who residing in rural and hilly areas. Government should make mandatory to local body members, government staff and youth councils to become digitally literate.

F. Appointment of Regular Technical Staff

Technical staff plays a very crucial role in implementation and sustenance of the e-governance projects. Recruitment of these positions should be regular with the essential technical qualification [3]. It will be better for government to recruit Chief Technology Officer (CTO) in each government departments in the state level who is able to take on responsibility for the success, failure and stresses of the entire department. CTO will exhibit a thirst for working in teams, helping to staff and being forthright. At the district level, government recruit the District Technology Officer (DTO) and responsible for all e-governance projects running in the district. At each Tahasil level, government should appoint the well qualified regular technical staff who will look out all the technical problems related to the ongoing e-governance projects. Besides this, government should declare the Digitally Literate Friend (DLF) in each village who will helps to the needy citizens for doing digital transactions.

G. Participation of stakeholder in policy making:

Stakeholders plays an important role in the development and sustenance of the e-governance projects. The technical staffs are works at ground level of the projects. They know much about the ground level technical and managerial problems evolve in the e-governance project implementation. Managerial staff works in between the technical staff and high power committee of the project designing and policy making. Ultimately, citizens are the actual service consumers of the government services. So the government should include these three stakeholder while policy making, designing and development of the e-governance projects.

H. Development of Mobile Apps:

Now days most of the services are available on mobile phones, tablets etc. This is the era of “e-services on the move”. The government need to develop and start services on movable electronic gadgets also. Android, iOS and Windows based mobile applications should be developed and integrated with real time data so as the citizens shall be avail the government services anywhere and anytime.

I. Motivation for self service:

E-governance applications develop in such a way that citizens can easily interact and avail the service without any help of the operator. Motivate the citizens to participate in the e-governance system. This will reduces the operating cost, service cost and efforts of the citizens.

J. Connectivity:

Citizens are able to use the online services when the internet connectivity available in their area. The internet connectivity must available in every corner of the district. Government must build the e-resilience infrastructure i.e. the ability of ICT systems to withstand, recover from and change in the face of an external or natural disaster. Government should provide the high speed internet connectivity at the low cost so as common people able to use the e-governance services on their smart phone or desktops.

Researcher proposed futuristic, strong and resilient OFC based network architecture for providing high speed internet connectivity to every corner of the district. In this architecture, all departments’ servers are located in the Tier 4 data center and for monitoring, managing the network establishing the central network monitoring center at the state headquarter (SHQ). In this architecture, proposed the underground,

overhead cable and satellite communication system with Multi Protocol Label Switching (MPLS) network. All taluka headquarters are connected with underground OFC using ring network topology. Laying OFC from taluka headquarter to the gram panchayat (GP) using ring network topology whereas wherever underground OFC not possible use overhead OFC.

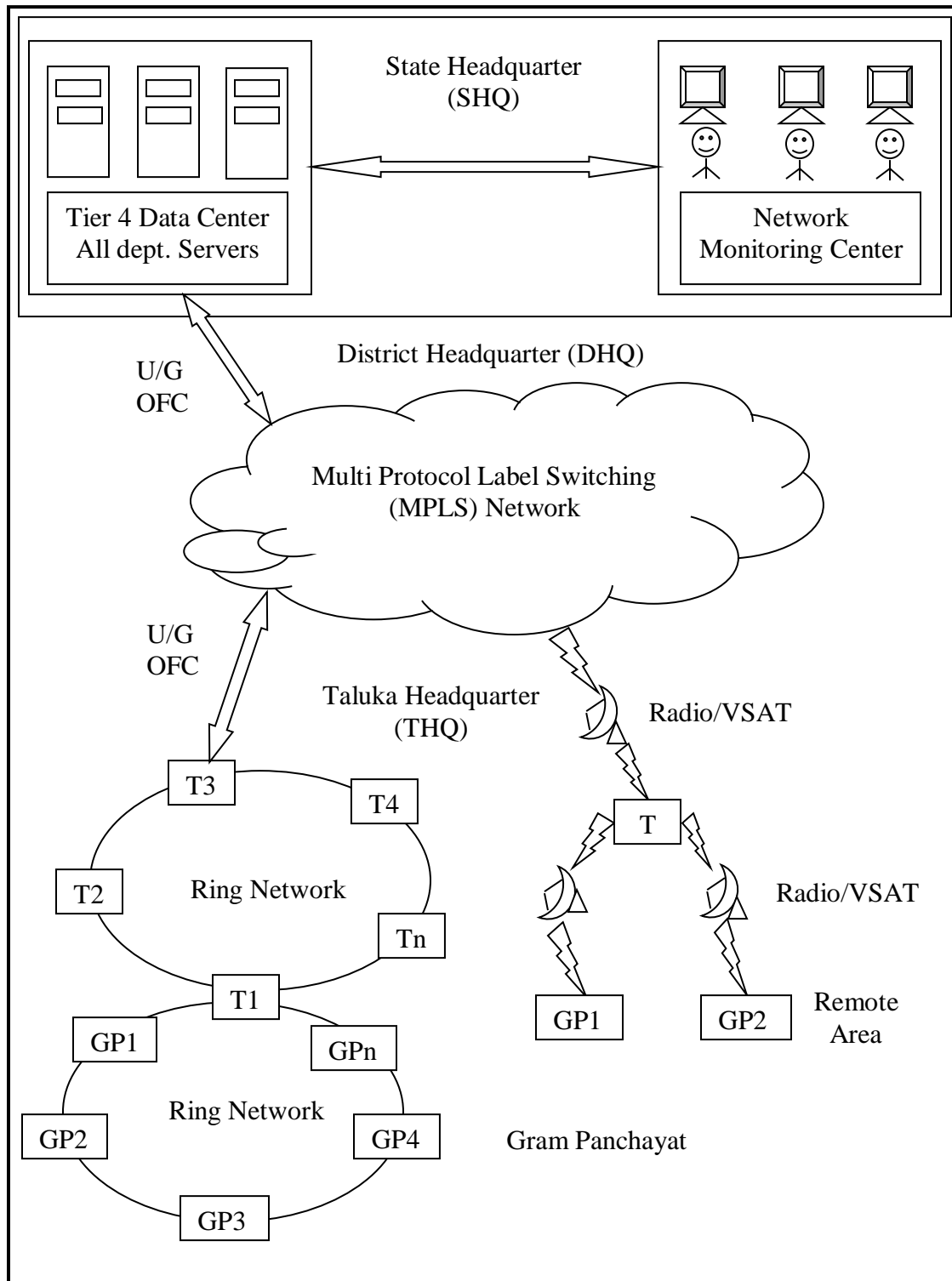


FIGURE 1. Network Architecture for internet

In the remote/hilly area wherever underground/overhead laying of OFC not possible use the radio/satellite communication system. Overhead OFC to be laid for providing horizontal connectivity at District, Taluka and Gram Panchayat level to Government Offices. Operations and Maintenance would entail undertaking all activities to ensure uptime of the network as per agreed Service Level Agreements (SLAs). Network Architecture for internet connectivity shown in figure 1.

K. Reducing the operating and service cost:

Services provided by the e-governance initiatives are intended to contribute to a reduction in operating costs. At present major cost components of e-governance projects includes the IT infrastructure, application software development and system software. Use of open source software, cloud infrastructure, less human intervention and paper less services will reduce the operating cost of the service. Services must be continue to meet the desired level of efficiency and performance which save the cost, time and efforts.

L. Use of Open Source Software:

Government should promote use of the open source software and cutting edge technologies for the development of e-governance applications. Open source software advantages are freedom from vendor lock-in, proprietary software, quality of solution and ability to customize and fix.

M. Integration of Services and Data:

Government should focus on the development of the national database. All the government services should integrate to each other so as they share the common database throughout the country. This national database can access by any state or central government for their government services.

N. Use of UID Number:

According to the census reports of Indian Census 2011, the population of India is 1.21 billion [4]. State as well as central government is facing multiple challenges in providing the service to the citizens due to the vast population and diverse demographics of the country. Government services including various certificates, utility bills, landholding records, ration cards, taxation and education, reach out to the citizens. Besides, this government unable to reach the truly needy persons among the large population, UID is the solution for this problem where the all the e-governance initiatives can integrate with the UID. Linkage of the UID is brings the solution for the artificially made problems by the bureaucrats.

O. Security and Privacy of Government Data:

Security and privacy of government data is the biggest challenge to the government agencies. The publication of health records, election data, census data tax returns or even court transcripts have all proved problematic for individual privacy in different contexts. Government publishes the data on the web without any password protection. Government should provide the security and privacy of the data so as the citizens can access his own data with entering the essential credentials. Data should be stored in the encryption format and periodically projects should undergo for security audit by the third party security audit vendors. There is a need of design and development of independent security and privacy policy for the e-governance projects.

P. Authentication:

The citizens, VLE's and other stakeholder's authentication requests need to be verified before the use or access the service. These can be achieved by implementing e-authentication, e-verification, One Time Password (OTP) or 2-step verification.

Q. Training to Staff and Higher Authority:

Training is essential to the technical, managerial staff and higher authority of the projects. It is observed while this study, technical and managerial staffs are not gone for proper training of the newly implemented projects. There should be a training sessions to the real implementers, CTOs, DTOs, Technical Staff and Officers who are directly associated with e-governance initiatives.

R. Dynamic Routing:

To minimize or avoid failure/unsuccessful online transaction count, smart dynamic routing is the best solution for payment gateway. In this system, multiple banks payment gateways are assigned across the accounts. The transaction dynamically switches on best performing payment gateway which ensure consistently high success rate and routes the transaction through it. While the scheduled maintenance, downtimes, load on the bank servers, smart dynamic routing algorithm detects the drop in success rate and automatically routes the transaction through the another payment gateway. This system helps citizens/operators as well as government department to increase the performance of service delivery and success rate of the e-governance initiatives. Dynamic routing of payment gateway is shown in following figure 2.

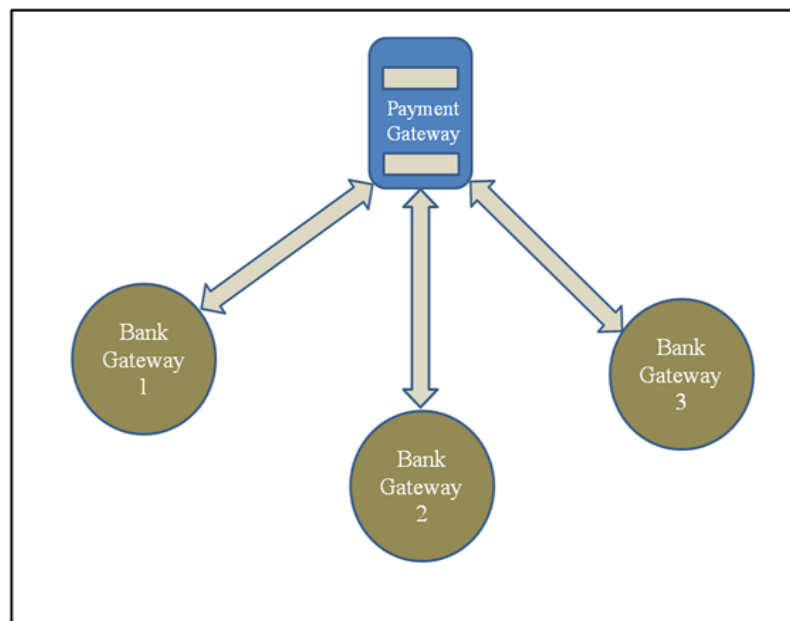


FIGURE 2. Dynamic Routing of Payment Gateway

S. Standardization of Forms and Formats:

Every district's service centres are using their own forms, affidavits and certificate formats. This creates the confusion among the citizens. It is very essential to standardise the forms, affidavits and certificate formats in all districts, state of the country.

T. Scheduled Update and Maintenance:

Change in the system is necessary for long run of the project. Timely updating of the technology and scheduled maintenance of the project is requiring without affecting the running services. This is essential for the more effective and best performance of the system.

U. GPR and Impact Assessment of E-Governance Projects:

For the development of citizen centric e-governance projects, the government should involve the experienced stakeholders like citizens, government departments, agencies, organizations, government officers/staff and policy makers/designers. Past experience of e-governance initiatives implemented is one of the key factors in e-governance development to avoid failure of the project. Every e-governance initiatives must have the vision and mission, objectives, performance monitoring system, delivery mechanism, citizen requirement study (CRS) reforms and defined standards. E-governance project should be initially implemented on pilot basis in one district of state or in one government department at the root level. Implemented projects must be undergo government process reengineering (GPR), if any limitations or loopholes found in the project then it must be removed.

Government should appoint the government/private agency for the assessment of the e-governance projects. Impact assessment is to be conducted for successful projects which have been delivering citizen services for at least 2 years [5]. Failure project must be undergo government process reengineering and find out the root cause of the project failure. The impact is assessed based on the outreach of services being delivered, cost of services, quality of service delivered in terms of facilities, convenience, interaction etc. and impact on overall governance in terms of corruption, accountability, transparency and participation.

This can be conducted on all the projects which are implemented by the state, central or local government so as to get a deeper understanding of the reasons behind the impact and identify the major limitations, gaps or bottlenecks for variations. Hence, within the same project, locations showing high level of positive and negative impact from a citizen point of view can be chosen to understand how and why the different locations have variable impacts on the citizen even though the overall project objectives and implementation models were/are the same. Keeping in view the expected impact of e-governance initiatives and government's mandate on third party assessment of e-governance projects, it is necessary to develop a system which can provide insights and outcomes for effective implementation in the future and fruitful online service delivery to the citizens. Furthermore, this will help to the government for further deciding the action plan on improvements in already implemented projects or new e-governance initiatives. GPR and Impact Assessment Framework for e-Governance Project is shown in figure 3.

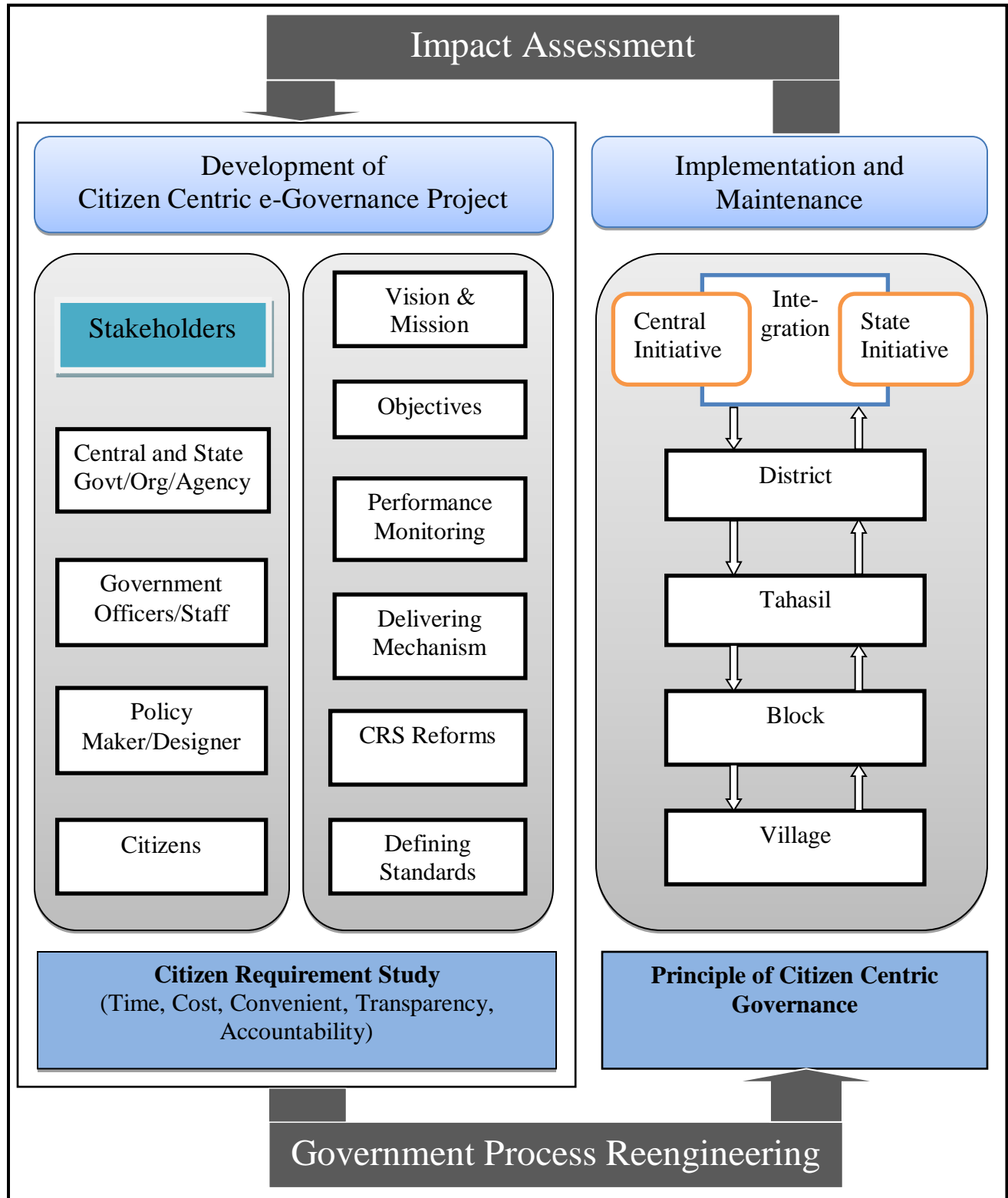


FIGURE 3. GPR and Impact Assessment Framework for e-Governance Project

3. Conclusion and Future Work

The citizens are the most important in government service delivery. To develop citizen centric e-governance projects, there is a need of strong vision and political willpower. The government should move towards the citizen centric approach by applying agile methodology rather than the traditional approach. Awareness among the citizens about the e-governance initiatives is totally depends on the citizen's age, education, occupation and digital literacy parameters; government should focus on the awareness programmes in the district. Citizen's perception about the e-governance system is perceived as more significant than the manual system with fewer efforts. Integration of services is very important for data sharing among the departments and strengthening the sustainability of the e-governance project. Instead of viewing narrowly towards technical issues, to overcome these problems, remove the managerial issues in the e-governance projects management and reform in outdated processes. There is potential for Research and Development (R&D) in e-governance, government should boost for R&D activities to march towards the good governance by considering above suggested factors. Hence, above mentioned factors are essential for effective implementation of e-governance projects helps the citizens to reduce travel time, cost and efforts which results into the reduce cost of the service and ultimately improves the quality of life.

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