

**eDistrict Mission Mode Project**

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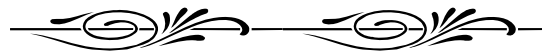
**National eGovernance Plan**

**Pilot Implementation Guidelines**



**DEPARTMENT OF INFORMATION TECHNOLOGY**

**GOVERNMENT OF INDIA**



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<b>1. BACKGROUND</b>	

1.1 Government of India has recently approved the National eGovernance Plan (NeGP) in pursuance of its policy of introducing e-Governance on a massive

scale, as enunciated in the National Common Minimum Programme. The NeGP vision aims to “**Make all Government Services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man**”.

1.2 To realize this vision, 27 Central, State and Integrated Mission Mode Project (MMPs) along with 8 support components have been identified and approved by Cabinet under NeGP, to enable and facilitate rapid introduction of e-Governance in the country, with focus on service delivery. As per the implementation strategy, an identified line Ministry/Department would define the service and service levels of their respective MMPs and develop detailed guidelines for achieving the same.

1.3 For delivery of “web-enabled” anytime anywhere access to information and service across the country, NeGP envisions 3 pillars of eGovernance infrastructure. These are **State Wide Area Networks (SWAN)**, **State Data Centre** for secure and fail safe data storage, and **Common Service Centers (CSCs)** as the primary front-ends for service delivery. XML based middleware Gateway infrastructure at the SDCs is also critical for the delivery of e-services.

1.4 eDistrict is 1 of the 27 Mission Mode Projects under NeGP under the Department of IT, GoI. eDistrict aims at providing support to the basic administrative unit i.e. “District Administration” to enable content development of G2C services, which would optimally leverage and utilize the three infrastructure pillars, to deliver services to the citizen at his doorstep.

## **2. EDISTRICT - OBJECTIVE**

- 2.1 The objective of the MMP is to target certain high volume services delivered at the District level, but which are currently not covered by any MMP under the NeGP, and undertake backend computerization to enable the delivery of these services through Common Service Centers in a sustainable manner, within a specific time frame.
- 2.2 The scheme has been formulated on the premise that
- a. Districts are the primary unit for delivery of bulk of the citizen services
  - b. Quality and content of Government Service Delivery can significantly improve with an integrated approach to service delivery.
  - c. Capacity building of the district administrative functions and processes will enhance efficiency and accountability in service delivery.
  - d. The services which would be delivered would have automated work flow and would perforce involve significant process redesign.
  - e. A Central data repository would be created at the district level, wherein data and information would be collected, stored, retrieved, used and exchanged in an efficient manner at all levels.
  - f. Enabling backend computerization for delivery of G2C services will ensure optimal leveraging and utilization of the core and support infrastructure such as Common Service Centers, State Data Centre, Statewide Area Network and Service Delivery gateway at the SDCs.

### 3. EDISTRICT – COVERAGE AND SCOPE

- 3.1 The scope for the Project is to be defined with reference to the set of services of the district administration that would be taken up under the Project.
- 3.2 The eDistrict Scheme focuses on **e-enabling the delivery of majority of citizen centric services**, which are administered by the District Administration.
- 3.3 **Timelines:** The scheme will be implemented in two Phases:
  - a) In **Phase I** Pilots would be undertaken covering 1-2 Districts of a State and
  - b) In **Phase II** the Project would rolled out across the State subsequent to successful implementation of the pilot.
  - c) Phase I would be completed within 18 months from the date of approval of the pilot project report. Phase II will be completed within 2 years from the date of sanction of statewide roll out.
- 3.4 The first step in the implementation of the eDistrict MMP (Phase I) would be to identify the pilot district and finalize the list of services that are be taken up under the Project.
- 3.5 It is proposed that a minimum of six (6) services to a maximum of ten (10) services can be undertaken under this Project.
- 3.6 The end objective of the Pilot is to give a roadmap for the complete State-wide rollout
- 3.7 A core list of six services has been identified at the national level which shall be taken up for implementation by all States which agree to participate in the e District MMP. The State can also add a further 4 services, at its discretion, for implementation under the MMP. The list of core services may be seen at para 3.10.
- 3.8 An indicative list of services, from which the States can choose 4 additional services, is at **Annexure I**. It may be noted that the list of services at **Annexure I** is illustrative and not exhaustive and States would be free to add additional services other than those indicated in Annexure I, subject to their meeting the criterion indicated in these guidelines.

3.9 In States where all or part of the of the services in the core list (Para 3.10) have already been e-enabled (data for the same is substantially digitized, workflow automated and the services are provided through an IT front end) by the State, then to that extent, State may select other services, subject to a maximum of 10 service in all.

**3.10 List of Core Services relating to :**

- a) **Issue of Certificates** including Domicile, Nativity, Caste, Marriage, Income, Employment ,etc
- b) **Pensions** – Social welfare Pensions (Old age, Widow, Handicap, Destitute)
- c) **Revenue Court** – including Case listing, Case adjournment, Stay orders, Final orders, Status of execution of orders: Information, Tracking, and filing of misc. applications.
- d) **Government dues and recovery** as part of Land Revenue – including Issue of notices, Record payments, Track default processes, Updation of treasury receipts etc
- e) **Public Distribution System**, Ration Card related services -including Registration, Change of address, Addition of members, Issue of duplicates etc.
- f) **RTI services** including redressal of Grievances – (Application, tracking, monitoring, redressal, appeals etc.)(Education, Electricity, Drinking Water, Panchayats, Health, Police, Revenue, Road, Treasury, Social Welfare, Irrigation, Woman & Child, Public Distribution System, Transport, Disaster Relief....

3.11 **Financial:** An approximate amount of Rs.4.00 Crores per pilot district has been earmarked under the scheme. An indicative list of the major heads and their expenditure envisaged is at **Annexure II**.

#### **4. SELECTION OF SERVICES BY THE STATE**

4.1 For the eDistrict MMP, the State should consider the following during the process of selection of services under the Project. This would include:

- a) **IDENTIFICATION**- identifying exhaustively the services that are rendered at the district level.
- b) **LISTING** – Having identified all the services at the district level, listing of these services in order of the demand/volume generated. For this the State may make use of already existing surveys by independent agencies (IL&FS CSC’s report, PricewaterhouseCoopers Study on eReadiness, etc.)
- c) **AUTOMATION OF BACKEND:**
  - (i) The selected services are to be classified with reference to the number of line departments involved in delivering the selected service and whether the line department/s is covered under any other MMP under the NeGP such as panchayats, police etc
  - (ii) High volume services where a single line department is involved in the delivery of the service should be taken up first , preferably for an end-to-end digitization & workflow automation (covering all process points) for effective online delivery of service. In any case, minimally, the service offered under the project must be enabled, to receive requests, track status and deliver the service online. The backend processes to the extent feasible may be taken up for e enablement.
  - (iii) For services which involve more than a single department at the backend, the extent of backend digitization and automation may be worked out by the State, taking into account the present e-readiness of the backends, the feasibility of digitization within the project timeline of 18 months and the financial implications of such an effort keeping in mind the total funding available for the Project, as indicated at Para 4.10.
  - (iv) For services which at the backend would involve computerization of a line department being covered under another MMP of National e-Governance plan, funding under eDistrict would only be made available for providing a minimum interface to the line department with the district administration

for activities such as receipt of requests, status tracking and delivery, and general information. *In such cases the backend processing and infrastructure shall be beyond the scope of the present scheme.*

- (v) For services that are taken up under eDistrict but where the backend and infrastructure in being funded out of an other project (NeGP or otherwise), it must be ensured that the entire workflow at the point of service fulfillment “citizen end” is automated – and can be integrated with the backend as and when the same is ready.
- d) **SELECTION** – From the list so drawn, services to be included in the scope of the e district MMP would be identified by the State based on an analysis of each identified service. The analysis would include considerations such as :
- (i) Importance – How important is the service from the citizen’s point of view and how sustainable the service would be in the long run, in terms of revenue generation through user charges.
  - (ii) Potential benefit to Citizen/Government from computerization.
  - (iii) Ease with which service levels (time bound) for each service can be defined and ease of replication through out the state
  - (iv) Degree of changes required in existing processes to meet the service level requirements of each of the service (BPR). [Annexure III provides an overview of the concept of BPR and the potential benefit from the same].
  - (v) Ease with which such changes can be introduced, including legal reforms,
  - (vi) Availability and quality of existing manual/digital data that can be used for online service delivery within a period of 18 months
  - (vii) Extent of coordination with multiple offices of the State for provision of the service online
  - (viii) Potential for levying user charges for sustainability of the initiative



## **5. IMPLEMENTATION STEPS**

Listed below are the sequences of steps to be followed in the implementation of the eDistrict MMP.

### **5.1 Selection of Pilot District**

- a) The State shall initiate the eDistrict MMP by identifying a pilot district in the State (Phase I)
- b) One pilot district in a State would be covered in the Phase I. (In exceptional cases and with proper justification, a maximum of two districts in a state may be considered).
- c) Phase I district should be taken up keeping in mind the ultimate objective of State wide roll out.
- d) The pilot district/s should ideally represent critical aspects of the State .viz...
  - (i) Population profile – rural / urban /tribal
  - (ii) Socio-economic/demographic profile
  - (iii) Likely stability of district collector and nodal officer during Project phase of 18 Months
  - (iv) eReadiness of the District (quality of resources available, quality of data, etc) for implementation

### **5.2 Identification/Notification of State Agencies.**

- a) Identification of a Nodal Department which would be the Project owner at the state level (IT/Revenue Department).
- b) Notification of a State Designated Agency (SDA) and a State Nodal Officer to represent the State and provide all State level support for smooth implementation of the Project. It is preferable that the State eGovernance Society, if in existence, be identified as the SDA for the project.
- c) In the event that a State e Governance Society is not in existence, for the Pilot, the State may notify an appropriate Agency as a SDA, however, for the rollout, the State would need to establish a State e governance Society.

- d) The State Designated Agency should ideally be a suitable PSU/Society of the State Government. In any event the SDA would have to be empowered to open a separate Bank account and operate the same for the implementation of the e District Project.
- e) Formation/Notification of District e-Governance Society (DeGS) as implementation agency in the District/s.

### **5.3 Preparation of the Project Report (PR)**

- a) Following the selection of the pilot district(s), and identification of the implementation agency, the State is required to prepare a Project Report (PR) for the selected pilot district/s as per the template enclosed in **Annexure IV**.
- b) The State shall have the option to prepare DPR on its own or through consultants. The DIT has empanelled a set of 5 consultants (list attached at Annexure V) for the e District Project and the State Government may request DIT to assign one of the said five consultants to assist the State in preparing the PR.
- c) The DPR so submitted by the State would be appraised technically and financially by DIT for approval. For the purpose of the appraisal a soft copy of the project proposal should also be sent to DIT.

### **5.4 Approval by DIT, GoI**

- a) Following the submission of the project report to DIT, GoI, the same would be appraised for conformance to the eDistrict MMP guidelines/scheme. Following the appraisal, the pilot project (Phase I) would be accorded administrative and financial approval and the same would be communicated to the State / State Designated Agency for project initiation
- b) The issue of administrative approval would be accompanied by release of first installment, which would include an amount of Rs. 10.00 Lakh, as seed money, for activities relating to setting up the DeGS

### **5.5 Selection of the Implementation Support Agency (ISA)**

- a) Following the approval of the eDistrict MMP (Phase I), the SDA needs to identify an agency for providing day to day implementation support to the DeGS for undertaking the project.
- b) For the purpose of providing implementation support, the DIT, GoI has empanelled five national consulting firms for supporting and conducting BPR and providing end-to-end project implementation consultancy. The list of consultants and Terms-of-reference for Implementation support is given at **Annexure V**.
- c) The State may choose any one of the above empanelled consultants who would be assigned by DIT, GoI for the estimated Project period of 18 months.
- d) Alternatively, the State may choose to undertake the task of BPR and project monitoring through existing resources/ state agency capable of providing such support for the entire duration of the project i.e. 18 months. In this case the funds for consultants earmarked for the project can be used for engaging its own team and also towards the physical implementation apportioned across funding heads (refer Para 8).

#### **5.6 Finalization of Service Levels and Business Process Reengineering (BPR)**

- a) In line with the philosophy of NeGP i.e. focus on service delivery with assured service levels, it is mandatory that prior to the start of the actual implementation, the State undertake a comprehensive study of the existing processes for service delivery, to identify areas for improvement across the selected services. (Minimum of six and maximum of 10 – refer to Para 3.5).
- b) This improvement would be aimed at achieving service levels for each of the service, to be approved by the State as a standard prior to the actual implementation of the pilot.
- c) Irrespective of the choice of implementation support agency as part of the project, the following documents need to be prepared and submitted:
  - (i) Documentation of the existing process of service delivery across the eDistrict Services

- (ii) Existing Services Levels
- (iii) Proposed Service Levels, based upon benchmarking / opportunities for improvement
- (iv) Identification of Business Process Reengineering requirement to achieve the proposed service levels, including areas where legal changes would be required.
- (v) Documentation of To-Be Process maps in line with the BPR proposed
- (vi) Cost Benefit Analysis of the proposed changes
- d) Implementation of BPR and Change Management are the key components in ensuring the success of eDistrict MMP.
- e) Biometrics is a proven method of uniquely identifying a person. Once a person is identified, his data can be extracted from the database and he can be served, without the need for repeated and detailed physical verifications. Hence, it is recommended that Biometrics should be effectively utilized to avoid delays caused by manual methods.

### **5.7 Project Implementation**

- a) Following the State approval of the service levels and BPR required for implementing , the DeGS would initiate the development of the following documents:
  - (i) BPR and Change Management Plan
  - (ii) IT Infrastructure Up gradation Plan
  - (iii) Procurement and Financial Management Plan
  - (iv) Site Preparation Plan
  - (v) Functional Requirement Specifications for the re-engineered Processes
  - (vi) System Design Document and SRS
  - (vii) Training Requirement

- b) At the same time the SDA would also initiate steps for the identification of a technical partner as the Application Developer, which may be NIC or any other organization – Government or Private.
- c) The activities relating to procurement, site identification, preparation, and installation of hardware would have to be simultaneously coordinated by the implementing agencies both at the State and district level.
- d) The SDA/DeGS would ensure data digitization of requisite records by within the agreed time frame.
- e) The SDA/DeGS would ensure development, completion and successful testing of application software by the Application Developer
- f) The SDA/DeGS would ensure end-to-end implementation of the project within the project timeline and cost.

#### 5.8 Independent Outcome Assessment

- g) Following the total / partial implementation of the pilot project, DIT may appoint a third party to independently assess the outcome of the project in line with the outcome envisaged – detailed in Para 10 of this note.

## 6. THE IMPLEMENTATION STRUCTURE

6.1 Undertaking eDistrict calls for active participation and close interaction amongst various stakeholders such as State Governments, District Administration, District Level officers (DLOs) of Citizen Centric Service Oriented Line Departments, Field Functionaries, and Local bodies and implementation consultants.

6.2 The 'e-District' Scheme has a 4-tier implementation structure:

- a) **Department of Information Technology, Government of India** – to provide funding, enable synergy with MMPs, Empanelment of project consultants, Aggregation and sharing of best practices, provide suggestions on BPR at an all India level, and facilitate the pan-India rollout.

- b) **State Government**, the owner of the project would closely work with Department of Information Technology, GoI to provide over all guidance in implementation and monitoring of Project across the State. The State Government would appoint a high level State Project Committee which would oversee the implementation of the Project at the State level.
- c) **The State Project Committee** shall be duly empowered to take decisions on the implementation strategy, process reengineering requirements and make all policy level decisions needed for ensuring the successful implementation of the Project.
- d) **State Designated Agency (SDA)** shall be the authority responsible for implementing the Project at the State level.
- e) At the core of the implementation structure is the **DeGS**, led by the Collector, which would be responsible for implementing the project supported by the ISA and the Application Developer.

## 7. ROLES AND RESPONSIBILITIES

### 7.1 Department of Information Technology (DIT), GoI

- a) Frame and Issue Guidelines to the State Governments and District Administration for implementation of 'e-District' in the Pilot Districts and State-wide roll out
- b) Receive and appraise proposals from the State for Pilot 'e-District' implementation
- c) To form eDistrict Project Management Group (EPMG) for monitoring the program at national level
- d) Provide technical assistance to the State for effective implementation of the MMP
- e) Provide empanelled list of consultants for BPR and project monitoring to the State Governments
- f) Organizational capacity building

- g) Monitoring implementation', consolidation of BPR, Products, Case studies and etc.

## **7.2 The State Government**

- a) The State Government will need to set up a State Project Committee, identify a State Designated Agency (SDA) and a State Nodal Officer to represent the State and provide all State level support for smooth implementation of the 'e-District' Project. A suitable SDA may be appointed, keeping in mind Para 5.2 of these guidelines.
- b) Identify the pilot district and approve the project report for taking up the Phase I of the eDistrict MMP
- c) Define the services for Pilot 'e-District' implementation as prescribed in the selection criteria
- d) Set up a duly empowered State Project Committee (SPC) for overseeing the implementation of the 'e-District' Project.
- e) To enter into necessary MoUs/agreements with DIT/other central agencies/service providers for funding, defining service levels for identified services, ensuring service level adherence, implementation and sustainability of the pilot project and subsequent state wide rollout.
- f) To identify and nominate the project champion at State (IT/ revenue department) and District level and ensuring complete involvement of the project champion from start to finish of the Project
- g) Issue instructions and ensure formation of District e-Governance Society with a District Implementation Committee in the Districts.
- h) Provide State Financial Support as per the project report
- i) Provide Infrastructure and other support to the State Designated Agency (SDA)

## **7.3 State Project Committee**

- a) The SPC would oversee the (creation) and functioning of the District e-Governance Society and the SDA with reference to the 'e-District' Project,

including taking decisions on the implementation strategy and oversee the process of selection of the agency for software development.

- b) It would be the driver for policy, regulatory and other relevant changes and would take decisions on issues relating to the BPR needs for the Project.
- c) It would take an appropriate decision on the mode and degree of integration of the existing physical, digital and institutional infrastructure of various Government Departments as well as the infrastructure created under 'e-District', to ensure service delivery through CSCs.
- d) Review and approve the sustainability (revenue) model for pilot project and the replication of the same for State wide rollout. This would include decision on fixing of user charges and the sharing of revenue between the District e Governance Society and State e Governance Society etc.
- e) Propose the State wide rollout based upon common software, approach and financial model following the completion of the pilot project.
- f) The SPC should have representation from key Departments like Revenue, IT and user departments which would use the application and provide services to the citizen.

#### **7.4 State Designated Agency**

The role of the SDA would primarily be to:

- a) Extend necessary policy level support to develop a sustainable framework for regulation, promotion and ramp up of e-platform for G2G and G2C Systems of the District.
- b) Synchronize roll out of 'e-District' with CSC, SWAN, SDC and SSDG.
- c) Detail out implementation strategies, in case of time lag between SDC/SWAN and eDistrict implementation.
- d) Coordinate and facilitate interactions between the project implementation partners/consultants, State Government Departments, District Administration



- e) Enable creation of a comprehensive State package for 'e-District' and other technical support. Facilitate integration of the existing ICT enabled and other Government Schemes into the 'e-District'
- f) Facilitate administrative readiness and e-readiness of the District
- g) Facilitate selection of ISA and Application Developer under the guidance of State Project Committee / Apex Committee
- h) Facilitate fund transfer to the District Authorities in case funds for the pilot project are allocated to the SDA
- i) Draw up a comprehensive user charges policy and a sustainable road map for the e district project for approval of the State Government.

#### **7.5 District e Governance Society (DeGS)**

- a) The DeGS would provide close tie-ups with all the stakeholders in the Project at field level. The stakeholder from the district government would include Collector/Deputy Commissioner, Sub Divisional Officer / Magistrate, Tehsildar / Patwari, Block development officer, and field functionaries
- b) Provide commitment and support to bring-in the process changes
- c) Provide overall guidance to the Project at District level
- d) Work closely with the ISA and Application Developer to undertake the field work, comprehend the requirements, document the observations, prepare roadmap, redesign the processes
- e) Build capacity of the staff and executive resources of the district administration. DeGS and ISA would also work closely with the technical solution provider for developing and customizing the software, implement the technical solution
- f) To implement guidelines of State Government and Government of India for 'e-District', CSC, SWAN, SDC, SSDG and any other e-Governance Programmes in the District.
- g) To manage, supervise and implement backend computerization of Government Departments with long term vision of Government.

- h) Coordinate, manage & monitor the receipt & utilization of financial support received from the State Government / Government of India
- i) Support the Common Services Centers (CSCs), throughout the District for providing G2C services as per the Service Level Agreements between Departments/ SDA for CSCs and the Service Center Agency. It would identify and recommend the Citizen Services which can be provided in consultation and co-ordination with the concerned departments on priority and assist SCA in roll out of G2C services in CSCs.
- j) Collect user charges as fixed by the State Government and keep audited accounts of the same.
- k) Take all publicity measures and campaigning through media like TV, radio, newspaper, conferences, seminars, public meetings, banners and posters etc for creating awareness about transformation through e-Governance for the benefit of the rural masses.
- l) Initial seed money of Rs 10.0 Lakhs would be provided for the smooth establishment and functioning of the society by way of contribution from Government of India.
- m) Explore revenue streams for the sustenance of the District eGovernance Society and assist SDA in formulating policies accordingly.

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#### **7.6 National Informatics Centre (NIC)**

- a) NIC has been providing considerable support to State and District Administration in the design and implementation of eGovernance Initiatives.
- b) Given the experience and presence of NIC personnel at District Level, the State/District Administration may choose the services of the NIC in development of the software solution required for online provision of the services selected under the eDistrict Pilot Project. However, the decision on the same is left to the State Government/District Administration taking into account local factors such as:

- i. Availability of manpower
  - ii. Ease of integration with existing initiatives
  - iii. Availability of existing application for services proposed
  - iv. Prior experience
  - v. Ease of implementation for State
- c) In the event the State / District Administration chooses to utilize the services of any external agency for application development and deployment, NIC still has a very important role to play in eDistrict and other State MMPs. State NIC should be part of the Committee overseeing the implementation of the Project at the State and District level so that the project benefits from the knowledge of the NIC of the existing applications and facilities i.e. integration of various legacy applications
- d) The documentation that NIC needs to help on includes High level SRS, Design document, UAT document and Database schema.
- e) Hence, NIC should be involved in the project from the initial stages onwards and should provide inputs on the as-is Assessment done by the ISA, to the State.
- f) During the Pilot and State-wide rollout, if NIC is the application developer, it should also be involved in system training for the users.

### **7.7 Implementation Support Agency (ISA)**

- a) As indicated in Para 5.3.2, DIT has created a list of empanelled consultant for providing implementation support to the District Administration. In case the State / District Administration chooses to avail the services of the empanelled consultants, they would be responsible for:
- i. Preparing the DPR
  - ii. Recommend the service levels
  - iii. Recommend redesign of the Business Processes (BPR)

- iv. Carry out the field study in order to understand the requirements of the citizens, Existing delivery mechanism, levels of interfaces with the Governments, the impediments and difficulties in the accessing the services and information
- v. Design an efficient and effective end to end service delivery process
- vi. Understand the capacity building requirements and help create a facility for development of capacity
- vii. Suggest the functional requirements for the application , based on the BPR

The support of implementation support agency would be segregated across two stages

b) **Stage I: Design Phase**

- i. Documentation of the existing process of service delivery across the eDistrict Services
- ii. Existing Services Levels
- iii. Proposed Service Levels, based upon benchmarking / opportunities for improvement
- iv. Identification of Business Process Reengineering requirement to achieve the proposed service levels, including legal changes required.
- v. Documentation of To-Be Process maps in line with the BPR proposed
- vi. Cost Benefit Analysis of the proposed changes
- vii. Design the Functional Requirements of the e-district application
- viii. Prepare the Project plan and budget for implementation
- ix. Capacity Building / Training Plan
- x. Provide justification for the proposed technology architecture

c) **Stage II: Implementation Phase**

- i. Design the Change Management Plan
- ii. Prepare System Requirement Specification (SRS) for application development

- iii. RFP for data entry Vendor
- iv. Design the site Layout
- v. Project monitoring and reporting to the District administration
- vi. Designing the PPP options for providing services
- vii. Project Management of the site preparation
- viii. Review of the User Acceptance Test (UAT) procedures and review of test results
- ix. RFP for Statewide rollout for Pilot e-district application
- x. Engage STQC or any other independent testing and audit agency for certifying the application, as per laid-down terms, before state-wide rollout.
- xi. In case of States selecting its own ISA (other than the centrally empanelled consultants) similar terms may be prescribed.

#### **7.8 Application Developer – Application Development and Digitization**

- a) In States where NIC is identified as the Application Developer, only the data digitization agency will have to be selected, for which ISA shall assist in designing the RFP and the subsequent processes.
- b) State where application development is preferred through a non NIC partner, the need would be to identify Application Developer for both software development and data digitization. If it is found feasible, the Application Developer could also be made responsible for Data digitization, apart from application development, and migration from legacy application.
- c) The Application Developer would also be responsible for:
  - i) System Requirement Specification
  - ii) Software Development
  - iii) Development of UAT procedures and test cases
  - iv) User Training
  - v) Rollout in the District
  - vi) Interface with front end delivery centers for application go-live
- d) The Application Developer can also be the Implementation Agency,

using the Service Delivery model. i.e. a turnkey contract can be given to the Application Developer (IT partner) for state-wide implementation.

- e) STQC, or any other independent audit, compliance and certification services agency, should be engaged to undertake all conformances testing of the application, as per the deliverables given in the above framework. This agency should also be involved in the Project, right from the beginning, so that they understand the requirements completely. In any case, their involvement should not be later than the FRS development stage. This certification should happen by the time the Pilot is completed and before the State-wide rollout.
- f) The objectives of the State Portal MMP are related to eDistrict. State Portal also intends to provide eforms and front ends to citizens so that they can easily apply for government services, even in cases/ departments where the back ends are not ready. Hence, the Application Development agency has to ensure that that if such forms/ front ends are already available through State Portal, they should be readily usable in eDistrict, and vice versa.
- g) It is envisaged that the State Portal will be the single window interface to the citizens for Government service. Hence, the eDistrict architecture must be open to interface seamlessly with State Portal and SSDG.

## **8. FUND MANAGEMENT**

8.1 All funds under the 'e-District' Project for Pilot implementation would be released directly to the State Designated Agency identified by the State Government in the project proposal. As per the States request funds may even be released directly to the District e-Governance Society for the pilot project. However for the rollout, the funds would be released to the SDA only.

8.2 The funds would be released in installments on accomplishment of prescribed milestones, and the State Government certifying the utilization. The prescribed milestones are listed below.

8.3 The phase I (Pilot) funding would be given as grant-in-aid by DIT. However for the phase II (State wide roll out) the funding is proposed to be in the ratio of 75: 25 between DIT and State respectively.

8.4 The first installment would be released subsequent to administrative and financial approval by DIT of the pilot proposal. This would be 30% of the project cost which would include seed money of Rs 10.00 Lakhs for the District e Governance Societies.

8.5 The second and third installment would be 60 % and 10 % respectively on utilization of released funds.

8.6 The funding plan over the eighteen (18) months period is shown in **Annexure VI**.

8.7 The funds for State-wide roll out of 'e-District' would be released only to those States that have implemented the pilot districts successfully as per the guidelines.

8.8 All subsequent releases would be subject to submission of utilisation certificate by the SDA & release of State Government Commitment & utilisation of the same. In case the actual utilized amount works out to be different from the amount sanctioned by the DIT for the said Scheme for a State, the Designated Agency would be required to submit a revised sanction proposal for the 'e-District' Project, prior to release of next instalment.

8.9 The service delivery would be based on a PPP model and user charges would be levied. The recurring expenses could be covered through the users' charges recovered from service delivery. The State must ensure financial sustainability by at least covering the operating expenses.

## **9. KEY CHALLENGES IN 'E-DISTRICT'**

9.1 Some of the key challenges that State Government / District Administration need to consider while developing the project proposals and during implementation of the pilots are

- a) Time Bound Project : Project needs to be completed in 18 months

- b) SDA and State Nodal Officer should be staffed and appointed, else there will be no body or Champion to steer the project.
- c) Service levels need to be defined, which would require BPR including possible Legal and regulatory changes
- d) The pilot project needs to be synchronized with the rollout of the core and support infrastructure for NeGP - SWAN, CSC, SDC and SSDG.
- e) Ensuring administrative stability of e-Champions for ensuring time bound implementation and responsibility
- f) Resolve issues and conflicts related to existence of Paper and Paperless system in parallel
- g) Standardization of financials, technology and applications
- h) Integration with existing applications with e District
- i) Absence of IT organization structure at the District except limited 1-2 technical personnel of NIC
- j) Process reforms and Change management
- k) Development of sustainable financial model

## **9.2 Awareness among the Government Departments**

- a) The SDA for implementing the scheme in the State needs to take appropriate steps to ensure all the State Departments are cognizant about the 'e-District' Project, its implementing structure and the support required from each department.
- b) SDA may organize seminars for the concerned State and District Administration officials.

## **9.3 Monitoring**

- a) The eDistrict Project management Group (EPMG) at DIT would monitor the program at national Level.
- b) The State Government would need to set up a State Project Committee (SPC) at the State level to coordinate with functionaries of various concerned District Administration and Government Departments as well as district level officers



for ensuring smooth implementation of the 'e-District' Vision, Mission and Objectives.

- c) It is expected that the Monitoring Committee would meet on a regular basis to review the implementation progress of 'e-District' at Pilot District locations
- d) DIT will stipulate and put in place a mechanism for monitoring of all 'e-District' on a continuous basis during Pilot implementation phase and Pan-India roll out phase. All States would be required to comply with such stipulation in order to receive funds under the MMP.

#### **9.4 Service Level Agreements**

- a) The State Government would need to define specific service levels for each of the services proposed under the pilot district and Service Level Agreement (SLA) will need to be entered with service providers in case an outsourced model for implementation is proposed.

#### **9.5 Modifications/ Addendum**

- a) DIT, Government of India may issue any future instruction/ clarification from time to time regarding implementation of the 'e-District' National Mission Mode Project. Such instruction/ clarification/ modification would form the Addendum for the instant Guidelines and shall be binding on all concerned.

#### **9.6 Deployment Architecture / Technology Solution**

- a. **Annexure VII and Annexure VIII** to this document provides guidelines for defining solution architecture for the eDistrict application and the same should be considered for deployment.
- b. The application development should be based upon open standards
- c. All application development needs to support n-tier (thin/thick client) architecture and should be based upon service oriented architecture.
- d. The software development should follow a SLDC in line with the relevant ISO guidelines.

Additionally, DIT has set up a committee on standards and the application would need to ensure compliance to the same, in case these are finalized

before start of the development. Annexure X may be referred for the interim report on Standards.

## **10 DEFINITION OF SUCCESSFUL OUTCOME**

For the project to be considered successful, the following outcome would be measured:

### **10.1 Phase I**

- e) Working solution for the district replicable across the State.
- f) Successful implementation of Business Process Reengineering (BPR) leading to tangible value addition to services delivered.
- g) Number of live notified 'e-Services', adhering to prescribed service levels.
- h) 'Institutionalized' capacity to sustain e-enabled delivery on a consistent and regular mode. (Data updating.)
- i) The 'E-District' Systems and solution should be live for at least six months with services being provided through CSCs and other front end systems
- j) eDistrict should leverage the SWAN, SDC , CSC and State Gateways
- k) Development and implementation of a financial sustainability model
- l) Agreement by the State for undertaking a time bound Phase II of the project

### **10.2 Phase II**

- a. Number of live notified 'e-Services', adhering to prescribed service levels across the state.
- b. Enhanced accountability of the governance structure to deliver efficiently and transparently.
- c. Uniform 'e-District' Package in the State.

**ANNEXURE I – CATEGORY OF SERVICES (INDICATIVE)**

<b>A-</b>	<b>CERTIFICATES</b>
<b>B-</b>	<b>REVENUE</b>
<b>C-</b>	<b>MARRIAGE SERVICES</b>
<b>D-</b>	<b>ELECTORAL SERVICES</b>
<b>E-</b>	<b>LICENSES</b>
<b>F-</b>	<b>COURT SERVICES</b>
<b>G-</b>	<b>UTILITY SERVICES</b>
<b>H-</b>	<b>COLLECTION OF PROPERTY TAX</b>
<b>I-</b>	<b>GRIEVANCES</b>
<b>K-</b>	<b>EDUCATION</b>
<b>L-</b>	<b>HEALTH</b>
<b>M-</b>	<b>EMPLOYMENT</b>
<b>N-</b>	<b>POLICE</b>
<b>O</b>	<b>TRAVEL/SERAI</b>
<b>P</b>	<b>GRANTS/ LOANS</b>
<b>Q</b>	<b>SOCIAL WELFARE</b>
<b>R</b>	<b>INDUSTRIES</b>

**ANNEXURE II – INDICATIVE PROJECT COST FOR ONE DISTRICT**

<b>S No</b>	<b>Description</b>	<b>Cost (Rs Lakhs)</b>
<b>1</b>	<b>Hardware</b>	<b>140.00</b>
<b>2</b>	<b>System Software</b>	<b>30.00</b>
<b>3</b>	<b>Application Software</b>	<b>30.00</b>
<b>4</b>	<b>Data Digitization</b>	<b>50.00</b>
<b>5</b>	<b>BPR and Consultancy</b>	<b>75.00</b>
<b>6</b>	<b>Site Preparation</b>	<b>15.00</b>
<b>7</b>	<b>Training</b>	<b>15.00</b>
<b>8</b>	<b>Connectivity</b>	<b>15.00</b>
<b>9</b>	<b>Administrative expenses</b>	<b>10.00</b>
<b>10</b>	<b>Seed money to e-Gov Society</b>	<b>10.00</b>
<b>11</b>	<b>Others</b>	<b>10.00</b>
	<b>T O T A L</b>	<b>400.00</b>

### ANNEXURE III – APPROACH TO SERVICE LEVELS AND BPR

#### A. Service Level Definition

The objective of indicating common services and service levels is to provide consistent service levels to citizens and service oriented delivery in one of the corner stone for NeGP. The common services can be grouped into following categories and the State can use the following illustration to define service levels across all of the services proposed under eDistrict MMP.

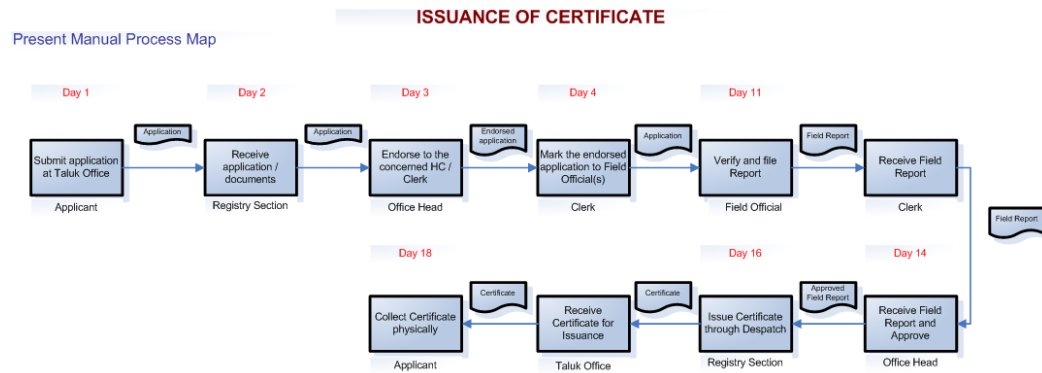
Sl. No.	Category of Service	Possible Service Levels
1.	Information Availability / Dissemination	Online (Site to be updated at least every 7 days; Changes in existing information uploaded within 2 working days)
2.	Availability of Forms	Online 100% forms used in the department available
3.	Tracking of Application	Online (Status Change provided online within 2 working days)
4.	Transaction (w/o verification)	Online, through Payment Gateway <2 days, through Banks / Service Centres
5.	Transaction (requiring verification of documents)	< 5 working days
6.	Transaction (requiring personal interface/ field visits / verifications)	< 10 working days
7.	Payment	Online, Through Payment Gateway
8.	Availability of Transaction Service	Online, 24*7 99.9% uptime
9.	Grievance Redressal System (including services under Right To Information)	Online, Immediate Acknowledgement / Reference No. Response Time < 2 working days Redressal of Complaint < 7 working days

#### B. Business Process Reengineering

The importance of process redesign to facilitate and ensure best practices in the realm of e-Governance cannot be over emphasized. It is vital that the Process Redesign, i.e. the critical analysis and radical redesign of workflows and processes within and between governmental departments, is undertaken if we are to achieve breakthrough improvements in performance. While deployment of IT solutions increases the efficiency of operations, it will not necessarily deliver the best results unless the processes are reconfigured appropriately to the demands of the

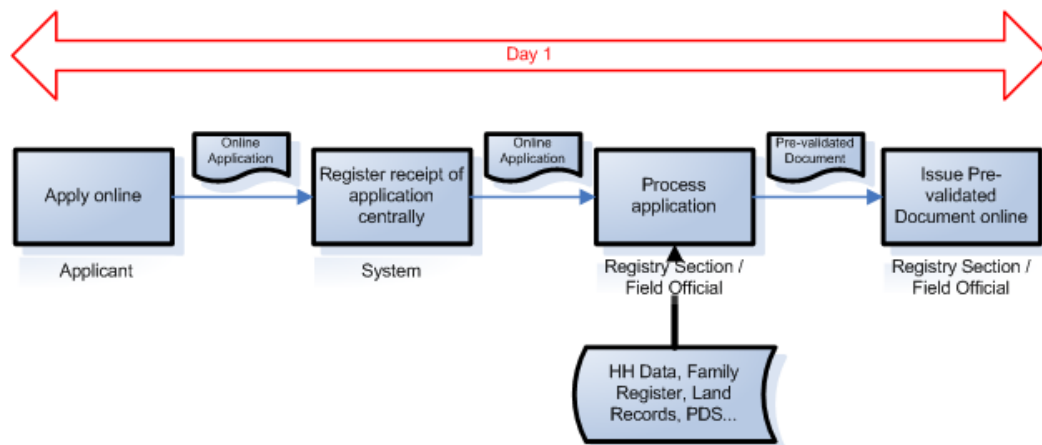
specific circumstances. Otherwise, e governance would simply result in “computerization” and the duplication of manual processes by machine-based processes resulting in “automated” waste. Process Re-engineering ensures that processes are redesigned to ensure effectiveness thereby delivering the maximum value to the government, its employees and most importantly, the common citizen. The concept of BPR is best exemplified by the graphical representation below:

**Before BPR**



**After BPR**

Redesigned Digitized Process Map



**Approach (Illustrative)**

**Step 1:** Review of the objective and performance metric (service level) of the service. Say the objective is issue of a certificate within 2 days of the receipt of request.

**Step 2:** Mapping of these performance metrics (outcomes) with current levels. Say currently it takes 15 days to issue.

**Step 3:** Assessment of whether deficiencies in service metrics can be met through changes in the current set-up, especially those relating to centralized data

availability, process points- its spread physically and geographically, hierarchies involved and functions and tasks performed at each of these points, and delegation of power at each of these points and so on

**Step 4:** Prepare a case for the proposed change in rules/acts detailing the benefits to citizens/business (supported by examples of similar initiatives in other states/ departments)

**Step 5:** Enable and ensure implementation of the redesigned processes with appropriate changes by way of amendment to the, rules, acts, administrative orders etc.; Adequate empowerment of the Agency responsible for executing the changes.

**Step 6:** Prepare a contingency plan for the next best option for undertaking process changes in case the proposed changes cannot be achieved.

## **ANNEXURE IV – FORMAT FOR SUBMITTING PROJECT PROPOSALS**

Terms for preparation of Project Report (PR) for the e district pilot projects for a State (generally one district per State but not more than two districts per State)

### **3.1 Introduction**

- The PR must start with a brief on the district – its demography, topography, structure in terms of blocks/tehsils and other socio economic parameters. The brief must include the functions of district administration and the organization structure. PR should highlight the existing infrastructure, any back end computerization already completed and overall e readiness.

### **3.2 Define project Objectives in line with NeGP mission and EGRM of the State**

- PR must indicate which of the specific objectives of National e Governance Plan could be achieved by the project and in particular, how the project, if successful will influence the attainment of these objectives.

### **3.3 Define Project Outcomes envisaged**

- The outcome(s) of the project should specify its impact on and benefits to a target beneficiaries that are anticipated on the achievement of project objectives. The identification project outcomes should help in deciding on which activities and services are required to be undertaken.

### **3.4 Identify and detail out various services offered**

### **3.5 Define Target beneficiaries**

### **3.6 identify various stakeholders and define roles and responsibilities**

- The stakeholders should include all sections such as Ministry, department, district, vendors, consultants, implementing agencies, monitoring agencies, citizens etc.

### **3.7 End user consultation to understand stakeholders' expectation**

### **3.8 Business Model**

- The PR must provide details of the proposed business model of the project to ensure self-sustainability of the project in terms of continuity of the services to



the beneficiaries without the dependence on external sources of funds. The demand for targeted services, estimated adoption rate and revenue must be estimated.

### **3.9 Business Process Re-engineering**

- The PR must indicate the requirement of process re engineering and a brief methodology to conduct the same.

### **3.10 Service Levels and Measurement**

- The PR must detail out the service levels for each offered service and propose a methodology for continuous measurement and reporting.

### **3.11 Capital Expenditure**

- The PR must provide complete details of capital expenditure proposed for the project. The location wise numbers of each hardware, software, furniture, data digitization, project management cost etc required must be provided. The PR must indicate existing hardware/ software etc and identify its usage in the proposed project. The requirement of database and application server needs to be justified in the PR since it is expected that all the databases and application would be hosted in the State Data Centre (SDC) proposed by the Department of Information Technology (DIT).
- In case machines at client end and LAN, the same to be planned on the basis of requirement at each office (net of existing machines or machines planned under any other e Gov projects).

### **3.12 Operating expenses**

- The PR must detailed out projected year wise operating expenses

### **3.13 Capacity Building**

- The PR must indicate the proposed organizational structure of the project with clear reporting relationship. The detailed number of personnel at various levels required to be indicated. The training needs of the personnel to be highlighted with clear training plan, training modules and time frame for the training identified

### **3.14 Contracting Arrangements**

- The PR must provide details of all contracts identified (even if not finalized) and the annual contract values.

### **3.15 Risk**

- The PR must explain the various categories of risks which are most likely to impact on the performance on delivery of services. The PR must highlight the method to evaluate the overall chances of potential loss and the plan to control & monitor the same.

### **3.16 Cost Benefit Analysis**

- The PR must show the results of cost benefit analysis

### **3.17 Service Delivery Mechanism**

- The PR must clearly detail out the proposed channel for delivery of services and plan for integration with the CSC scheme.

### **3.18 Institutional Mechanism for Project Management**

- The PR must indicate the Project Management and Monitoring structure proposed, in consultation with the Stakeholders.

**ANNEXURE V – LIST OF CONSULTANTS EMPANALLED FOR IMPLEMENTATION SUPPORT AND TOR FOR THE BPR**

LIST OF CONSULTANTS EMPANELLED FOR IMPLEMENTATION SUPPORT

1. Wipro Limited (Infotech Division)  
Plot No 480-481, Udyog Vihar Phase III  
Gurgaon 122 016  
Telephone: 0124 30840000  
Fax: 0124 3084349
  
2. PricewaterhouseCoopers Pvt Ltd  
PwC Centre, Saidulajab, Opposite D Block, Saket  
Mehrauli Badarpur Road,  
New Delhi 110 030  
Telephone: 011 41250000  
Fax: 011 41250250
  
3. 3i Infotech Limited  
14 Anand Lok,  
Next to Ansal Plaza, Khelgaon Marg  
New Delhi 110 049  
Telephone: 011 51041222  
Fax: 011 51041225

The empanelled project support consultant is expected to undertake the following tasks as part of the pilot project implementation:

- Conducting Requirement Analysis ( analysis of the processes/situation as it exists and redesigning the same to achieve the targeted outcome )
- Identifying the BPR requirements and design the legal changes required to implement the process improvements.
- Designing functional requirements of e-district application with MIS requirements for assessing the impact keeping in view of unified technology architecture.
- Designing RFP for selection of Data entry vendor
- Designing the site layout of Administration Offices
- Support in implementation of the e-district applications at the sites
- Project Management with Status update and progress tracking of the project online
- Designing PPP options for sustainability of the Project
- Designing of the RFP for State-wide Rollout of the e-district Application
- Defining the current and proposed service levels

Details of task to be carried out

1) **Requirement Analysis:** In order to benefit from this initiative it is necessary to analyze and then redesign the current district administration system and its components to bring in effectiveness, efficiency and added value contribution to the objective of district administration. The BPR would comprise of following steps:

➤ **Planning:** This step would entail planning activities that would include the creation of a project scope document, and an examination of existing workflow system. The building blocks of the district administration identified to be covered under the study are as follows:

- Information availability & access
- Personal presence
- Receipt & Validation of application with supporting documents
- Lodgment
- Receipt of Fee
- Preparation of case file, noting & forwarding
- Maintenance of register (Statutory & control)

- Verification
  - Release Payment
  - Document storage & retrieval
  - Decision / Approval / Authorization
  - Delivery
- **As-Is Assessment:** This assessment would primarily comprise of examining the existing workflow processes and system used by the district administration. A business process map for the current process may be prepared. Subsequently, similar activities would be grouped for process normalization and redundant activities would be proposed for removal. The study would also identify the current services and service levels
- **Target Envisioning:** The target e-district would be envisioned after benchmarking of the current processes against relevant best *practices* to obtain ideas for improvement.
- **To-Be Process:** After the identification of potential improvements to the existing processes, the development of the proposed workflow system would be built on the research from the benchmarking and best practices activities. It would also be required to identify and document risks associated with implementation of the automated workflow processes. The resultant processes would be validated by the district administration officials and duly approved by the government before implementation.

**Designing the functional and software requirements of the e-district Application:**

To design the functional requirements of a comprehensive workflow software system consisting of all the required modules for the district administration at various levels – District collector office, Additional District Magistrate, City Magistrate, Tehsildar, Revenue Inspector. Detailed study would require to be conducted for finalization of Software requirement specifications. The scope of SRS would be as under:

Micro level study of candidate systems of District Collectorate, Zila Parishad, Sub division, Tehsil, Block and other offices under the direct purview of District Administration

List out office wise systems for Software development

Describe the system as seen by its end users, analysts and testers.

Describe the design view of the system encompassing with broad classes/data bases, transaction layouts, integration/ interfaces for process transformation.

Describe the process view, addressing the processes involved in building the systems, interlinkages in process transformation, performance, scalability and throughput of the system.

**Designing RFP for Data Entry vendors and Digitization of manual records and assisting the district during Bid process management:** In order to enable the district administration to work on designed electronic workflow system, the concerned officials may require referring old records. Therefore, as per the requirement old manual records would be digitized using the data entry vendors. The RFP for selection of the Data entry vendors will be designed by the consultants.

**Assist in Designing the Site Layout:** The concerned offices of the district administration may also require modification in the existing infrastructure to implement the proposed system in an effective manner. The consultants will assist in designing the site layout.

**Project Management of the Implementation of the e-district Application: Assist during:** Monitor the progress of the project activities and deployment of the application in the district and testing with the end users. The consultants will track the progress of the projects and provide status update to the District administration/ State project committee on regular intervals. They will timely escalate the issue and plan for risk mitigation strategies

**Change Management and communication plan** – The consultants will design the project change management strategy and communication plan. Design training manual and the assist in conducting functional trainings

**Designing PPP Options:** The consultants will study the existing transaction volumes and the model for designing PPP options for sustainable implementation of the e-district. The consultants need to design a revenue model based on the user charges

**Designing the RFP for Statewide Rollout:** The consultants need to design a RFP for Statewide Rollout based on the Pilot e-district implementation.



**ANNEXURE VI – FUNDING PLAN**

	Start of Month						
	1	3	6	9	12	15	18
	Phase I			Phase II		Phase III	
Hardware			30%	30%	40%		
System software				50%	50%		
Application software				50%	50%		
Data digitization			25%	25%	25%	25%	
BPR and Consultancy	10%	20%	20%	20%	10%	10%	10%
Site Preparation		50%		50%			
Training				30%	30%	40%	
Connectivity						50%	50%
Administrative Expenses	30%			30%		40%	
Seed Money to e Gov Society	100%						
Others	10%	10%	10%	20%	20%	20%	10%
<b>Total</b>	<b>5%</b>	<b>6%</b>	<b>18%</b>	<b>29%</b>	<b>28%</b>	<b>10%</b>	<b>4%</b>
<b>Phase I = 30 %</b>			<b>Phase II = 60 %</b>		<b>Phase III = 10 %</b>		

## **ANNEXURE VII – GUIDELINES DEFINING ARCHITECTURE FOR EDISTRICT APPLICATIONS**

### **1.0 Introduction**

Software Development and Deployment Framework for E-District Applications is worked out to aid the Stakeholders from States, IT System Development Agency and nominated Quality Ensure team. The suggested framework is inspired and built using three models – Spiral Model, Rationalized Unified Process Model and Iterative Model. The Framework is divided into number of steps which should be used to build interoperable and good quality E-District Applications. The Framework recommends that during various Iterations of Application Development life cycle, Hardware Sizing and Procurement of IT, IEEE Standards for development, ANSI SQL-2003 standards for RDBMS and Open Standards for hardware platforms should be used. Various parameters which can be utilized to estimate the number of processors/Server, hard disk storage space and RAM have been suggested. Emphasis is put to build redundancy in the hardware equipments to ensure high availability of System for E-District Application.

### **2.0 Framework Objective**

This framework is developed to provide Software Solution Development and Deployment framework for E-District MMP

### **3.0 Scope**

This framework for has been developed as a template to help State governments in the smooth operation, management, and oversight of the e-district application projects. This will also help the States in understanding the phases for software development and its architecture.

The applications which require least number of Approvals, and are not very complex must be prioritized for development work.

The number of input fields of Input Forms /Screens, and Reports of the Applications must be standardized.

### **4.0 Software development and deployment disciplines**

- Software Requirement Study and Planning
- Analysis and Design
- Development
- Application Testing
- Application Deployment
- Configuration and Change Management
- Software Project Management
- Resource Allocation Planning



Systems should be delivered through development of components since it will make it possible to assign well defined responsibility to a role, easier to maintain, and increasing the possibilities to reuse.

- **Assign clear cut responsibility to each Sub program/procedure**

If the number of lines in a subprogram is exceeding 500, then it should be taken as a signal that we are over loading responsibility to a sub program. Re-factor the subprogram/procedure.

- **Naming conventions for local variables and parameters of a procedure**

Give names of smaller length to local variables and more verbose names to parameters of a subprogram/procedure.

- **Avoid using Constant Literals**

The use of constant literals such as

if AmountWithdrawn > 15000 then printf (“ Withdrawl not permitted in ATM);

should be avoided, instead meaningful names as ATMWithdrawlLimit should be used in place of Rs 15000.

- **Avoid using chains of Nested Statements**

Developers should avoid using chains of IF/Else and several cases in Switch Statement.

- **Use Logs inside the Code**

Logs should be put inside the code since it helps in debugging the code faster, understanding the thought process and structure of the program logic and tracking the execution of a program.

- **Put comments in Code**

Adequate comments inside the body of each program should be put, especially inside a sub program indicating the input arguments it accepts and output arguments it sends.

- **Use Defensive Style of Programming**

If a subprogram returns Null values they must be treated/checked inside the caller program to indicate that the action taken inside it is as per the agreed functional specifications. Application Testing

Test discipline should be a part of Development Process and it should be done:

- To verify the interaction between objects.

- To verify the proper integration of all components of the software.
- To verify that all requirements have been correctly implemented.
- To identify and ensure that defects are addressed prior to the deployment of the software

### **Testing Documents:**

Testing Document should describe:

- testing strategy,
- test cases,
- expected outcome and attributes of test process –
- quality, assessment,
- comparison and quality improvement,
- logs, incident reports (as per IEEE 829 Std -1998 Software Test Documentation) should be prepared and maintained.
- Penetration testing for security

Besides, the usual testing methods: Unit Testing, Module testing, integration, white-box, Black-box, load and stress testing, it is very important that we should carry out testing for **Web Interface** which includes:

- Testing that Forms run under all types of Browsers
- Impact of opening multiple windows
- Effect of using back option and situations responsible to denial of Services
- Impact of pressing Submit button next time while Credit Card Payment is being made.
- How to simulate the load on the application due to Web Users

Follow an iterative approach, which means testing should be done throughout the project as it allows to find defects as early as possible, which radically reduces the cost of fixing the defect. Tests should be carried out along four quality dimensions *reliability, functionality, application performance, and system performance*.

### **Application Deployment**

The purpose of deployment should be to successfully produce product releases, and deliver the software to its end users. Following outcomes and the activities should be ensured:

- Producing external releases of the software
- Packaging the software
- Distributing the software
- Installing the software
- Providing help and assistance to users

## **Configuration and Change Management**

The Change Management discipline should deal with:

- Configuration management
- Change request management
- Status & management of change requests

### **Configuration management**

Configuration management means systematic structuring of the products. Artifacts such as documents and models need to be under version control and these changes must be visible. Dependencies between artifacts should be maintained so that all related articles are updated when changes are made.

### **Change request management**

During the system development process several changes may come, track for them and artifacts corresponding to them should be kept.

### **Status & management of change requests**

Change requests with states such as new, logged, approved, assigned and complete should be kept along with attributes such as root cause, or nature (like defect and enhancement), priority etc. in database so that useful reports about the progress of the project can be produced.

## **Software Project Management**

This discipline should be used to focus mainly on the important aspects of an iterative development process:

- Risk management
- Planning an iterative project, through the lifecycle and for a particular iteration
- Monitoring progress of an iterative project, metrics

This discipline should be divided into two parts- Coarse Plan and Iterative Plan.

### **Coarse Plan**

The coarse plan should focus on following items:

- The **Risk Management Plan** should detail out how to manage the risks associated with a project. Detail out the risk management tasks required to be carried out, responsibilities, and list of additional resources needed for the risk management activity.
- The **Risk list** should be prepared and sorted out in decreasing order of sensitivity including both known and open risks to the project along with contingency actions.

- In case, the State goes out for development to a party other than NIC, then Application Management, control over its IPR and Code will remain with State Government.
  - The control over Database, Process Control, Change management, backup and data restoration will also remain with State Government
  - The State will build capabilities by grooming people to accept the above responsibilities.
- 
- The **Problem Resolution Plan** should be made describing the process used to report, analyze, and resolve problems that occur during the project.
  - The **Product Acceptance Plan** should be prepared describing how the customer will evaluate the deliverable artifacts from a project to determine if they meet a predefined set of acceptance criteria. Detail out these acceptance criteria, and identify the product acceptance tasks, i.e., test cases and person and resources required for them.

### **Conformance Assessment Testing**

STQC shall be undertaking all conformances testing of eGovernance applications/MMPs as per the deliverables given in the above framework. They should also be involved right from the beginning so that they understand the requirements too. Their involvement should not be later than the FRS development stage. This certification should happen by the time the Pilot is completed and before the State-wide rollout.

### **5.0 Technology Guidelines for IT Infrastructure**

The pilot may be developed keeping in mind the DIT initiatives such as SWAN, SDC, CSC, and NSDG being implemented under the NeGP for successfully deploying the various MMPs

**Centralized Architecture Design** Go in for 3 or more tier Centralized Architecture Design as it is cost-effective. Specific benefits include:

- A reduced total cost of ownership,
- Upgrades and new releases of the Application are to be done only at the central server, rather than having to be installed on several machines.
- Easier system maintenance and administration,
- The ability to manage and monitor the system from a single, central location
- Better management and administrative control
- Better deployment of security
- Economical to build redundancy at each level for business continuity and Disaster Recovery

### **Build Browser Based User Interface:**

Build browser based interface for all types of clients – Internet users, Employees (Staff) and CSC (Common Service Centre) users.

### **Centralized Architecture**

Since SWAN and State Data Centre (SDC) implementation is in an advanced stage in most States, States must go in for Centralized architecture. The flavour of eDistrict production environment should be identical to 3 or more tier architecture so that the migration path with SWAN and SDC is straight forward.

The ISA/ Consultant must also suggest a Risk mitigation Plan to cover all risks associated with a centralized architecture, including but not limited to a Disaster Recovery Plan (DRP) and High Availability (HA) plan

States where network connectivity is poor and it will be some time for complete network rollout may consider adopting a distributed architecture, as an interim measure only. They should also prepare a migration path to the centralized model when SWAN becomes operational.

### **Option to choose Applications Already Available in Central Pool of NIC**

The States which want to use applications already developed by NIC may use these applications and may start providing services to the citizens.

### **NIC to update and enhance the functionality of already developed Applications**

NIC should incorporate the new functionality and update the applications already developed by it, on the request of State. Some of the applications may need migration from old technologies to new one, e.g., if some of the applications are developed under FOXPRO, they may require re-engineering; the same may be requested by the State.

### **Networking Guidelines**

TCP/IP based communication protocol including IPv4/Ipv6 should be supported by the Application.

### **Security Policy and Guidelines**

The Software and application development process should take appropriate measures for data privacy, confidentiality and access control issues while designing the software application strategy. The security initiatives may include PKI infrastructure, DMZ Policy, encryption, authentication, authorization and digital signature.

## **6.0 Strategy for doing Pilot Project**

The Application development for e-District should be done centrally at State level by a single Agency (NIC or non-NIC). The core development of functionality for all the districts should be done centrally, which further can be customized as per individual district within the same application. States, which want to do E-District pilot project

in more than one District, should simultaneously carry out the customization required for the other districts within the same application. This will help in faster development and deployment of application. The centralized development approach will help in maintaining uniformity of development tools, hardware, and system and application software at the State level and ensure better co-ordinations among the departments.

### **Option -I**

States which want to do E-District pilot project in more than one District should divide the functionality /services in terms of Modules and assign them to two different teams working under the same Project Development Manager who is responsible to ensure the integration of the two independent module providing functionality of the application. This will help in faster development and deployment of application. This will also help in maintaining uniformity of development tools, hardware, system and application software at the State level and ensure better co-ordinations among the departments. It will help in avoiding duplication in development efforts.

### **Option –II**

On the other hand, If some States want to get developed the same set of Services in two Districts through two different Vendors, due care must be taken to ensure that same set of tools, hardware, software and Application systems are used so that the environment for set of services remains homogeneous.

## **7.0 Features expected in RDBMS:**

- Should support data base partitioning and parallel processing
- Should have support for generation, consumption of XML data and XML based query capabilities.
- Allow multi dimensional OLAP capabilities for Data Warehousing

As we are preferring Centralized Architecture so we should try to build High Availability solution at the database server level to avoid complete failures of services, which are delivered through database servers. There are two modes in which, High- Availability solution works; these are Active-Passive and Active-Active modes.

However, in case of Active-Passive Configuration, in Normal circumstances, *one* node out of two nodes provides services to the users if *single* application is running. The second node remains ideal but it is so configured that it is in a state of readiness to take the load of first node in the event of failure. So it is clear that investment on one node is not fully utilized if we run one Application. The application should be developed in a modular format. The better approach is to run multiple modules simultaneously distributed between the two nodes and configured in such a fashion that when one node goes down the other takes over all the modules and when second node goes down the first one takes over all the modules. This is the best way to utilize Active-Passive Configuration of an RDBMS, which does not support Active-Active Configuration.

In Active-Active Configuration, in Normal circumstances, **both** the nodes (hardware servers) **configured in a cluster** continuously provide the services to users, so both the nodes are utilized in online enquiries, transactions, etc. while running the same application. When one node goes down, the entire load of the application switches over to the second node.

## 8.0 ANSI-SQL Standards for ensuring Interoperability

ANSI SQL-2003 can be used, while it should be kept in mind that bit data type is dropped from it. It is suggested that minimum SQL3 (SQL-1999) standards must be used for data types and developers should have the freedom to use features of SQL-2003. But if they are using features of SQL-2003 then proper documentation of the features used in the Application should be made so that the effort involved in backward migration of the data from SQL-2003 to SQL-1999 are known in advance to the Developers.

## 9.0 Hardware Sizing:

Following parameters should be included to arrive at – Number of Processors/machine required for Data Base Server and hard disk space requirements:

- Number of transactions done per minute
- load of reports
- resources required by concurrent number of users including DBA and other maintainers, database size
- data archival period
- TPMC of the Chip
- While deciding the size of RAM the requirements of Operating System, System and Application software should also be considered, besides the above parameters.
- Adequate redundancy should be built at Processor, Machine (or Server or Node) and Storage Space (Disk) level.
- Redundancy at Controller level for Storage Space should also be built.
- Disk should be configured in RAID 0, 1 or RAID 0, 5 level to avoid loss of data. In RAID 0, 1 the disk space required is double the size of actual data requirement but chances of losing data become very low practically zero.
- Cluster environment should be built for critical applications with fail-over and fail back features.
- Similarly, the configuration of Application Server and Web Server should be worked out. Generally Application Server is lighter than Data Base Server and Web Server is kept lighter than the Application Server. But Redundancy and load balancing features must be built in them to achieve over all highly available system.

## 10.0 Application Server Software

Select Application Server:

- Which supports Open Standards like Web Services and SOA to provide inter-operability with a number of Operating Systems.
- Gives Driver support for accessing and storing information in a number of databases
- Provides capabilities for Centralized configuration and control

#### **11.0 Procurement of IT Infrastructure**

- Assessment of existing IT infrastructure
- Requirement analysis for additional IT infrastructure and procurement
- Data entry/migration
- Installation of hardware and system software
- Porting of Solution Software
- Release of Installation Certificate



**ANNEXURE VIII - POSITIONING STATE E-GOVERNANCE SERVICE DELIVERY GATEWAY (SSDG) - XML BASED MESSAGING MIDDLEWARE**

**Introduction**

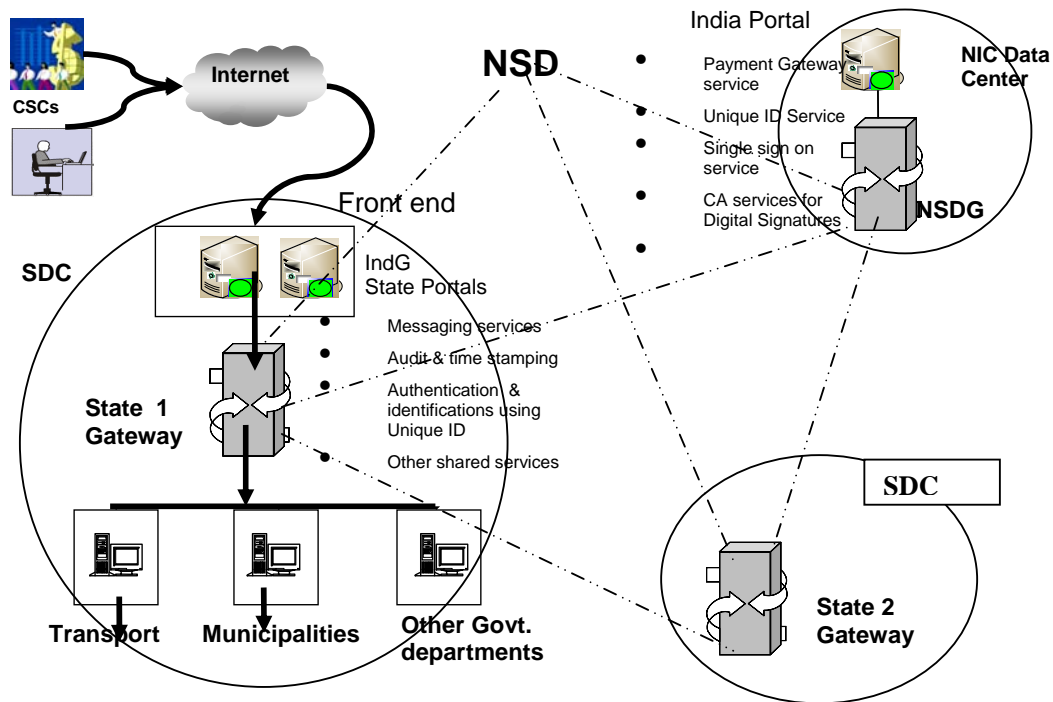
This mission project aims at setting up a National gateway called NSDG for standards based messaging between heterogeneous applications. A cluster of Gateways would be setup across the country which will be an integral part of the SDCs to ensure standards-based interoperability between the various departmental applications at the back end and connect the CSCs or other delivery channels at the front end. Acting as a nerve centre, the gateways would handle large number of transactions across the entire network; provide a common set of specifications and a single point access for departments. Such an infrastructure would also help inter-departmental working in a co-ordinated and synchronized manner. As a central message processing mechanism it would also help in tracking all transactions of the Government.

As a part of this project, a National Service Directory (NSD) to resolve the address and service resolution between the Gateways is also being set up. The NSD will publish all the departmental services across the country available through the gateways

With the CSCs, and E-District project, this soft infrastructure is a critical component in the SDCs. This infrastructure will facilitate:

1. Standards based messaging and routing switch ensuring secure and guaranteed delivery of services between the front end portals and the back end departments and between departments. It will de-link the backend departments from the front end service delivery mechanisms like CSCs.
2. This infrastructure will eliminate the need for the departments to have multiple linkages with the various SCAs providing citizen services through the CSCs. Rather a department will connect only once to the Gateway and transact with multiple CSCs. Hence the Gateway will Simplify the view of the external world to the departments and also ensure better security
3. Complete audit logs & time stamping of transactions going through it.
4. The Gateway will also help the Departments backend work flow evolve gradually as the Gateway acts as a middleware de-linking the backends from the front end. This means that even the Departments which do not have the a complete automation or work flow at the back can still deliver e-Service to the citizens in a limited manner through the Gateway. To cite as an example, a server may be put up at the department for message exchange with Gateway in absence of readily available infrastructure at the department.
5. In future, Gateway has the capability to add additional functionality to support shared common services like Authentication, payment gateway interface, etc
6. Use of common language viz XML for message exchange between applications and business processes within and outside Government

## Positioning Gateway at the State data Center



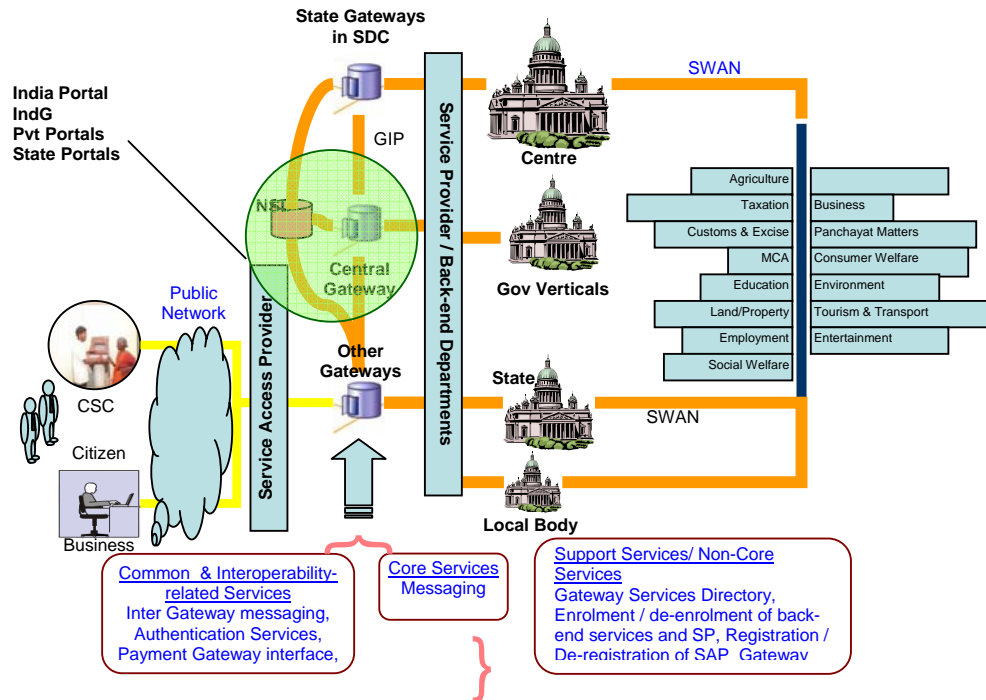
## Network Architecture with SDCs, CSCs, Gateway, NSD infrastructure in place

### Positioning of Gateway

1. The Gateway is Core standards based messaging & routing middleware based on XML and SOAP envisaged as a cluster at the National level & SDCs. CSCs are the front-end access channels delivering various Government and private services. As far as the access to Government contents and services is concerned, following possible options for user interface/access at CSCs are being considered:
  1. Through State Portals
  2. Any other portal, if State Portal is not there
2. In either of the options, the Portal will connect to the State Gateway residing at the State Data Centre. This would mean implementation of connectors using the APIs and the Message exchange behavior of the Gateway at the SCA portal if they are directly accessing the departmental services. If the SCA portal is only forwarding the service request of the citizen to the State Portal, then it is the State Portal, which will build the requisite connector interface with the Gateway. In either case, the request is sent to the State Gateway.
3. The State Gateway will have all the intelligence as to how to route each request to the respective departmental Server offering the service, for example, Birth/Death or other Certificate related requests will be routed to Municipality Server and property tax related requests will be routed to Land Record Server. Each Department will have a Departmental Interface Connector (DIS) of State

Gateway installed on a server. The response from these servers will be returned to the State Gateway Server which in turn will give it back to the SCA portal or the State Portal.

## Role of Gateway in e-Gov Service Delivery



### System Architecture for Gateway as the Middleware

#### 1. New Services which are at the conceptualization stage

The services for which the architecture design is underway or yet to start must incorporate the Gateway functionality in the design. However, this is assuming that the SDC is up and the gateway is in place in the SDC. But in cases where the SDC is not up and the application design is underway, the core gateway messaging functionality can be incorporated as a module, which can be, replaced once the State gateway is up. The development of this Gateway code can be undertaken under the guidance of CDAC, which is implementing the gateway.

#### 2. Existing Applications to use the Gateway architecture in Design

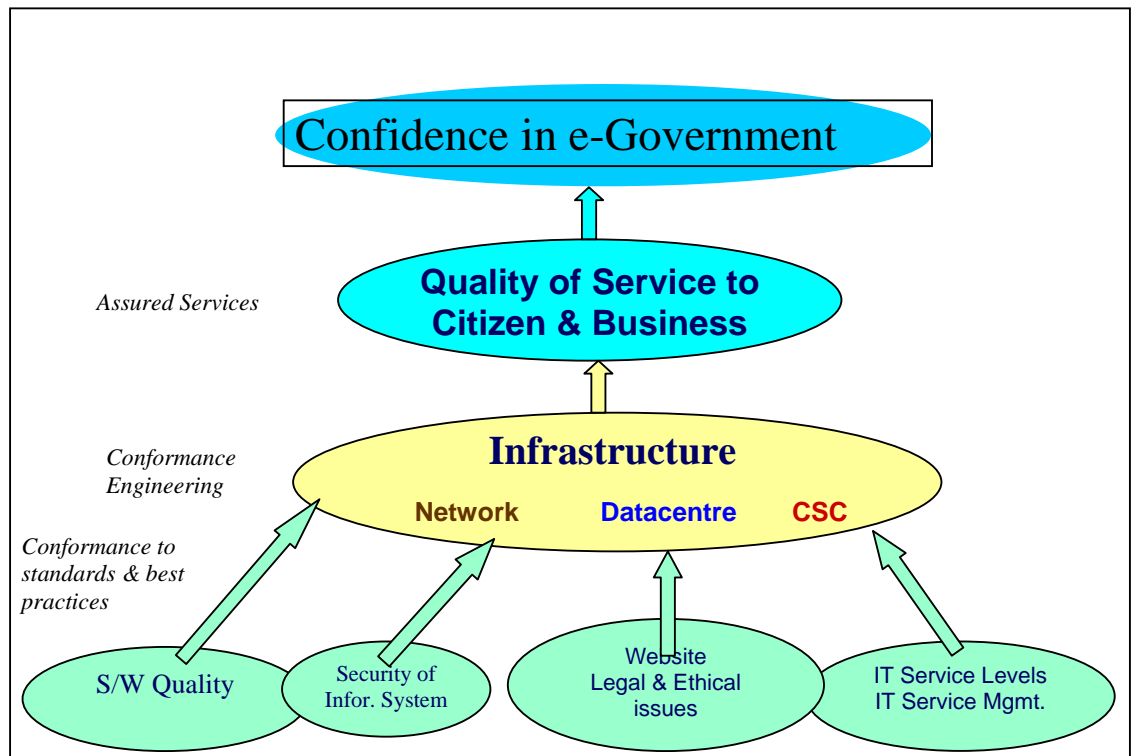
For services, which are already e-enabled, connectors will have to be built to connect and route messages through the Gateway. As one of the possible options the connectors can be built by the State government with the support of CDAC and the service provider who had initially developed the application.

**ANNEXURE IX - CONFORMITY ASSESSMENT FRAMEWORK FOR E-GOVERNANCE**

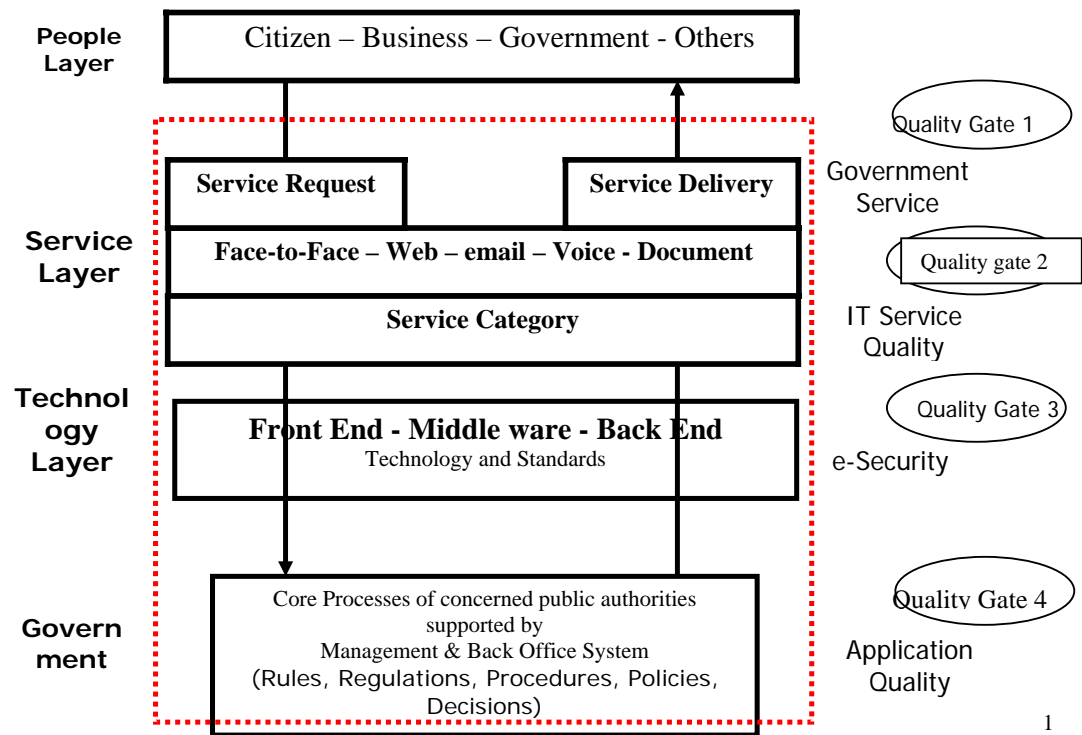
**Background:**

STQC, which is a Directorate of DIT, has been providing testing, audit, compliance and certification services in IT domain to the private sector. However, with the inception of NeGP, STQC has extended its services to many e-Governance initiatives and the recent one is MCA21. The entire audit and certification of the MCA21 software, security and service delivery was done by STQC as per the ISO standards (9126, ITIL (ISO 20000), ISMS (ISO 27001) etc.)

STQC has set up seven IT centers across the country to provide the necessary 3rd party audit AND TESTING services for Compliance and certification to various mission mode projects. Under this programme STQC has developed a Conformity Assessment framework (CAF) for eGovernance covering all the aspects related to audit and certification of any e-governance application based on standards. This is a very comprehensive framework, which must be considered while drafting the RFP. This framework will ensure that the requirements are clearly specified in the RFP, specifications are complete and the users are satisfied. This framework is flexible and can be tailored to the needs of eGovernance Solutions for different situations. This will not only help in enhancing the confidence of the users, the quality of solution itself will get enhance significantly by removing the anomalies and shortcomings observed during evaluation process.



## Quality Architecture for E-Governance – Gates for Conformity Assessment



### Quality Gates of Conformity Assessment Framework for e-Governance Architecture

1. Quality Gate 1 – Government Services
  - Face-to-Face (CSCs) ISO 9001:2000, IWA4, QMS in Local Govt.
  - Online through Web - ISO 9241 Pt-10 & 11, Web Site Usability
2. Quality Gate 2 – Information Security Management System
  - ITIL, ISMS, ISO 20000
3. Quality Gate 3 – Information Security
  - Component Level (ISO 15408)
  - Application Level
  - System Level (ISO 27001)
4. Quality Gate 4 – Application Management
  - ISO 9126
  - ISO14598
  - ISO 9001-2000 /IS:15700

## **Quality Gate 1- Government Services**

Govt. Services form Citizen Government Interface and this interface could be face-to-face, voice, web, email, documents etc. The requirements of a service quality, needs to be clearly defined in terms of characteristics that are observable and are subject to evaluation. The processes that deliver a service also need to be defined in terms of characteristics that may not always be observable by the customer but directly affect service performance. A citizen charter and service level declaration will enforce this aspect. In case of Services through web/ Internet service delivery characteristics also needs to be separately defined.

### **Quality characteristics of Service delivery (face-to-face e.g. Citizen Service Centres)**

Examples of Quality characteristics that might be specified in requirement documents include:

- Facilities, capacity, number of personnel etc.
- Waiting time, delivery time and process times
- Hygiene, safety, reliability and security
- Responsiveness, accessibility, courtesy, comfort, aesthetics of environment, competence, dependability, accuracy, completeness, state of the art, credibility and effective communication.

In most cases, the control of services and service delivery characteristics can only be achieved by controlling the process that delivers the service. Process performance measurement and control are, therefore, essential to achieve and maintain the required service quality. A criterion based on IS 15700/ISO 9001 IWA4 QMS Standards used to evaluate for demonstrating compliance.

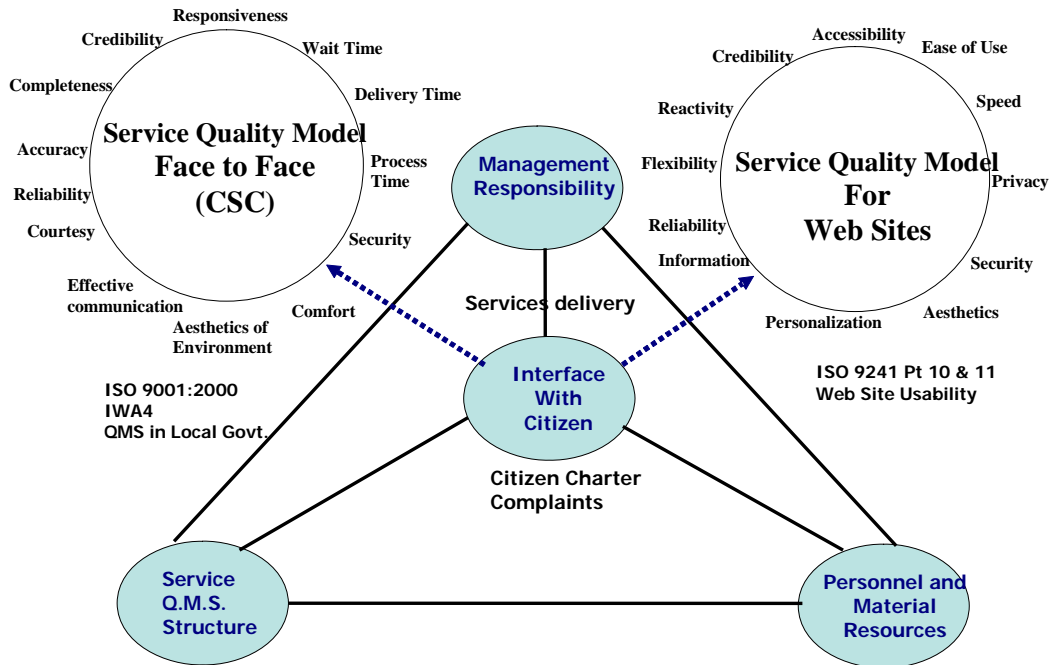
### **Quality characteristics of Service Delivery (Web)**

To successfully evaluate web-based E-Government service delivery, a robust, multidimensional web evaluation strategy is required. Web evaluation methods fall into following major classes.

- Usability testing: By using various techniques for obtaining feedback from a limited number of experts & users, in a controlled laboratory environment by simulating business scenario.
- User feedback: Getting direct, usually qualitative feedback from actual website users.
- Web and Internet performance data: These methods involve measuring the Web site's technical performance, using metrics such as latency, availability, and data transfer rate.

The conformity is assessed against best practices as applicable:

- Content identification and information
- Privacy
- IT Security
- Secure payment
- Process audit (ISO 27001) and Certified ISMS (ISO 27001)
- Quality/ Business Process
- Complaint system
- Process audit and Certified QMS (ISO 9001)
- Software Functionality (ISO/IEC 12119)
- Usability (ISO 9241-10/-11)



## Quality Gate 2 – Information Security Management System

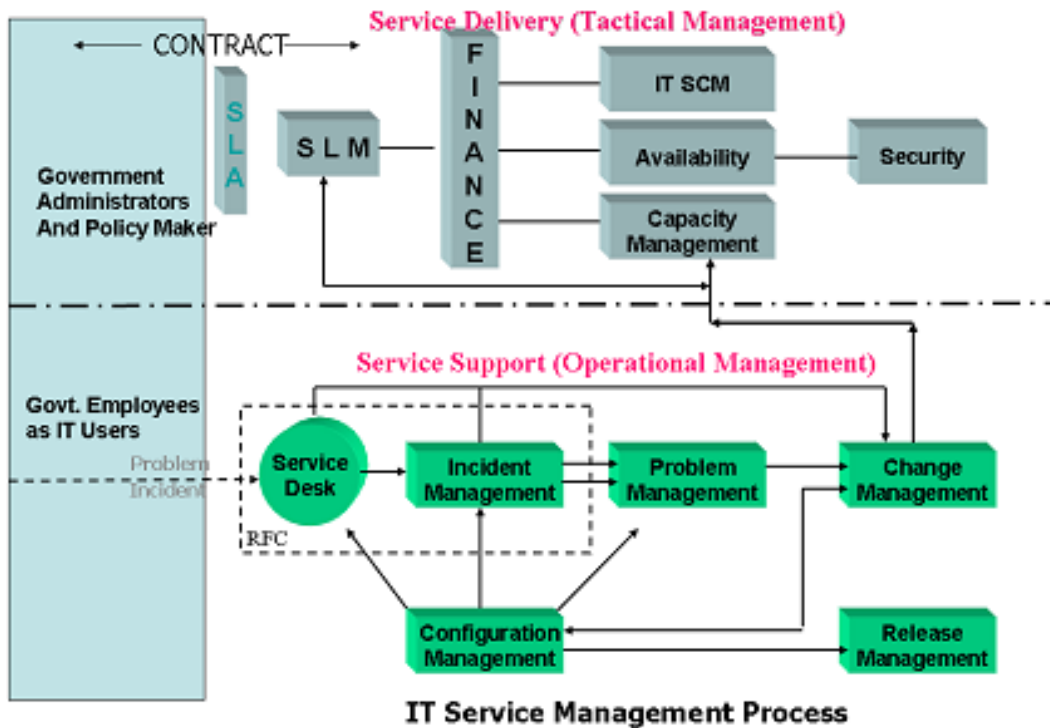
IT driven Government Information System is the backbone for delivery of services, interface with citizen and quality of governance. Due to this, dependence on IT has increased many folds. However, the complex ever-changing environment and rapidly evolving technology offer substantial challenge to effective IT management. It is expected that IT services not only will support the Governance processes, but also to present new options to implement the objectives of good governance.

The effectiveness and efficiency of the Government services to citizen or business greatly depend on the quality of IT services, which in turn needs to be managed properly.

Generally in Government, IT Service and its Management is outsource (except data ownership) for availability of IT Services to a competent body.

To meet the requirements of service level agreement between the Government and IT Service Providers a framework of IT Service Management is required. Best Practices as given in ITIL/ISO 20000 are taken as reference criteria for Conformity Assessment.

High availability implies continuous availability of IT Services, which means little downtime and rapid service recovery. This depends upon Complexity of the IT infrastructure architecture, Reliability of the components, Ability to respond quickly and effectively to faults, Quality of the maintenance and support organizations, Quality of operational management processes. This will be ensured only when IT Service Providers implement processes such as incident Management, Problem Resolution Management, Service Continuity and Availability Management, Service Level Management etc. This will ultimately get reflected in Service Level Agreements, which are part of the contracts between Govt. and IT Service Provider.



### Quality Gate 3 – Information Security

e-Governance is heavily dependent on a well functioning of information supply. In this context, information security is not a goal in itself but a means of achieving the good governance objective.

Information Security is intended to safeguard information. Security is the means of achieving an acceptable level of residual risks. The value of the information has to be protected. This value is determined in terms of confidentiality; integrity and availability.

- Confidentiality: protecting sensitive information from unauthorized disclosure or intelligible interception.
- Integrity: Safeguarding the accuracy and completeness of information and software
- Availability: ensuring that information and vital IT services are available when required.

Not all information and not all information services are equally important to the Government and community. The level of information security has to be appropriate to the importance of the information. This tailored security is achieved by finding a balance between the security measures and their associated costs on the one hand and, on the other, the value of the information and the risks in the processing environment.

- Internal importance: In good time, Information security has to be in line with this, ensuring that confidentiality, integrity and availability of information and information services maintained.

An inadequate information supply leads to imperfect services, thereby preventing the objectives from being fully achieved and threatening the continued existence of the



Government objectives. Having adequate information security is an important precondition for an adequate information supply.

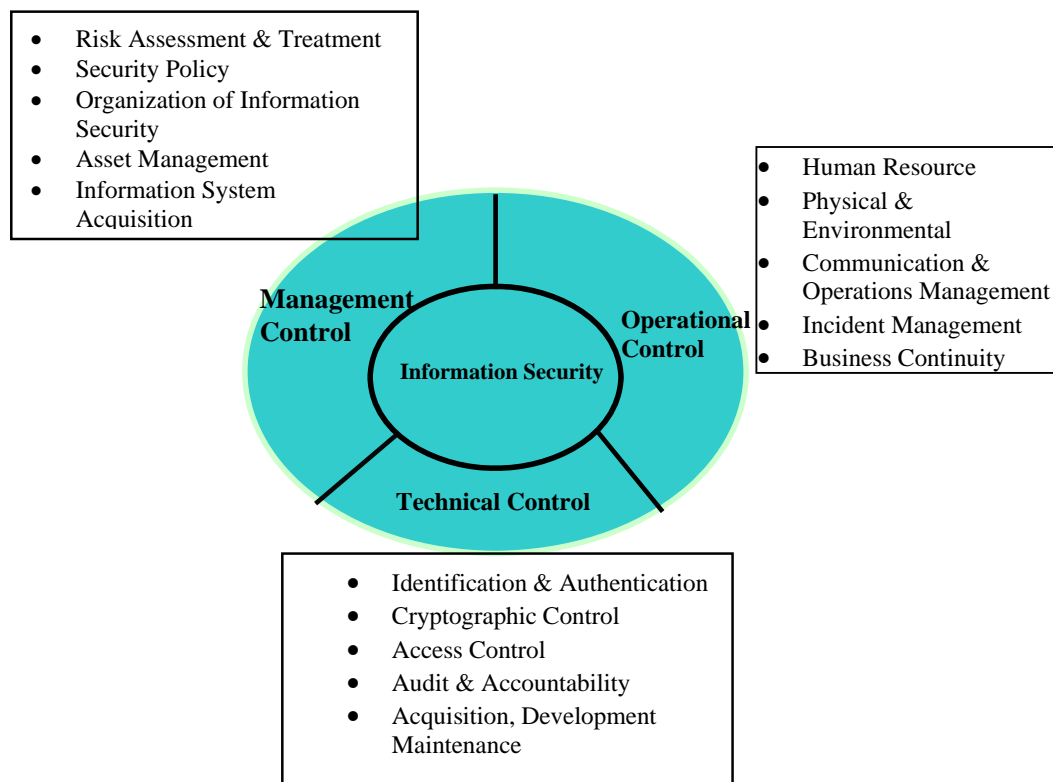
The degree to which the Government processes depend on the information supply has to be specified in quality requirements for the information supply. In that sense, information security must, therefore, form an integral part of an E-Governance overall quality management and quality assurance procedures.

To get the complete security assurance the subject needs to be dealt at various levels:

- Component level (Operating system, routers, switches etc.) security (ISO 15408)
- Application level (Basic application for access control, authentication and audit trail etc.) security
- System level (Physical security, communication and operation management, business continuity management etc.) security (ISO 27001)

The security can be assured by Conformity assessment to the best practices by combination of testing application (Application Security) product with IT Security function (e.g. operating system, network, distributed system). System level security can be assessed by taking Information Security Management standard as a reference.

### Information Security Management System



#### **Quality Gate 4 – Application Management**

An application performs those specific functions that directly support the execution of service functions, processes and procedures. Applications, along with data and infrastructure components, such as hardware, the operating system and middleware, make up the technology components of IT system that in turn are part of an IT service. Application Management is viewed Service Management perspective and together. Application and IT Service should deliver Business functionality of (Government services) throughout the lifecycle. The quality requirements include:

- Functional requirements (including regulatory compliances)
- Non-functional requirements

Quality of software application can be ensured by using well-established models and methods for evaluating software characteristics both functional and non-functional. The most important part is the ensuring adequacy of the requirements as specified in software requirements specification and evaluation of the software product from using process data and product test results.

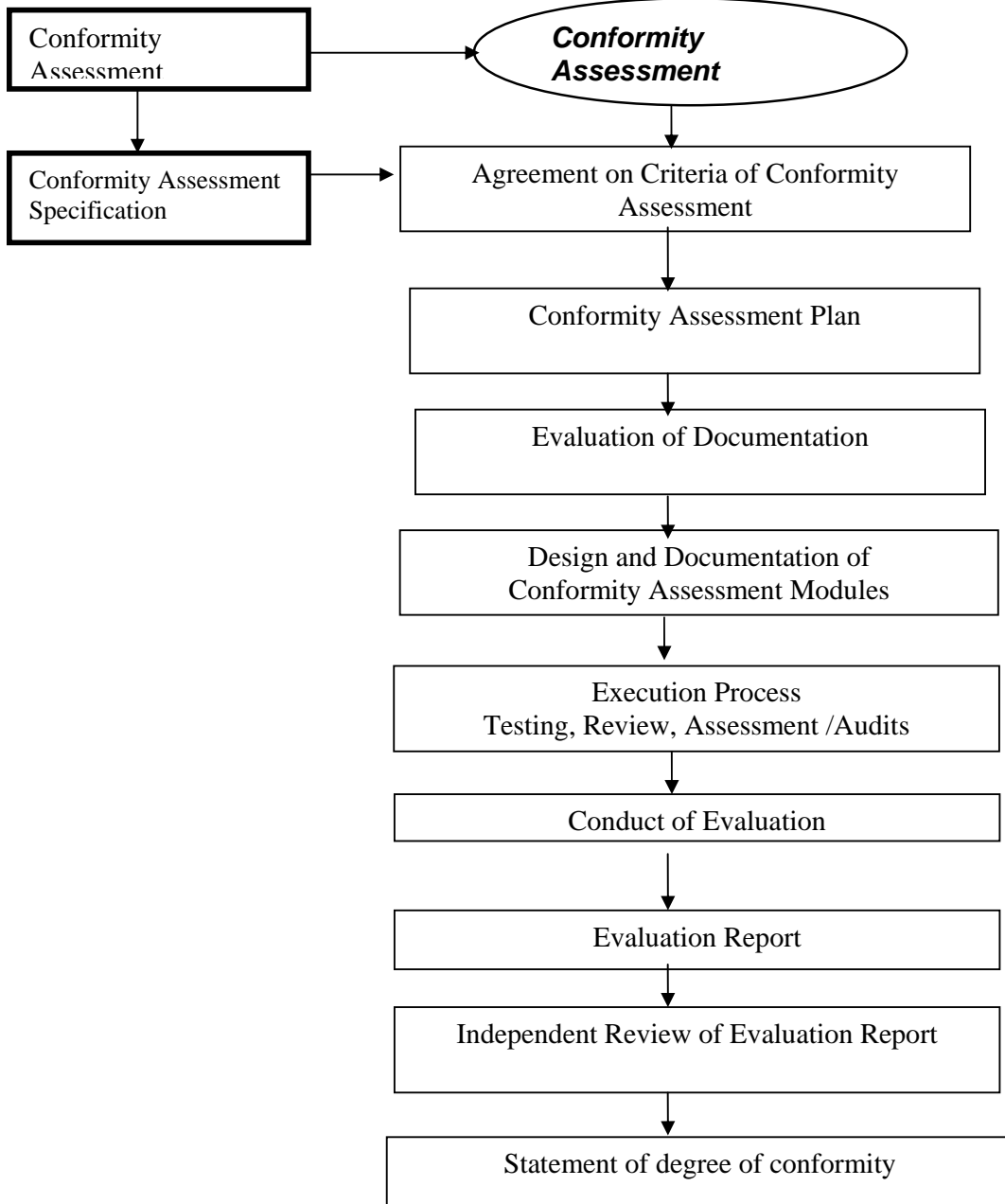
The quality of software products can be described in terms of quality characteristics as described in Quality Model ISO/IEC 9126-1. These are

- Functionality
- Reliability
- Usability
- Efficiency
- Maintainability
- Portability
- Security
- Documentation

However, in general it is not practical to assign measurement values directly to these characteristics. Instead, a set of software quality attributes of the Software product is selected that represents the main aspects of the characteristics. Measurement values of these attributes give a quantitative representative of the quality of the software products. Hence,

- ❖ Quality Model to be based on ISO/IEC 9126-1
- ❖ Application Quality is basic requirement for successful eGovernance.
- ❖ Quality model is applied to evaluate key Quality Characteristics like Functionality, Security, Reliability, Usability, Performance with special emphasis on Document Quality.
- ❖ Testing is done in a controlled laboratory environment and latest test tools to ensure that results are repeatable & reproducible.

### Process Flow (S/W Quality Evaluation)



### **Conformity assessment Framework Validations by STQC–**

- ❖ MCA 21 Project:
  - Testing & Evaluation of following critical components of the project:
    - Software Application
    - Information Security
    - Service Level Metrics
    - MCA Gateway
    - IT Infrastructure (Hardware, Software & Network)
    - Project Documentation
    - Processes (Development, Operation & Maintenance)
  - Compliance with RFP and contract requirements by rigorous testing, audit & evaluation process and ensuring satisfactory closures of all the reported anomalies.
- ❖ Municipality Applications
- ❖ Land Record Information System, National Informatics Center
- ❖ Treasuries Software of Madhya Pradesh Government
- ❖ ENVISION, Ministry of Environment & Forest

### **ANNEXURE X - STANDARDS FOR E-GOVERNANCE**

The recommendations are available on the e-Governance standards website <http://egovstandards.gov.in>. They are also open for public review. For any clarifications, the following may be contacted:

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