Chapter 3

e-GOVERNANCE PROJECTS ASSESSMENT - Using Analytical Hierarchical Process Methodology

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Abstract

National e-Governance Plan (NeGP) was approved by GoI on 18 May 2006 with the intent to promote e-governance within the country. The Plan envisages creation enabling infrastructure, legal and institutional framework for implementation of G2G, G2B, G2E and G2C services. During last couple of years, implementation of e-government projects by various central/state government entities and PSUs has gained momentum. In a similar vein, a number of awards have been instituted by various organizations/institutions for recognizing the efforts of various government entities who have taken initiative to leverage technology for achieving transparency and efficiency. The objective of this paper is to spell out the methodology followed for evaluation of e-government projects for CSI-Nihilent e-governance awards 2010. The paper sets out with background of the awards and various award categories. It then delves into evaluation framework which consists of Result Indicators & Enabler Indicators and their attributes. Finally, it elaborates the Analytical Hierarchical Process (AHP) followed for evaluation and comparison of the received nominations in various categories. It concludes by bringing out the reasons for preferring AHP over other similar decision matrices.

Keywords: e-Governance, AHP, e-governance awards, project evaluation, aggregation of expert judgments

1. Introduction

The Computer Society of India was formed in 1965 and since its inception CSI has been instrumental in guiding the Indian IT industry down the right path since its formative years. Today, the CSI has 66 chapters all over India, 381 student branches, and more than 50,000 members, including India's most famous IT industry leaders, brilliant scientists and dedicated academicians (http://www.csi-india.org). CSI has instituted a series of awards for recognizing the contributions made in the field of e-Governance in the country.

This is the seventh year that these awards in e-Governance are being presented. The basic objective of these awards has been to recognize and appreciate the successful efforts by the States, Government Departments, Project initiatives and Districts in achieving good governance using ICT. The endeavor has been to bring as many projects to the fore front for the benefit of all. As part of these awards, another major value addition being made is towards knowledge sharing by documenting and bringing out a publication, for the benefit of all at large. The publication presents the major initiatives and documents selected for nominations. Award Winners shall be felicitated during the 45th CSI Annual Convention to be held in Mumbai on 26 November 2010. (http://www.csinihilent-egovernanceawards.org/).

2. Award Categories

Nominations for the year 2009-10 Awards were invited for the following four categories:

(a) Award of Excellence – State Category. States will be judged based on their overall performance in e-Governance initiatives during the year 2009-10, especially with respect to policies, infrastructure, capacity building, projects, etc.

(b) Award of Excellence – Department Category. Central and State Government Departments who have demonstrated excellence in the area of e-Governance during the year 2009-10.

(c) Awards of Excellence – District Category. Outstanding efforts demonstrating excellence in e-Governance during the year 2009-10 at the District level.

(d) Award of Excellence – Project Category. Projects that have been implemented or enhanced during the year 2009-10 and delivered benefits to its stakeholders will be judged in three sub-categories, namely G2C, G2B, andG2G/G2E.

3. Conditions for Entry

All the Government Organizations & Semi-Government Corporations, District Collectorates, Municipal Corporations, Autonomous bodies including Public Sector Undertakings are eligible for filing nomination for one of the specified award categories. Entries under Project category are only for those projects which have been implemented in India In case of project category, they should have at least 75% of the services being delivered should be Government services. Awards for year 2009-10 considers the value additions and contributions made during 01April 2009 to 31 March 2010. These can be either implemented during the current year in question or special incremental efforts or enhancements to the earlier initiatives. To encourage fresh e-Governance efforts, the initiatives that have been recognized and awarded by CSI in the last 2 years were not be

considered by the Selection Committee. Each nomination entry was to accompany a "Statement of Intent" stating the reasons for nominating the entry to CSI - Nihilent e-Governance Awards 2009-10. This should not be of more than half page. As an illustration the nomination details required under Project, Department and District Category as attached at Annexure-I.

4. Evaluation criteria for the award

The evaluation criterion is based on two indicators i.e. Results and Enablers. The attributes considered for Result indicator are mainly in terms of outcomes and the attributes for Enabler indicator are in terms of the processes in place so as to achieve the desired results. Keeping into consideration the constraints on time and resource, for the purpose of these Awards, only the key attributes are being considered for these awards. The key indicators and attributes being used for evaluation under each award category are given in subsequent paragraphs with brief explanation of each of the attributes.

Award of Excellence - State Category Evaluation Criteria	
Result Indicators & Attributes	**Enabler Indicators & Attributes**
1. Key Performance a. List of State Mission Mode Projects as per the NeGP and their status in terms of pilots and roll -out **b.** State portal implementation with single window G2C/ G2B information and transaction services. Provide information on number of portals functioning in the state departments and strategy of integration and consistency. **2. Government efficiency improvement initiatives(Till date in Brief and elaborate during the year for each of the following)** a. Initiatives implemented under G2C, and their impact (time/cost) b. Initiatives implemented under G2B, and their impact (time/cost) **c.** Initiatives implemented under G2G and G2E, and their impact (time/cost) **3. Innovation and Best Practices**	**1. State Policy & Strategy** a. eGov/ICT vision roadmap and its implementation status b. Sharing of common infrastructure status with details c. Policies related to open standards, technology architectures, website standards, security standards and their current status d. Planned budget during the year for e-Governance and the actual expenditure incurred for the same **2. Support Infrastructure** a. Plan for SWAN and current achievements b. State Data Center, and its utilization by various department applications **c.** CSC – Rural and Urban, established and planned during the year and their actual utilization data services wise **3. Capacity Building** a. Leadership support & visibility. Provide details

a. Specific innovative ideas implemented in eGov area and their impact b. To what extend transparency has been achieved and how	b. Training plan and its implementation effectiveness c. Institutional structure for training planned and implanted

Award of Excellence – Department/District Category Evaluation Criteria	
Result Indicators & Attributes	**Enabler Indicators & Attributes**
1. Key Performance a. What services (G2C, G2B, G2G and G2E) are delivered using ICT ; provide impact in terms of time and cost of delivery of services b. Implementation coverage till date and during the year (geographical areas covered under pilot, roll-out, future plans) **2. Government Efficiency improvement initiatives** a. Time and cost efficiency improvements in the working & delivery of services b. Specific innovative ideas implemented in eGov area; and their impact on services c. To what extent the services are integrated with other offices/departments	**1. Department / District Policy & Strategy** a. eGov/ICT vision roadmap for department and its current status b. To what extent the common infrastructure (national, state, other department; delivery channels) is being shared c. Technology standardization policy and its implementation **2. Process Reengineering & Legal Reforms** a. Major front end process changes planned and current status b. Major back end process changes planned and current status **3. Capacity Building** a. Leadership support & visibility and current status b. Change management strategy defined and status thereof c. Capacity building plan and its implementation status d. Are the Program Management Teams are there full time (department officials/ consultants)

Award of Excellence - Project Category Evaluation Criteria	
Result Indicators & Attributes	**Enabler Indicators & Attributes**
1. Key Performance a. Stakeholder services and benefits achieved through ICT interventions b. % of services covered as ICT interventions c. Geographical Spread in the State	**1. Processes** a. Major front end process changes and implemented b. Major back end process changes and implemented

achieved **2. Efficiency improvement** a. Time saving / improvements in the delivering the above set of services. b. Cost savings for delivering above set of services. c. Time Saving for availing the services (reduction in cycle time) d. Cost Saving for availing these services	**2. People and Resources** a. Project management & Monitoring – Full time team in place b. Achievements of training of internal & external members on the new system c. Change management strategy defined and implemented d. Leadership support (Political, Bureaucratic) and its visibility e. Financial Model (Funding pattern , Business model PPP etc) defined and implemented **3. Technology** a. Disaster Recovery & business continuity plan defined & implemented b. Technological solution cost effective and maintenance over time c. Security and confidentiality standards defined and implemented

The nomination details are hosted at the website for the online submission http://www.csinihilent-egovernanceawards.org/. The quality of content submitted by the applicants for the nominations will be of most important part of the evaluation process. The information was sought in **"Nomination Submission Template"** in order to ensure consistency and capturing of essential details in respect of each nomination.

5. Methodology followed for evaluation

The evaluation of nominated e-governement projects falls into the purview of what is called **Multi-criteria decision analysis (MCDA)** or **multi-criteria decision making (MCDM).** It is a discipline aimed at supporting decision makers faced with making numerous and sometimes conflicting evaluations. MCDA aims at highlighting these conflicts and deriving a way to come to a compromise in a transparent process. Unlike methods that assume the availability of measurements, measurements in MCDA are derived or interpreted subjectively as indicators of the strength of various preferences. Preferences differ from decision maker to decision maker, so the outcome depends on who is making the decision and what their goals and preferences are. There are many MCDA / MCDM methods in use today. They all claim that they can accurately solve this type of problem. Some of the MCDA methods are:

(a) Aggregated Indices Randomization Method (AIRM)
(b) Analytic hierarchy process (AHP)
(c) Analytic network process (ANP)

(d) Dominance-based rough set approach (DRSA)
(e) ELECTRE (Outranking)
(f) Goal programming
(g) Grey relational analysis (GRA)
(h) Inner product of vectors (IPV)
(i) Multi-attribute utility theory (MAUT)
(j) Multi-attribute value theory (MAVT)
(k) New Approach to Appraisal (NATA)
(l) Nonstructural Fuzzy Decision Support System (NSFDSS)
(m) Superiority and inferiority ranking method (SIR method)
(n) Weighted sum model (WSM)

For the CSI-Nihilent e-government awards, the AHP has been preferred over other MCDA methods, because of its ease of use. The **Analytic Hierarchy Process (AHP)** is a structured technique for dealing with complex decisions. Rather than prescribing a "correct" decision, the AHP helps the decision makers find the one that best suits their needs and their understanding of the problem. Based on mathematics and psychology, it was developed by Thomas L. Saaty in the 1980s and has been extensively studied and refined since then. Perez-Gladish and M'Zali (2010) brought out that though the technique has been subjected to extensive criticism from the methodological, theoretical and technical points of view (see Bana e Costa and Vansnick, 2008; Belton and Gear, 1983, 1985, among others), but the technique is 'extraordinarily elegant in its simplicity, for addressing and analysing discrete alternative problems with multiple conflictive criteria' (Steuer and Na, 2003). The AHP allows subjective as well as objective factors to be considered in a decision making process allowing the active participation of stakeholders and giving managers a rational foundation to make decisions (Saaty, 1983). They also cite several works relating to application of AHP e.g. evaluation of a bank acquisitions strategy (Arbel and Orgler, 1990), selection of a financing instrument for a foreign investment (Meziani and Rezvani, 1990), capital budgeting in the health care industry (Tarimcilar and Khaksari, 1991).

The AHP provides a comprehensive and rational framework for structuring a decision problem, for representing and quantifying its elements, for relating those elements to overall goals, and for evaluating alternative solutions. It is used around the world in a wide variety of decision situations, in fields such as government, business, industry, healthcare, and education. There a number of other works which lend support to wide spread use of AHP in project evaluation:

(a) R&D projects (Liang, 2003)
(b) Indian oil pipelines industry (Dey, 2004),
(c) Engineering project (Sinuany-Stern and Amitai, 1991)
(d) and most importantly **in aggregation of expert judgments (Zio, 1996)**.

It does not envisage mandatory measurements on scales, but requires that scale values be interpreted according to the objectives of the problem. It relies on elaborate hierarchical

model to represent decision problems and is able to handle problems of risk, conflict, and prediction. It has following advantages over other MCDM methods:

(a) Encourages depiction of the problem and its alternatives in a hierarchical form, thereby breaking down decision criteria into manageable components.
(b) Forces individual/group into making a specific decision for consensus or tradeoff.
(c) Permits fair evaluation of all alternatives, productive disagreements and thereby stimulates discussion and opinion.
(d) It permits changing criteria and modification of judgments. It organizes, prioritizes and synthesizes complexity within a rational framework.

5.1 Steps in AHP

Natarajan, Balasubramanian and Manickavasagam (2010) have explained AHP process in simple steps. The same is reproduced in succeeding paragraphs. The AHP method is based on the problem decomposition into a hierarchy structure which consists of the elements such as: the goal, the criteria (sub-criteria) and the alternatives. The output of this method is a prioritized ranking, indicating the overall preference for each of the decision alternative.AHP has three major steps

(a) Problem decomposition: A complex problem is decomposed into levels consisting of a few manageable elements; each element is also, in turn, decomposed hierarchically in lower decision levels. The hierarchy model of the decision problem is developed in such a way that the goal is positioned at the top, with criteria and sub-criteria on lower levels and finally alternatives at the bottom of the model.

(b) Comparative analysis: On each hierarchy structure level the pair wise comparisons should be done by all possible pairs of the elements of this level. The decision maker's preferences are expressed by verbally described intensities and the corresponding numeric values on 1-3-5-7-9 scale (Saaty, 1980).

(c) Synthesis of priorities: On the basis of the pair wise comparisons relative significance (weights) of elements of the hierarchy structure (criteria, sub-criteria and alternatives) are calculated, which are eventually synthesized into an overall alternatives priority list. The priority weights of each element will be calculated based on Eigen vector.

The computational process of the priorities is detailed in succeeding paragraphs. Let there be n criteria and their actual relative priorities are w1, w2 ,…, wn. Further, let A be an n × n matrix of pair wise comparison, whose elements are assigned from Table 1. These elements, aij may be regarded as an estimate of the ratio wi /wj.

$$\begin{bmatrix} W1/W1 & W1/W2 & \cdots & W1/Wn \\ W2/W1 & W2/W2 & \ldots & W2/Wn \\ \vdots & \vdots & & \vdots \\ Wn/W1 & Wn/W2 & \ldots & Wn/Wn \end{bmatrix} \quad A = (1)$$

We suppose that aij > 0 and aij = aji-1.If the relative significance ratios aij are used to form the matrix A, and in the case of consistent evaluations where aij = aik akj the equation Aw = λmaxw is satisfied. The analytical solution of Equation (2) then provides the relative weights for each decision element. According to the eigenvalue method, the normalized right eigenvector (W = {w1, w2 ,…, wn}T) associated with the largest eigenvalue (λmax) of the square matrix A provides the weighting values for all decision elements. The largest eigenvalue (λmax) can be computed by using Equation (3)

$$AW = \lambda \max W \quad (2)$$

$$\lambda \max = \sum_{i=0}^{n} [(\sum_{i=0}^{n} aij) X Wi] \quad (3)$$

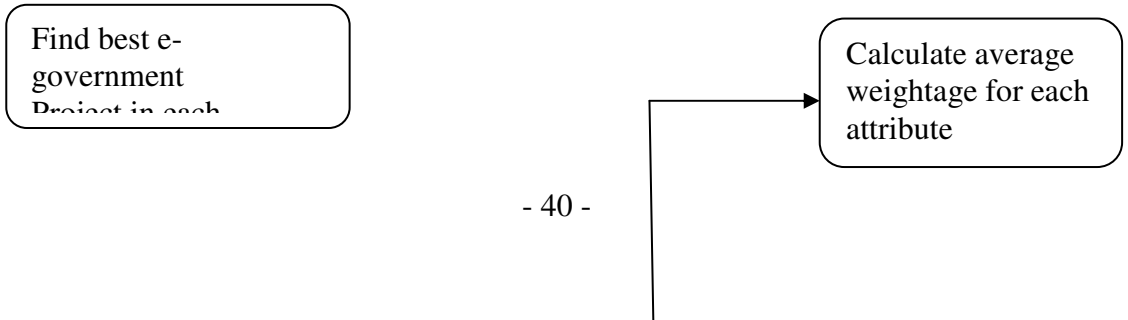
The weights are normalized by constraint Σwi=1.Due to this matrix features the λmax ≥1 is valid, whereas the difference λmax – n is used for measuring the assessment consistency. By means of consistency indices given by equation (4)

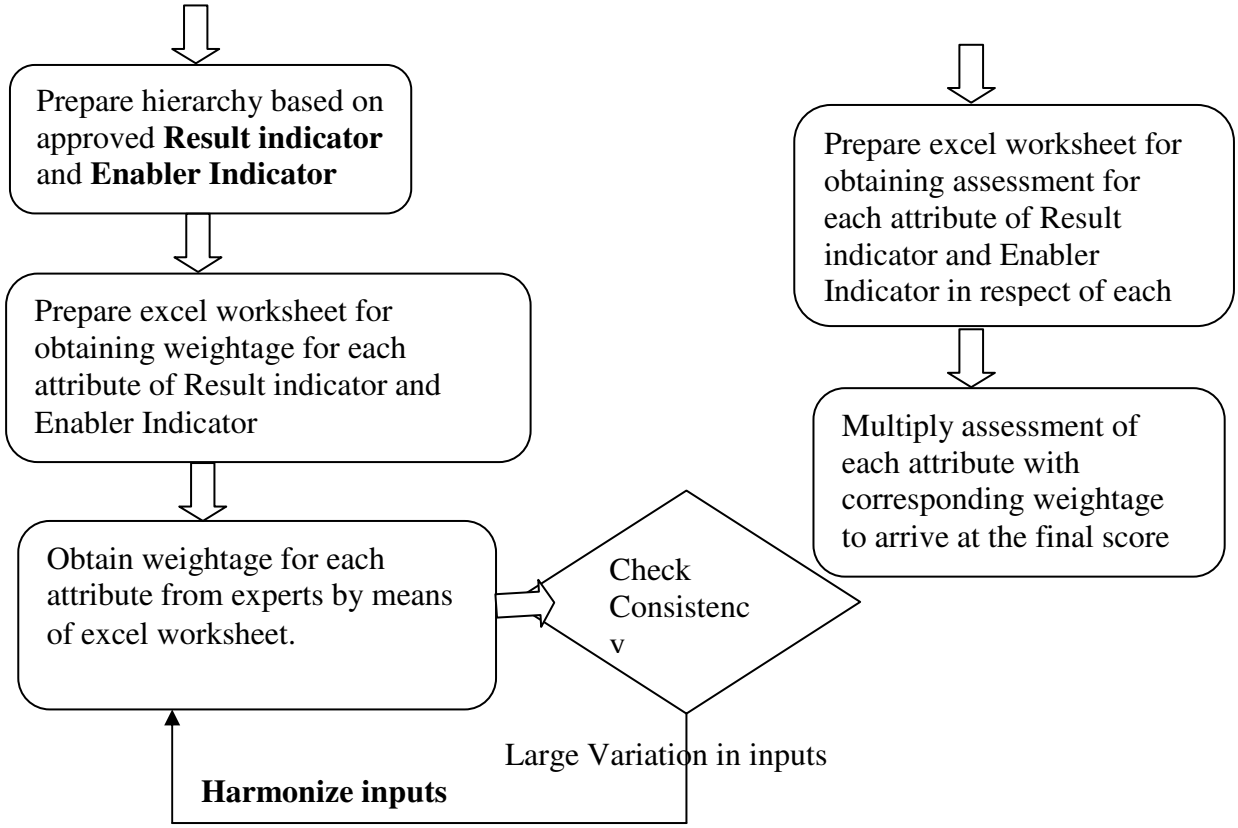
$$CI = (\lambda \, max - n) / (n-1) \quad (4)$$

The consistency ratio CR=CI/RI can be computed, where RI is the random index (consistency index for matrices with random generated pair wise comparisons). The table 2 with the RI values computed by simulation is used for the calculation of the CR. Generally, a CR of 0.10 or less (for $n \geq 5$); 0.09 or less (for $n = 4$); 0.05 or less (for $n = 3$), is considered acceptable. Otherwise the relative importance for each objective will be revised to improve the judgmental consistency. Then the priorities are pulled together through the hierarchic composition to provide the overall assessment of the available alternatives.

5.2 Specifics of AHP application for evaluation of e-governance projects

The ibid steps of classical AHP were abridged in application for evaluation of projects for CSI-Nihilent e-governance awards. Firstly, the hierarchy of alternatives was built and instead of carrying of pair-wise comparisons of alternatives for assigning weightage, experts were requested to assign relative weightage to alternatives in an excel worksheet (specifically prepared for capturing expert inputs). The AHP application flow-chart for evaluation of the projects is shown below:





5.3 Evaluation Process

Nomination to each category was judged by the Awards selection committee, consisting of members from Government, Industry and Academia. The selection committee reserves the right to seek additional information from the nominated entries during the evaluation process. The final recommendation of awards will be made by the selection committee on the basis of the information available to them in the nomination form, on-site visits and presentations made by the applicants. A simple four step process was followed while assessing the projects nominated for CSI-Nihilent e-Governance awards.

(a) Step 1: Online Nominations. Going with the objective of fostering e-process utilization, the proposals/nominations were invited through the portal http://csinihilent-egovernanceawards.org. The due dates for various stages and instructions for filling up of online nomination form with necessary documentary attachments was made available on the website.

(b) Step 2: Short Listing Based on Nominations. After the due date of the submission was over, the received nominations were evaluated by two experts on parameters mentioned in the nomination submission template. Each expert awarded score for each attribute for every project in the supplied AHP excel worksheet. These marks were multiplied by the corresponding weightage of each

attribute. The marks assigned by experts were averaged for each project. A minimum cut-off score was decided by the core selection group for qualifying into the next step of assessment i.e. field visits. The marks scored in this stage, has 20% weightage in overall score of a project.

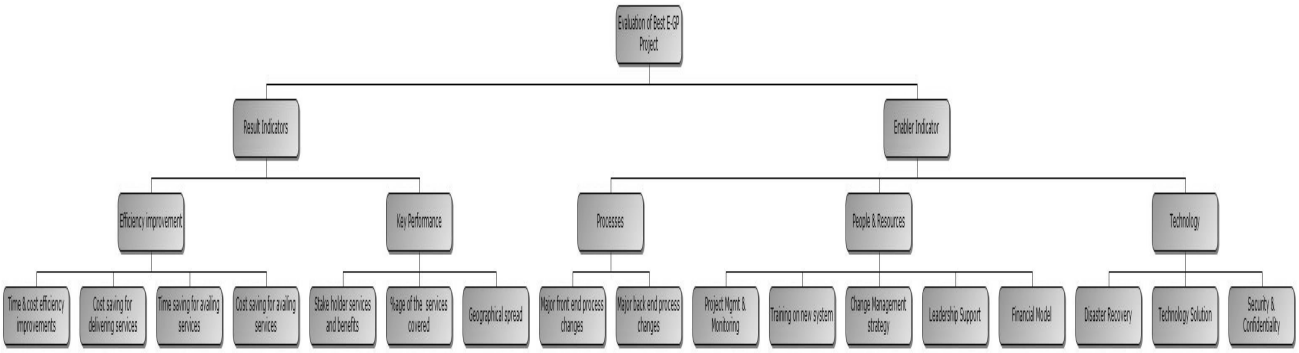
(c) Step 3: Field Visits. Based on the rankings of each project, top 33% (approximate) nominations were selected for field visits. The field visits were undertaken by two experts for each shortlisted nomination. The main objective of field visits is to validate the correctness of the information submitted in nomination entry. Second objective is to have a first hand exposure on the benefits of the initiatives for its stakeholders. The Project Owners were informed well in advance on the visits to make all necessary arrangements for meeting and visits to project sites. Most of the visits were for one day duration wherein project was studies in detail with a view to ascertain correctness of information submitted in nomination entries. Field visit are an integral component of the overall assessment process for getting first hand exposure to the project and its accruable benefits. Each team member assessed and assign scores for various attributes on the AHP excel worksheet. The AHP score of each project was arrived at after multiplying with weightage of each attribute and averaging the scores awarded by members**.** The marks scored in this stage, has 40% weightage in overall score of a project.

(d) Step 4: Presentations. Final Step in the evaluation process is presentations of all the short listed nominations by the project teams to a committee of experts. Presentations are made to the selection committee, and individual scores are given by each member. The AHP work sheet was used by the committee members to award scores for each attribute. The marks scored in this stage, has 40% weightage in overall score of a project.

6 Illustration of using AHP in CSI-Nihilent e-Governance Awards 2009-10

In succeeding paragraphs we shall cover the actual stages that were followed for evaluation of e-government projects and identifying the best e-government project. These steps apply equally to other categories of awards, though the sub-attribute and sub-sub attributes may vary in each case.

Step 1: Firstly based on the approved criteria, the following AHP hierarchy was prepared:



Step 2: An excel worksheet was prepared to obtain weightages for various attributes from experts. There were five experts who assigned weightage for each attribute in isolation (in a excel worksheet prepared for capturing the input). The excel worksheet and the associated formulas are appended below:

Dear Expert
To calculate the attribute weightage for evaluation your input is required at three stages in the worksheet below. For each stage please assign marks so that the total marks of all the attributes in the stage is equal to 100. please fill data only in the pink colored Cells.

CSI Nihilent E-Gov Award Team

Expert's Name	
Organization	

Attribute Weightage for **Project**

Stage 1 **Indicators Weightage**

	Weightage
RESULT INDICATORS	60
ENABLER INDICATORS	40
Total should be 100	100

Stage 2 **Sub Indicators Weightage**

RESULT INDICATORS		
1. Key Performance		50
2. Efficiency improvement		50
	Total should be 100	100
ENABLER INDICATORS		
1. Processes		40
2. People & Resources		40
3. Technology		20
	Total should be 100	100

Stage 3 **Sub-Sub Indicators Weightage**

RESULT INDICATORS		
1. Key Performance		
(a)	Stake holder services and benefits achieved through ICT interventions	30
(b)	%age of the services covered as ICT intervention	30
(c)	Geographical spread in State achieved	40
	Total should be 100	100
2. Efficiency improvement		
(a)	Time saving/improvement in delivering the above set of services	20
(b)	Cost saving for delivering the above set of services	20
(c)	Time saving for availing the services (Reduction in cycle time)	30
(d)	Cost saving for availing these services	30
	Total should be 100	100
ENABLER INDICATORS		
1. Processes		
(a)	Major front end process changes & implemented	60
(b)	Major back end process changes & implemented	40
	Total should be 100	100
2. People & Resources		
(a)	Project Mgmt & Monitoring - full time team in place	15

(b)	Achievement of Training on the new system	15
(c)	Change Management strategy defined and implemented	25
(d)	Leadership support (Political, Bureaucratic) and its visibility	25
(e)	Financial model defined and implemented	20
	Total should be 100	100
3. Technology		
(a)	Disaster Recovery & Business continuity plans defined and implemented	40
(b)	Technology Solutions Cost effective and maintainable over time	20
(c)	Security and Confidentiality Standards defined and implemented	40
	Total should be 100	100

Based on the marks awarded to various attributes and sub-attributes the attribute weightage of each item is as under:

		Attribute Weightage
RESULT INDICATORS		0.6
1. Key Performance		0.3
(a)	Stake holder services and benefits achieved through ICT interventions	0.09
(b)	%age of the services covered as ICT intervention	0.09
(c)	Geographical spread in State achieved	0.12
	Total	0.3
2. Efficiency improvement		0.3
(a)	Time saving/improvement in delivering the above set of services	0.06
(b)	Cost saving for delivering the above set of services	0.06
(c)	Time saving for availing the services (Reduction in cycle time)	0.09
(d)	Cost saving for availing these services	0.09
	Total	0.3
ENABLER INDICATORS		0.4

1. Processes		0.16
(a)	Major front end process changes & implemented	0.096
(b)	Major back end process changes & implemented	0.064
	Total	0.16
2. People & Resources		0.16
(a)	Project Mgmt & Monitoring - full time team in place	0.024
(b)	Achievement of Training on the new system	0.024
(c)	Change Management strategy defined and implemented	0.04
(d)	Leadership support (Political, Bureaucratic) and its visibility	0.04
(e)	Financial model defined and implemented	0.032
	Total	0.16
3. Technology		0.08
(a)	Disaster Recovery & Business continuity plans defined and implemented	0.032
(b)	Technology Solutions Cost effective and maintainable over time	0.016
(c)	Security and Confidentiality Standards defined and implemented	0.032
	Total	0.08
	Grand Total (should be 1)	1

Step 3: Weightages assigned by each expert was fed into the following excel worksheet, which calculated averages for each attribute:

Average Attribute Weightage for **project**

		Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Average
RESULT INDICATORS		0.5	0.5	0.6	0.7	0.6	0.6	**0.58333333**
1. Key Performance		0.25	0.25	0.36	0.455	0.36	0.3	**0.32916667**
(a)	Stake holder services and benefits achieved through ICT interventions	0.1	0.075	0.126	0.29575	0.144	0.09	**0.13845833**

(b)	%age of the services covered as ICT intervention	0.075	0.0875	0.108	0.11375	0.108	0.09	**0.09704167**
(c)	Geographical spread in State achieved	0.075	0.0875	0.126	0.0455	0.108	0.12	**0.09366667**
	Total	0.25	0.25	0.36	0.455	0.36	0.3	**0.32916667**
2. Efficiency improvement		0.25	0.25	0.24	0.245	0.24	0.3	**0.25416667**
(a)	Time saving/improvement in delivering the above set of services	0.075	0.075	0.06	0.0735	0.072	0.06	**0.06925**
(b)	Cost saving for delivering the above set of services	0.05	0.075	0.06	0.098	0.072	0.06	**0.06916667**
(c)	Time saving for availing the services (Reduction in cycle time)	0.0625	0.05	0.06	0.03675	0.048	0.09	**0.057875**
(d)	Cost saving for availing these services	0.0625	0.05	0.06	0.03675	0.048	0.09	**0.057875**
	Total	0.25	0.25	0.24	0.245	0.24	0.3	**0.25416667**
ENABLER INDICATORS		0.5	0.5	0.4	0.3	0.4	0.4	**0.41666667**
1. Processes		0.2	0.175	0.16	0.09	0.16	0.16	**0.1575**
(a)	Major front end process changes & implemented	0.1	0.0875	0.08	0.054	0.08	0.096	**0.08291667**
(b)	Major back end process changes & implemented	0.1	0.0875	0.08	0.036	0.08	0.064	**0.07458333**
	Total	0.2	0.175	0.16	0.09	0.16	0.16	**0.1575**
2. People & Resources		0.175	0.175	0.16	0.15	0.12	0.16	**0.15666667**
(a)	Project Mgmt & Monitoring - full time team in place	0.04375	0.0525	0.032	0.045	0.036	0.024	**0.038875**
(b)	Achievement of Training on the new system	0.02625	0.035	0.016	0.03	0.024	0.024	**0.025875**
(c)	Change Management strategy defined and implemented	0.035	0.035	0.032	0.045	0.024	0.04	**0.03516667**
(d)	Leadership support (Political, Bureaucratic) and its visibility	0.035	0.02625	0.064	0.0225	0.024	0.04	**0.03529167**
(e)	Financial model defined and implemented	0.035	0.02625	0.016	0.0075	0.012	0.032	**0.02145833**
	Total	0.175	0.175	0.16	0.15	0.12	0.16	**0.15666667**
3. Technology		0.125	0.15	0.08	0.06	0.12	0.08	**0.1025**
(a)	Disaster Recovery & Business continuity plans defined and implemented	0.05	0.0525	0.024	0.024	0.048	0.032	**0.03841667**
(b)	Technology Solutions Cost effective and maintainable over time	0.03125	0.0525	0.032	0.018	0.036	0.016	**0.03095833**
(c)	Security and Confidentiality Standards defined and implemented	0.04375	0.045	0.024	0.018	0.036	0.032	**0.033125**
	Total	0.125	0.15	0.08	0.06	0.12	0.08	**0.1025**
	Grand Total (should be 1)	1	1	1	1	1	1	1

Step 4: The worksheet indicating calculation of scores of projects in stage II [refer Para 5.3(b)] is appended below:

Illustration: AHP scores for shortlisted G2C projects at the end of Stage II (Part 1)

Project Ref.	RESULT INDICATORS								
	1. Key Performance				2.Efficiency improvement				
	Benefits achieved	%age of services	Geographical	Weighted (1a,1b,1c) (0.3291667	Time saving for delivery	Cost saving for delivery	Time saving for availing	Cost saving for availing	Weighted (2a,2b,2c,2d) (0.25416667)
	1a	1b	1c		2a	2b	2c	2d	
	0.13846	0.09704	0.09367		0.06925	0.06917	0.05788	0.05788	
PT71	80	80	90	27.27	75	75	80	80	19.64
PT75	65	70	68	22.16	70	72	70	72	18.05
PT20	70	70	80	23.98	70	70	70	70	17.79
PT90	75	75	65	23.75	75	75	75	75	19.06
PT13	70	70	70	23.04	65	70	70	65	17.16
PT79	72	76	70	23.90	75	70	70	70	18.14
PT54	75	80	45	22.36	75	75	80	75	19.35
PT34	75	75	80	25.16	70	70	75	75	18.37
PT12	65	75	80	23.77	65	60	75	75	17.33
PT106	75	75	80	25.16	60	60	69	60	15.77
PT84	80	75	65	24.44	75	75	70	65	18.19
PT78	75	70	70	23.73	65	65	70	70	17.10
PT83	75	70	70	23.73	65	65	65	65	16.52
PT65	65	65	80	22.80	75	70	70	70	18.14

Illustration: AHP scores for shortlisted G2C projects at the end of Stage II (Part 2)

ENABLER INDICATORS													Weighted Score	Project Ref.
3.Process			4. People and resources						5. Technology					
front end process	back end process	Weighted (3a,3b) (0.1575)	Project Mgmt.	Achievement	Change Management	Leadership	Financial model	Weighted (4a,4b,4c,4d,4e) (0.15666667	Disaster Recovery	Technology	Security	Weighted (5a,5b,5c) (0.1025)		
3a	3b		4a	4b	4c	4d	4e		5a	5b	5c			
0.08292	0.07458		0.03888	0.02588	0.03517	0.03529	0.02146		0.03842	0.03096	0.03313			
86	88	13.69	84	85	86	88	88	13.48	88	88	88	9.02	83.11	PT71
70	72	11.17	68	70	70	80	78	11.41	70	72	74	7.37	70.17	PT75
74	75	11.73	74	77	76	85	80	12.26	90	87	80	8.80	74.56	PT20
66	68	10.54	70	71	72	70	70	11.06	70	68	68	7.05	71.47	PT90
65	70	10.61	70	72	76	75	80	11.62	74	80	78	7.90	70.33	PT13
74	72	11.51	70	76	76	77	74	11.67	75	78	74	7.75	72.96	PT79
75	77	11.96	76	78	80	80	75	12.22	74	74	77	7.69	73.58	PT54
74	72	11.51	73	70	70	80	70	11.44	60	70	65	6.63	73.10	PT34
65	70	10.61	70	70	70	90	90	12.10	60	80	70	7.10	70.92	PT12
72	75	11.56	74	76	75	75	70	11.63	70	70	70	7.18	71.30	PT106
80	82	12.75	84	85	86	80	80	13.03	82	80	72	8.01	76.43	PT84
72	75	11.56	74	75	77	76	78	11.88	75	74	70	7.49	71.77	PT78
70	72	11.17	70	71	70	78	80	11.49	74	75	65	7.32	70.24	PT83
82	86	13.21	86	88	88	85	85	13.54	90	88	88	9.10	76.79	PT65

Step 5: The worksheet indicating calculation of scores of projects in stage III [refer Para 5.3(c)] is appended below:

Illustration: AHP scores for shortlisted G2C projects at the end of Stage III (Part 1)

Project Ref	RESULT INDICATORS								
	1. Key Performance				2.Efficiency improvement				
	benefits achieved	%age of services	Geographical	Weighted (1a,1b,1c) (0.3291667	Time saving for delivery	Cost saving for delivery	Time saving for availing	Cost saving for availing	Weighted (2a,2b`,2c,2d) (0.25416667)
	1a	1b	1c		2a	2b	2c	2d	
	0.1384583	0.0970417	0.0936667		0.06925	0.0691667	0.057875	0.057875	
PT71	90	90	90	29.63	95	95	95	95	24.15
PT65	50	50	70	18.33	50	50	50	50	12.71
PT84	50	60	40	16.49	70	60	70	60	16.52
PT20	75	75	80	25.16	80	80	80	80	20.33
PT54	83	80	55	24.34	75	78	78	78	19.52
PT34	75	75	75	24.69	85	85	85	85	21.60
PT79	80	80	80	26.33	80	80	80	80	20.33
PT78	50	50	60	17.40	65	60	60	55	15.31
PT90	80	70	90	26.30	80	75	80	75	19.70
PT106	74	74	75	24.40	76	71	74	71	18.50
PT12	96	96	96	31.60	92	92	92	92	23.38
PT13	75	75	75	24.69	80	80	80	80	20.33
PT83	80	70	80	25.36	80	70	70	70	18.48
PT75	92	92	92	30.28	90	90	90	90	22.88

Illustration: AHP scores for shortlisted G2C projects at the end of Stage III (Part 2)

ENABLER INDICATORS													Weighted Score	Project Ref
3.Process			4. People and resources						5. Technology					
Front end process	Back end process	Weighted (3a,3b) (0.1575)	Project Mgmt.	Achievement	Change Management	Leadership	Financial model	Weighted (4a,4b,4c,4d,4e) (0.15666667)	Disaster Recovery	Technology	Security	Weighted (5a,5b,5c) (0.1025)		
3a	3b		4a	4b	4c	4d	4e		5a	5b	5c			
0.082917	0.074583		0.038875	0.025875	0.035167	0.03529	0.0215		0.0384167	0.03096	0.0331			
95	95	14.96	95	95	95	95	95	14.88	95	95	95	9.74	93.36	PT71
60	50	8.70	50	60	50	50	50	8.09	50	60	60	5.77	53.60	PT65
70	60	10.28	50	45	50	40	50	7.35	40	50	60	5.07	55.72	PT84
75	80	12.19	80	70	70	80	75	11.82	75	70	70	7.37	76.86	PT20
80	68	11.67	78	80	75	78	80	12.17	65	75	65	6.97	74.68	PT54
75	75	11.81	90	90	90	90	90	14.10	70	70	70	7.18	79.38	PT34
80	80	12.60	80	80	80	70	75	12.07	75	75	75	7.69	79.03	PT79
70	30	8.04	70	60	70	75	50	10.46	45	65	60	5.73	56.93	PT78
85	80	13.01	90	80	80	90	80	13.28	80	80	85	8.37	80.65	PT90
72	72	11.34	79	80	80	79	77	12.43	79	78	79	8.09	74.76	PT106
94	94	14.81	95	95	95	95	95	14.88	95	95	95	9.74	94.41	PT12
65	65	10.24	75	75	75	75	75	11.75	70	70	70	7.18	74.19	PT13
60	70	10.20	80	70	50	80	70	11.01	70	60	50	6.20	71.25	PT83
95	95	14.96	94	94	94	94	94	14.73	94	94	94	9.64	92.48	PT75

Step 6: The worksheet indicating calculation of scores of projects in stage IV [refer Para 5.3 (d)] is appended below:

Illustration: AHP scores for shortlisted G2C projects at the end of Stage IV (Part 1)

Project Ref.	RESULT INDICATORS								
	1. Key Performance				2.Efficiency improvement				
	benefits achieved	%age of services	Geographical	Weighted (1a,1b,1c) (0.3291667	Time saving for delivery	Cost saving for delivery	Time saving for availing	Cost saving for availing	Weighted (2a,2b,2c,2d) (0.25416667)
	1a	1b	1c		2a	2b	2c	2d	
	0.1384583	0.0970417	0.0936667		0.06925	0.069166667	0.057875	0.057875	
PT71	76.4	83.1	82.4	26.36	77.1	76.7	79.6	79.9	19.88
PT75	75.0	71.0	68.0	23.64	73.0	74.0	71.0	77.0	18.74
PT20	85.0	85.0	85.0	27.98	85.0	85.0	85.0	85.0	21.60
PT90	78.0	81.0	82.0	26.34	80.0	79.0	79.0	78.0	20.09
PT13	85.0	85.0	100.0	29.38	85.0	85.0	80.0	80.0	21.03
PT79	75.0	79.0	76.0	25.17	76.0	74.0	79.0	75.0	19.29
PT54	72.0	68.0	78.0	23.87	68.0	74.0	74.0	76.0	18.51
PT34	60.7	69.0	66.0	21.28	70.8	68.0	70.8	68.0	17.64
PT12	48.0	49.0	50.0	16.08	54.0	51.0	51.0	51.0	13.17
PT106	63.0	67.0	75.0	22.25	71.0	67.0	71.0	70.0	17.71
PT84	70.0	70.0	70.0	23.04	85.0	85.0	85.0	85.0	21.60
PT78	72.0	73.0	79.0	24.45	80.0	78.0	79.0	78.0	20.02
PT83	55.0	55.0	55.0	18.10	65.0	65.0	65.0	65.0	16.52
PT65	60.0	50.0	60.0	18.78	60.0	60.0	60.0	60.0	15.25

Illustration: AHP scores for shortlisted G2C projects at the end of Stage IV (Part 2)

ENABLER INDICATORS													Weighted Score	Project Ref.
3.Process			4. People and resources						5. Technology					
front end process	back end process	Weighted (3a,3b) (0.1575)	Project Mgmt.	Achievement	Change Management	Leadership	Financial model	Weighted (4a,4b,4c,4d,4e) (0.15666667	Disaster Recovery	Technology	Security	Weighted (5a, 5b, 5c) (0.1025)		
3a	3b		4a	4b	4c	4d	4e		5a	5b	5c			
0.0829167	0.0745833		0.038875	0.025875	0.0351667	0.0352917	0.0214583		0.0384167	0.0309583	0.033125			
79.3	78.1	12.40	78.6	76.7	77.7	81.6	82.1	12.42	74.2	80.0	78.3	7.92	78.97	PT 71
78.0	74.0	11.99	74.0	72.0	69.0	80.0	71.0	11.51	75.0	81.0	80.0	8.04	73.92	PT 75
85.0	80.0	13.01	80.0	80.0	80.0	80.0	70.0	12.32	70.0	70.0	70.0	7.18	82.09	PT 20
80.0	83.0	12.82	81.0	80.0	76.0	81.0	78.0	12.42	74.0	77.0	79.0	7.84	79.52	PT 90
80.0	75.0	12.23	80.0	80.0	80.0	85.0	80.0	12.71	90.0	90.0	90.0	9.23	84.57	PT 13
79.0	75.0	12.14	79.0	76.0	74.0	75.0	73.0	11.85	74.0	74.0	79.0	7.75	76.21	PT 79
80.0	81.0	12.67	81.0	75.0	78.0	84.0	83.0	12.58	76.0	77.0	75.0	7.79	75.42	PT 54
65.7	66.3	10.39	72.5	67.0	67.0	71.7	66.3	10.86	57.5	65.0	58.8	6.17	66.35	PT 34
50.0	53.0	8.10	52.0	53.0	49.0	61.0	53.0	8.41	49.0	49.0	50.0	5.06	50.82	PT 12
70.0	72.0	11.17	71.0	71.0	69.0	70.0	63.0	10.85	63.0	68.0	66.0	6.71	68.69	PT 106
80.0	80.0	12.60	70.0	70.0	70.0	70.0	70.0	10.97	80.0	80.0	80.0	8.20	76.41	PT 84
83.0	72.0	12.25	83.0	77.0	82.0	86.0	73.0	12.71	76.0	76.0	74.0	7.72	77.16	PT 78
50.0	50.0	7.88	30.0	30.0	30.0	70.0	70.0	6.97	40.0	40.0	40.0	4.10	53.57	PT 83
65.0	60.0	9.86	60.0	60.0	60.0	50.0	60.0	9.05	50.0	50.0	50.0	5.13	58.07	PT 65

Step 7: The worksheet indicating final scores and overall ranking of projects ex G2C category
is appended below:

Illustration : AHP scores for shortlisted G2C projects at the end of Stage V (All Stages weighted Score)

		Weighted Scores						
Rank	**Project Ref**	**Initial Short Listing**		**Field Visits**		**Presentation**		**Aggregate Score**
G2C		Marks (100)	Weighted Score (20%)	Marks (100)	Weighted Score (40%)	Marks (100)	Weighted Score (40%)	
1	PT71	83.11	16.62	93.36	37.34	78.97	31.59	**85.55**
2	PT75	70.16	14.03	92.48	36.99	73.92	29.57	**80.60**
3	PT20	74.56	14.91	76.86	30.74	82.09	32.84	**78.49**
4	PT90	71.47	14.29	80.65	32.26	79.52	31.81	**78.37**
5	PT13	70.33	14.07	74.19	29.67	84.57	33.83	**77.57**
6	PT79	72.96	14.59	79.03	31.61	76.21	30.49	**76.69**
7	PT54	73.58	14.72	74.68	29.87	75.42	30.17	**74.76**
8	PT34	73.10	14.62	79.38	31.75	66.35	26.54	**72.91**
9	PT12	70.92	14.18	94.41	37.76	50.82	20.33	**72.28**
10	PT106	71.20	14.24	74.76	29.90	68.69	27.48	**71.62**
11	PT84	76.43	15.29	55.72	22.29	76.41	30.57	**68.14**
12	PT78	71.77	14.35	56.93	22.77	77.16	30.86	**67.99**
13	PT83	70.24	14.05	71.25	28.50	53.57	21.43	**63.98**
14	PT65	76.79	15.36	53.60	21.44	58.07	23.23	**60.03**

7. Concluding Remarks

The approach to assess State, Departments, districts, and projects, based on Result and Enabler indicators and pre-defined attributes has given a new dimension for assessments. The nominations received from various stakeholders for the awards were captured online by means of a nomination template. Through out the evaluation process (initial screening based on submitted documentation, field visits, and presentations by stakeholders) AHP was used. In order to ensure reliability and consistency, AHP excel worksheets were prepared to capture both weightages for each attribute of Result and Enabler Indicator from the experts. A separate excel worksheet was prepared for evaluation of the projects by multiplying assigned score with weightage of each attribute.

Annexure-I

NOMINATION DETAILS FOR PROJECT CATEGORY

I) OVERVIEW

<This should give a brief background of the Project in terms of the e-development and economic agenda. Not more than one page>

II) RESULT INDICATORS

<The Result Indicators are primarily the outcomes and key achievements of the project. For the purpose of these Awards the Results are being evaluated on selected attributes listed below. The nominations should address the required information as per attributes below, and if desired important additional information for the purpose of this Award may be given.>

3. Key Performance

a. Stakeholder services and benefits achieved through ICT interventions
b. % of services covered as ICT interventions
c. Geographical Spread in the State achieved

4. Efficiency improvement

e. Time saving / improvements in the delivering the above set of services.
f. Cost savings for delivering above set of services.
g. Time Saving for availing the services (reduction in cycle time)
h. Cost Saving for availing these services

III) ENABLER INDICATORS

<The Enabler Indicators are primarily the processes that are implemented to achieve the above mentioned results. For the purpose of these Awards the Enablers are being evaluated on selected attributes listed below. Nominations should address the required information as per attributes below, and if desired important additional information for the purpose of this Award may be given.>

4. Processes

a. Major front end process changes and implemented
b. Major back end process changes and implemented

5. People and Resources

a. Project management & Monitoring – Full time team in place
b. Achievements of training of internal & external members on the new system
c. Change management strategy defined and implemented
d. Leadership support (Political, Bureaucratic) and its visibility
e. Financial Model (Funding pattern , Business model PPP etc) defined and implemented

6. Technology

a. Disaster Recovery & business continuity plan defined & implemented
b. Technological solution cost effective and maintenance over time
c. Security and confidentiality standards defined and implemented

NOMINATION DETAILS FOR DEPARTMENT CATEGORY

I) OVERVIEW

<This should give a brief background of the Department in terms of the objectives and services. Not more than one page>

II) RESULT INDICATORS

<The Result Indicators are primarily the outcomes and key achievements for the Department in the area of ICT/e-Governance. For the purpose of these Awards the Results are being evaluated on selected attributes listed below. The nominations should address the required information as per attributes below, and if desired important additional information for the purpose of this Award may be given.>

4. Key Performance

a. What services (G2C, G2B, G2G and G2E) are delivered using ICT ; provide impact in terms of time and cost of delivery of services
b. Implementation coverage till date and during the year (geographical areas covered under pilot, roll-out, future plans)

5. Government Efficiency improvement initiatives

a. Time and cost efficiency improvements in the working & delivery of services
b. Specific innovative ideas implemented in eGov area; and their impact on services
c. To what extent the services are integrated with other departments

IV) ENABLER INDICATORS

<The Enabler Indicators are primarily the processes that are implemented to achieve the above mentioned results. For the purpose of these Awards the Enablers are being evaluated on selected attributes listed below. Nominations should address the required information as per attributes below, and if desired important additional information for the purpose of this Award may be given.>

4. Department Policy & Strategy

a. eGov/ICT vision roadmap for department and its current status
b. to what extent the common infrastructure (national, state, other department; delivery channels) is being shared
c. Technology standardization policy and its implementation

5. Process reengineering & Legal Reforms

a. Major front end process changes planned and current status
b. Major back end process changes planned and current status

6. Capacity Building

a. Leadership support & visibility and current status
b. Change management strategy defined and status thereof
c. Capacity building plan and its implementation status
d. Are the Program Management Teams are there full time (department officials/ consultants)

NOMINATION DETAILS FOR DISTRICT CATEGORY

I) OVERVIEW

<This should give a brief background of the District in terms of the objectives and services. Not more than one page>

II) RESULT INDICATORS

<The Result Indicators are primarily the outcomes and key achievements for the District in the area of ICT/e-Governance. For the purpose of these Awards the Results are being evaluated on selected attributes listed below. The nominations should address the required information as per attributes below, and if desired important additional information for the purpose of this Award may be given.>

6. Key Performance

c. What services (G2C, G2B, G2G and G2E) are delivered using ICT ; provide impact in terms of time and cost of delivery of services
d. Implementation coverage till date and during the year (geographical areas covered under pilot, roll-out, future plans)

7. Government Efficiency improvement initiatives

a. Time and cost efficiency improvements in the working & delivery of services
b. Specific innovative ideas implemented in eGov area; and their impact on services
c. To what extent the services are integrated with other pffices/departments

V) ENABLER INDICATORS

<The Enabler Indicators are primarily the processes that are implemented to achieve the above mentioned results. For the purpose of these Awards the Enablers are being evaluated on selected attributes listed below. Nominations should address the required information as per attributes below, and if desired important additional information for the purpose of this Award may be given.>

7. District Policy & Strategy

a. eGov/ICT vision roadmap for District and its current status

b. to what extent the common infrastructure (national, state, other District; delivery channels) is being shared
c. Technology standardization policy and its implementation

8. Process reengineering & Legal Reforms

a. Major front end process changes planned and current status
b. Major back end process changes planned and current status

9. Capacity Building

a. Leadership support & visibility and current status
b. Change management strategy defined and status thereof
c. Capacity building plan and its implementation status
d. Are the Program Management Teams are there full time (District officials/ consultants)

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