CHAPTER 2

Review of Literature –

Performance Assessment Frameworks

2.1 Performance Assessment for e-Governance Projects

e-Governance initiatives requiring funding and other resources are required to be assessed on their performance to analyse the impact and results of such initiatives. The key mantra for e-governance is “Citizen First”. Therefore, it is vital that the existing projects are assessed with a focus on the nature and quantum of impact on users (citizens and businesses). Given the fact that e-Government projects are inherently complex, it therefore becomes imperative that a robust assessment strategy is devised for the existing e-Government projects that not only provides valuable understanding on individual projects but also provides for a backward integration into the process of project appraisal and capacity building. The DIT, as part of its overall e-Assessment strategy proposes to list, identify and assess e-Government and ICT for Development (ICT4D) projects that provide any measure of e-Government services, across India, to understand the impact, utility, sustainability, scalability and replicability of these projects.

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28 R Chandrasekhar, IAS Special Secretary, Ministry of Communications & Information technology, Department of IT, Government of India, message in Impact Assessment of e-Governance Projects Report, 2008

2.2 Assessment Frameworks Reviewed

There are quite a few performance assessment frameworks being adopted across the countries, looking at the usefulness of the eGovernance/ICT initiatives. In addition to the country specific assessment frameworks, it was also seen that various institutions were trying to recognize the good efforts for these e-Governance initiatives by giving awards. It was felt appropriate to review the project assessment frameworks being used for these awards.

As part of the research work, the following assessment frameworks were reviewed:

1. EAF 2.0 (eGovernance Assessment Framework), NISG & IIM-A, India [2004]
2. Impact Study model, IIM-Ahemedabad, India [2006]
3. eGEP - European Model [2006]
5. VAM-DAM model, AGIMO-Australia
6. A Public Value Framework
7. Assessment Models associated with Awards
   7.1 Stockholm Challenge Awards
   7.2 Malcolm Baldrige National Quality Award,
   7.3 CII-EXIM Business Excellence Award
7.4 e-Award for Excellence in e-Government - Australia
7.5 CSI-Nihilent e-Governance Awards [2005-06]

In the following pages the key components of these frameworks are highlighted and discussed.

2.3 EAF 2.0 (eGovernance Assessment Framework), India [2004]³⁰

Overview

<table>
<thead>
<tr>
<th>EAF 2.0 – India</th>
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</thead>
<tbody>
<tr>
<td>The DIT, GoI, has created the Assessment Framework for assessing various categories of e-Governance projects (G2C-U, G2C-R, G2B, and G2E) on various dimensions. The framework also lists different indicators and attributes for Urban and Rural projects covering different depth for a summary assessment and detailed assessment. The Department of Information Technology carried out an exercise of summary assessment of 27 selected e-Government projects in the year 2006. However, not much work has been done to further refine the framework or used, and the EAF was not used subsequently.</td>
</tr>
</tbody>
</table>

1. **Service-Orientation- class** consisting of 3 sub-groups namely, (i) Efficiency attributes, (ii) User-convenience attributes and (iii) Citizen centricity attributes.

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³⁰ e-Governance Assessment framework (EAF version 2.0), May 2004, Prepared by Prof. T. P. Rama Rao, Prof. V. Venkata Rao, Prof. S. C. Bhatnagar, Center for Electronic Governance, IIM, Ahmedabad and Shri. J. Satyanarayana, CEO, National Institute for Smart Government (NISG), Hyderabad for E-Governance (Assessment & Replication) Division, E-Governance and E-Rural Group, Department of Information Technology, Government of India
2. **Technology class** consisting of 5 sub-groups namely, (i) Architecture attributes; (ii) Attributes on standards. (iii) Security attributes; (iv) Scalability attributes; and (v) Reliability attributes.

3. **Sustainability class** consisting of 3 sub-groups namely, (i) Organisational Sustainability, (ii) Commercial sustainability, and (iii) Legal sustainability

4. **Cost-effectiveness class**

5. **Replicability class** consisting of 3 subgroups namely, (i) Functional Replicability, (ii) Technological Replicability, and (iii) Commercial Replicability

**Challenges:**
The framework tries to assess all the components of an e-Government project, thereby lists exhaustive set of indicators and attributes. The time, skills and effort to undertake an assessment under this framework requires teams with a good understanding of eGovernment. The framework needs to further elaborate the attributes to remove subjectivity.

The Department of Information Technology, Government of India in the year 2004 created a Framework for assessing e-Governance projects on various dimensions. The justification/need for such a Framework was given by the following assumptions:

(a) Significant increase in the investment in e-Governance Projects necessitates an Assessment Framework
(b) Limitations of existing system of rating of e-Governance projects, which is based on subjective assessment and value judgement of a few individuals and authorizations

(c) The large size of the NeGP requires an EAF so as to replicate the successful projects across the country.

(d) A set of instruments is necessary to administer the ongoing e-Governance projects and to appreciate the various attributes of a good e-Governance project, apply mid-course corrections.

(e) Having an EAF would help the funding agencies in identifying the suitable e-Governance projects for funding.

**The Objectives of the EAF:**

i. To assess whether and to what extent a given e-Governance project has the characteristics of a good e-governance project delivering “Value” to stakeholders.

ii. To guide in funding of e-governance projects at various stages of their life-cycle (newly starting, roll-out, scaling up, replication)

iii. To provide guidelines for mid-term assessment of ongoing initiatives, so that mid-course corrections, if any, can be applied

iv. To provide guidelines for shaping future e-governance projects

v. To provide material for e-governance training programs
vi. To enhance the trust and confidence of stakeholders by enabling creation of a knowledge base of all e-Governance projects rated as per a trusted framework.

The focus of the EAF exercise was confined only to the four categories of e-Governance projects viz.,

(i) Government to Citizens in Urban Environment (G2C-U)
(ii) Government to Citizens in Rural Environment (G2C-R)
(iii) Government to Business (G2B)
(iv) Government to Government (G2G)

Further, the projects were also categorized into small, Medium and Large, based on the investments. For different categories of projects, different assessment instruments were created in two tiers – Summary Assessment (SA) and Detailed Assessment (DA).

**Assessment Indicators**

The EAF broadly consists of the following attribute classes to be evaluated as part of assessment of a project:

2. Technology class consisting of 5 sub-groups namely, (i) Architecture attributes; (ii) Attributes on standards. (iii) Security attributes; (iv) Scalability attributes; and (v) Reliability attributes.

3. Sustainability class consisting of 3 sub-groups namely, (i) Organisational Sustainability, (ii) Commercial sustainability, and (iii) Legal sustainability

4. Cost-effectiveness class

5. Replicability class consisting of 3 subgroups namely, (i) Functional Replicability, (ii) Technological Replicability, and (iii) Commercial Replicability

Each of the sub-groups consists of several attributes. Different sets/combinations of sub-groups are applicable for assessing SA & DA of different categories of e-Governance projects. The EAF presents different instruments for each type of assessments, which can be developed using the attribute tables.

The set of weightages to the different parameters in each project category is as follows:

<table>
<thead>
<tr>
<th>Attribute Class</th>
<th>Project Category</th>
<th>G2C-R</th>
<th>G2C-U</th>
<th>G2B</th>
<th>G2G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Orientation</td>
<td>40</td>
<td>40</td>
<td>30</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Sustainability</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Cost-effectiveness</td>
<td>10</td>
<td>10</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Replicability</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>
The EAF suggests various sub-attributes for the purpose of assessment. The table 2.2 lists those sub-attributes as defined by EAF.

**Table – 2.2: EAF 2.0 Sub-attributes**

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Class</th>
<th>Sub-Groups</th>
<th>Attributes</th>
</tr>
</thead>
</table>
| 1.    | Service Orientation        | (i) Efficiency    | (a) speed of delivery service  
(b) compliance to committed service time frame  
(c) quality of service;  
(d) simplicity of user access required for obtaining the service  
(e) percentage of users benefited through e-Service compared to conventional channels  
(f) Percentage of socially and economically backward users benefited through e-service |
|       |                            | (ii) User-convenience | (a) Ease of access to the service  
(b) User independence of time: (24 x 7 availability)  
(c) Single window access to services  
(d) Integrated services enabling access to several agencies through one request  
(e) Mechanisms for problem resolution and exception handling  
(f) Suitability of service locations to socially and economically backward users |
|       |                            | (iii) Citizen-centricity | (a) Degree of alignment of service design to citizen's requirement  
(b) Grouping of services around user's requirements and behavior patterns  
(c) User interfaces in local language(s)  
(d) New Services and their relevance to citizens  
(e) Reduction of visits to high level government offices  
(f) Knowledge of Service provider on the services offered |
| 2.    | Technology                 | (i) Architecture  | (a) Comprehensiveness of the architecture to meet the needs of the project  
(b) Conformance of the architecture to National / International architectures  
(c) Mechanism in place for enforcing the compliance to architecture  
(d) Provisions for Inter-operability  
(e) Extent of the use of Open Source Software Systems |
|       |                            | (ii) Standards     | (a) Extent of compliance of the project to open standards  
(b) Mechanism in place for enforcing the compliance to standards  
(c) Extent of design and adoption of metadata standards |
|       |                            | (iii) Security     | (a) Design of security architecture and policy  
(b) Extent of compliance to security architecture |
<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Class</th>
<th>Sub-Groups</th>
<th>Attributes</th>
</tr>
</thead>
</table>
|       |       |            | (c) Mechanism in place for enforcing the compliance to security policy  
|       |       |            | (d) Mechanism in place for the users to make secure electronic  |
| (iv)  | Scalability |            | (a) Extent to which the design permits scalability  
|       |       |            | (b) Degree of scalability of project to cover target users completely  
|       |       |            | (c) Extent of scope for incorporating enhanced hardware interfaces  
|       |       |            | (d) Extent of scope to work with alternate power and connectivity solutions  |
| (v)   | Reliability |            | (a) Degree of Availability  
|       |       |            | (b) Degree of Accuracy  
|       |       |            | (c) Consistency of Response times  
|       |       |            | (d) Availability of SLA (Service Level Agreement)  
|       |       |            | (e) Availability of alternative service delivery channels in case of system breakdowns  |
| 3.    | Sustainability |            | (a) Existence and functioning of an organizational structure for managing the project  
| (i)   | Organization |            | (b) Extent and adequacy of training imparted to employees of the organization  
|       | Sustainability |            | (c) Role clarity and degree of employee-buy-in (Change management)  
|       |            |            | (d) Degree of involvement of employees in project design, development & implementation  
|       |            |            | (e) Continuity of top champions of the project for 3-5 years  
|       |            |            | (f) Existence and effectiveness of User Groups and Service Reviews  |
| (ii)  | Commercial  |            | (a) Amenability of Service Delivery through PPP mode  
|       | Sustainability |            | (b) Strength of PPP arrangement (if PPP)  
|       |            |            | (c) Stability, Expertise, and commitment of Service Delivery agents (if PPP?)  
|       |            |            | (d) Collection of user charges  
|       |            |            | (e) Arrangements to ensure availability of service during user convenient time slots  
|       |            |            | (f) Period of continuous functioning of the project after launch without showing symptoms of decline through reduced number of transactions.  
|       |            |            | (g) Economic benefit to the users in the rural areas  |
| (iii) | Legal    |            | (a) Extent of Business Process Re-engineering undertaken  
<p>|       | Sustainability |            | (b) Amendments carried out to Act(s) and Rules relating to provision of the e-services  |</p>
<table>
<thead>
<tr>
<th>Sl.N o.</th>
<th>Class</th>
<th>Sub-Groups</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Cost-effectiveness</td>
<td>(a) Extent of reduction of direct cost to user compared to earlier system</td>
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<td></td>
<td></td>
<td>(b) Extent of reduction of indirect cost involved in repeated visits</td>
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<td></td>
<td></td>
<td>(c) Extent of cost reduction to government</td>
<td></td>
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<td></td>
<td></td>
<td>(d) Enhanced revenue/benefit to the government</td>
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<td></td>
<td></td>
<td>(e) Degree of reduction in corruption</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(f) Recovery of Capital cost</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(g) If PPP, Commercial viability for Private Partner</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Replicability</td>
<td>(i) Functional Replicability</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) Degree of generic processes introduced compared to processes which are specific to the project geography</td>
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<tr>
<td></td>
<td></td>
<td>(b) Degree of resemblance/alignment of the application software to 'Product' than to a 'bespoke software'</td>
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<td></td>
<td>(ii) Technological Replicability</td>
<td>(a) Multiple Platform Feasibility</td>
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<tr>
<td></td>
<td></td>
<td>(b) Ease of installation of the systems in new locations</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(c) Extent of parameterization for customization</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(d) Feasibility of replication only few modules of the system</td>
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<td></td>
<td></td>
<td>(e) Quality of project documentation</td>
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<tr>
<td></td>
<td></td>
<td>(f) Quality of user manuals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(iii) Commercial Replicability</td>
<td>(a) Replication arrangement with Application developer</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(b) Commercial viability</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(c) Marketing strength for replication</td>
<td></td>
</tr>
</tbody>
</table>

**Assessment Methodology**

The Assessment Methodology proposed in the EAF consists of 2 steps: (i) Summary Assessment and (ii) Detailed Assessment.

**(i) Summary Assessment (SA) :**

The Summary Assessment (SA) starts with collection of data on the project from secondary sources to facilitate development of a broad framework for evaluation. The study should include interviews and questionnaires on a small sample of respondents (of a representative sample of stakeholders). SA offers broad insights into the ground
realities of the project and provides inputs to understand the project objectives, identifying stakeholders, control groups, affected groups, affected groups, etc., and helps in refining the data collection instruments.

**(ii) Detailed Assessment (DA):**

The detailed study should be based on a scientific sampling plan, which is refined by the exploratory study. The sampling plan should include all stakeholders and representative geographic locations. The sample should include a reasonable sample size of those who are not users of the e-Governance project, i.e., control groups and those who are affected by the new system. Separate instruments may be developed for each group. The instruments for control group will have only those attributes which are in the service orientation class.

**Computing the Assessment Scores:**

Computing the Assessment scores involved the following steps:

- A typical instrument for assessment would have a large number of attributes grouped under – Service orientation, Technology, Sustainability, Cost-effectiveness and Replicability. Each attribute of the instrument will be given a score between Zero & Five. Each attribute of a class is given equal weight. Hence, based on the
number of attributes in a class, the total possible score for that class would vary.

- The Score obtained for each attribute class should be given a specified weightage as per the scheme.
- The assessment score for a segment (class), would be obtained by dividing the score obtained by the maximum possible score and multiply it by the specified weightage of the class.

**Interpreting Assessment Scores:**

The EAF provides the yardstick in table 2.3 w.r.t. assessment of the strength of a project for further investment decision, etc.:

**Table – 2.3: EAF 2.0 Assessment yard stick**

<table>
<thead>
<tr>
<th>No.</th>
<th>Score Range</th>
<th>Category</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>70 and above</td>
<td>Extremely Good</td>
<td>Qualifies for further investment of resources/replication</td>
</tr>
<tr>
<td>2.</td>
<td>50 to 69</td>
<td>Good</td>
<td>Scope for marginal improvements</td>
</tr>
<tr>
<td>3.</td>
<td>40 to 49</td>
<td>Satisfactory</td>
<td>Amenable to improvements through course correction and gap filling</td>
</tr>
<tr>
<td>4.</td>
<td>Below 40</td>
<td>Poor</td>
<td>Not worthy of pursuing further</td>
</tr>
</tbody>
</table>

The framework also suggests an implementation methodology for the said framework. It suggests that the evaluations are to be conducted completely under free atmosphere. This process should not be handed over to the project management staff or the service providers. There must be total autonomy to sample design, selection of respondents and locations. Similarly, there must be total freedom to administer the
questionnaires. Each project to be assessed must give consent and fully cooperate in conducting the study as per the above terms. Standard sampling techniques shall be adopted in arriving at the size of the sample, the locations and respondents.

**EAF Application**

The EAF was applied to 27 projects at National and State level, as part of the assessment initiative undertaken by the Department of Information Technology, Government of India in the year 2006. The assessment work was assigned to two agencies that were required to use the EAF, however the assessment was restricted to summary assessment. In addition to the summary assessment attribute scores, a brief description was also prepared for each of the projects, which added value to the whole exercise. Post these 27 project assessments the EAF was not used for assessment at the National or State level.

**Challenges and Learning’s**

As part of the learning’s of this assessment, it was seen that the assessment scoring was very subjective and scoring pattern varied between the two agencies, therefore creating uncertainty of the quality of assessment. Another major challenge faced was availability of the required information as part of EAF. It was not possible to discuss on all the indicators and attributes with the respective team members of the project, which relied more on secondary data, rather than primary data.
As part of Computer Society of India (CSI)-Nihilent National E-Governance Awards during 2005, the team evaluated over 100 entries for Best Project in the Government to Citizen Category\textsuperscript{31}. Based on the experience of that assessment span, it realized that a number of factors in the EAF Framework need to be re-modeled. This includes some of the following:

i. **Regrouping**: Regrouping the factors, though one may argue still retains the factors has another very important implication; that of projecting the most important attribute in the right thrust and perspective. For e.g. Cost effectiveness, Sustainability and Commercial Functionality had some factor mismatch. Another such is the factor of extent to which the scalability, security, architecture, reliability etc could be tested by an external audit body. Once these factors are grouped together under External Auditability, it is much easier for the judges to give appropriate rankings. Before the evaluation, the framework is given to the judges for their opinion on weightages to be attached to various factors. Right grouping would minimize any human judgement error due to assumptions that certain indexes may have covered the assumed factor while in reality it may have not.

\textsuperscript{31} M.P. Gupta, Jaijit Bhattacharya, Ashok Agarwal; Evaluating e-Government; published in Governance Case Studies, Ashok Agarwal, University Press, 2007, Chapter 1, p 1 - 56
ii. *Overlap*: Some factors that have been covered in one heading need not be taken in another group again. For e.g. Time saved per transaction for the user and indirect cost reduction are not entirely distinct. There are a few more instances like above that have been spruced in this model.

iii. *Difficult to measure*: Some factors at first sight seem easily comprehensible but at the same time ambiguity about how to measure or capture that variable may arise depending on interpretation. Since the model has not given detailed instructions on the scale or measurement capture, certain difficulties arose in measuring those variables.

iv. *New Factors*: Some aspects of E Governance that have been extremely crucial in a global evaluation perspective do not find place here. Few examples include extent of Integration (across services, departments vertical and horizontal). Some other aspects about technology include its maintainability. While there are multinationals specially designing computers and peripherals suited to the Indian dust and heat, overall aspect of maintainability of the infrastructure was not touched upon.

Though the EAF provides a holistic framework with a high level of indicators, as to the knowledge of the researcher, the EAF has not been mandated or used at the Government or project consulting levels.
2.4 Impact Assessment model, India[2006]32

Overview

<table>
<thead>
<tr>
<th>Impact Assessment Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>An impact assessment framework for e-Government projects was defined by IIM Ahemdabad under a project initiated by the eGovernment Practice group of the World Bank, Washington DC in 2006. Later the same was used to study the impact of five G2C, G2B and G2G projects across three States in India, as part of the project sponsored by the Department of information Technology, Government of India. Subsequent to the results of the study the same framework is being used for study further projects across the country.</td>
</tr>
</tbody>
</table>

The focus of this framework is to understand the context of service delivery - which services, what parts of the service delivery is electronic, access mechanisms, areas of potential impact. The framework identifies three main categories of stakeholders and the related dimensions of impact. However the study done for the projects looked at mainly the client perspective. Subsequently, in 2007 the DIT-GoI has taken up for around 36 more projects across the country in India for the impact study assessment using this framework. The report for these projects is yet to be made public.

I) Client:

1. Economic (Direct & Indirect)
2. Governance (Corruption, Accountability, Transparency, Participation)
3. Quality of Service (Decency, Fairness, Convenience, etc.)

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4. Overall satisfaction

II) Agency (Including Partners in Implementation):
   1. Economic (Direct & Indirect)
   2. Governance (Corruption, Accountability, Transparency, Participation)
   3. Performance on Key Non-economic Objectives
   4. Process Improvements
   5. Work life of employees

III) Society, Other Departments, Government as a Whole, Civil Society:
   1. Desirability of investments in e-Government
   2. Impact on vulnerable groups
   3. Image of Government (Efficiency, Corruption, Accountability, Transparency, Participation, Responsiveness)
   4. Impact on development Goals

Challenges:
The framework primarily focused on citizen’s experience with the old/manual system as compared to the new/computerized system. Most of the citizens interviewed as part of the survey may not have experienced or remember the experience of the old system and therefore the experience shared will be based on their perception.

Performance Assessment Indicators : Impact on Clients:
The prime objective of this assessment framework was to study one dimension of the project i.e. impact made by the project on citizens. The
framework was applied in view of the proposed roll out of the ambitious National eGovernance Program (NeGP). The Government of India was keen to understand the nature and quantum of impact created by e-Government projects that had already been implemented by state and national agencies. The Department of Information Technology (DIT), Government of India selected the IIM-Ahmedabad, the Nodal Coordinating agency for the NeGP was directed to carry out an impact assessment study of mature state and national projects that have been implemented in India. The assessment was to focus on the nature and quantum of impact on users (citizens and businesses). Assessment of impact on other stakeholders such as the department implementing the project was not taken up in the first phase. It was hoped that the study would help in rating the overall success of these projects so that a few projects with varying level of success could be studied in depth in follow up studies to identify key determinants of impact. Prior to this Department of Information Technology (DIT) study, very limited credible data was available on impact of e-Governance projects on citizens in India or any other developing country. Anecdotal evidence of positive impact had been reported in some cases and small sample studies of a few projects had been conducted. However, results of such studies were difficult to generalize. DIT therefore decided to carry out an impact assessment study of mature state and national projects implemented in India
The framework for feasibility analysis is based on:

- New investments and changes in operational costs for the agency;
- Potential value for agency and users;
- Assessment of risks; and
- Degree of alignment of project goals with development goals.

Thus the idea of a single index (such as internal rate of return, payback period, cost benefit ratio) as the basis for a decision on project funding is being discarded in favor of a judgment based on multiple criteria. The framework brings out a methodology for estimation of benefits. The same is illustrated in Figure 2.1.33

All measurements were on the basis of a sample of clients for each major service availed by the client. Measurements would be done for electronic delivery of services as well as for the earlier mode of delivery of the same service. In cases where alternate (non-electronic modes) are currently being used by the same set of users in similar contexts elsewhere, measurement would be recorded for such usage. The sampling methodology used in the assessment ensures that even small impacts could be detected and the variability in demand, efficiency of service center and location of users was captured. Results from the study are reasonably robust and can be projected to the entire population.

33 Prof Subhash Bhatnagar, Economic Feasibility of Projects: Measuring Value for Different Stakeholders presentation made at NISG. April 2009
Figure 2.1: Impact Assessment Framework

INVESTMENTS

INCREMENTAL OPERATING COSTS

Benefits to Users

Benefits to Agency

Benefits to Society

BENEFITS TO KEY STAKE HOLDERS

Quantifiable
- Total elapsed time to avail service
- Number of trips
- Waiting time, distance, time and cost of travel
- Wage loss
- Amount of bribe paid

Rating on 5-point scale based on
- Proposed design features
- Proposed re-engineering
- Results of previous evaluation studies of similar projects

Qualitative
- Service quality
- Transparency
- Accountability

Direct and Measurable Cost Impact
- Cost of paper
- Storage of paper
- Manpower costs
- Establishment costs

Effective Functioning
- Decision support
- Performance monitoring

Direct and Measurable Revenue Impact
- Tax collected
- User fee for processing transactions on computer
- Other fees

Improvement projected on the basis of
- Benchmarks set by similar projects
- Monetized savings based on travel costs and wage loss indicated by previous studies of similar projects
- Detailed re-engineering exercise to assess what is possible

Impact on Development
- Economic growth
- Corruption
- Poverty reduction

Impact cannot be quantified. Projects can only be compared on degree of likely impact determined by
- Absolute numbers of users served
- Nature of service and its frequency of use
- Relative importance of the service for the well being of clients

Figure 2.1: Impact Assessment Framework
The assessment study was able to bring out certain important dimensions of the expected benefits by the citizens from these projects. Assessment also suggested different attributes and assigned percentage weights depending on the target stakeholders for the project. E.g. in the G2C Income Tax portal, 12% was assigned to level of corruption, 10% to accuracy of transaction and 10% to cost of availing services. At the same time in another G2C project – e-Passport, queuing system was assigned 27%, 24% to cost of availing services and 22% to time and effort required to avail service. In addition, another G2B project MCA21 importance of 20% was assigned to accessibility of data, 11% to speed and efficiency of query handling and 8% to clarity and simplicity of processes and procedures.

The study framework used for assessing State level projects included various indicators and attributes, listed in the Table 2.4.

<table>
<thead>
<tr>
<th>Table 2.4 : Assessment indicators and attributes for State level projects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost of availing service measured directly</strong></td>
</tr>
<tr>
<td>1. Number of trips made for the service</td>
</tr>
<tr>
<td>2. Average travel cost of making each trip</td>
</tr>
<tr>
<td>3. Average waiting time in each trip</td>
</tr>
<tr>
<td>4. Estimate of wage loss due to time spent in availing the service</td>
</tr>
<tr>
<td>5. Total time elapsed in availing service</td>
</tr>
<tr>
<td>6. Amount paid as bribe to functionaries</td>
</tr>
<tr>
<td>7. Amount paid to agents to facilitate service</td>
</tr>
<tr>
<td><strong>Overall Assessment</strong></td>
</tr>
</tbody>
</table>
1. Preference for manual versus computerized systems

2. Composite score: Measured on a 5-point scale factoring in the key attributes of a delivery system that are seen as being important by users

<table>
<thead>
<tr>
<th>Quality of Service: Interaction with staff, complaint handling, privacy, accuracy measured on a 5-point scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Satisfaction level with the present location of the center</td>
</tr>
<tr>
<td>2. Level of convenience in terms of working hours of the Center / Office</td>
</tr>
<tr>
<td>3. Overall attitude of the functionaries being courteous and friendly</td>
</tr>
<tr>
<td>4. Whether timely response is given to queries put up by clients</td>
</tr>
<tr>
<td>5. Degree of satisfaction with the overall quality of problem resolution and complaint handling</td>
</tr>
<tr>
<td>6. Perception of the overall confidentiality of the data</td>
</tr>
<tr>
<td>7. Perception/satisfaction level with the quality of service</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality of Governance: Transparency, participation, accountability, corruption measured on a 5-point scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Level of corruption in the current working system</td>
</tr>
<tr>
<td>2. Awareness about the citizens charter</td>
</tr>
<tr>
<td>3. Adherence of delivery time with the time frame mentioned in the citizens charter</td>
</tr>
<tr>
<td>4. Financial loss due to delay in availing the services</td>
</tr>
<tr>
<td>5. Type/kind of financial loss incurred due to delay in availing the service</td>
</tr>
<tr>
<td>6. Estimation of the degree to which government officials can be held accountable for their actions</td>
</tr>
<tr>
<td>7. Whether the rules and procedure are stated clearly and data regarding the service readily available</td>
</tr>
<tr>
<td>8. Whether the agency takes responsibility for the information shared</td>
</tr>
<tr>
<td>9. Does the agency provide any suggestions or feedback and what is the kind of response given on queries?</td>
</tr>
<tr>
<td>10. Perception about the overall quality of governance</td>
</tr>
</tbody>
</table>

As part of this study one of the main assessment components was to assess the benefit to the citizens in the new system as compared to the old system. A single composite rating on a five point scale of
improvements perceived after computerization. Respondents were asked to rate the improvements on a common set of twenty attributes covering cost of access, convenience, quality of delivery, and quality of governance. For each project the respondents were also asked to select the three most desirable attributes. Based on the responses on desirability, a weighting scheme was generated for each of the twenty attributes reflecting the importance of the attribute. Using the weighting scheme and the responses on a 5-point scale, a single composite score for improvement was generated.

**Challenges and Learning’s**

The key challenges faced during implementing this framework is listed below:

- The respondents are sometimes are not aware of the services under the new computerised system. Thus they pay a huge amount to the tout or the village accountant. Therefore the respondent cannot recall how they became aware of the services and recall on other parameters is also very low.
- Lack of willingness or inefficiency on part of the field staff in conducting the survey.
- In few states wherein women do not go out of the house frequently hence the sample consists more of male users. The responses given by
females may be different. Thus there is inadequacy in terms of selection of respondents.

- In few states under sample selection only 1 district is selected from each stratum, though for proper weightage at least 2 districts needed to be selected. Thus sufficient variability in data could not be ensured.

- In Gujarat under property registration nearly all projects serve urban clients, which is reflected in the sample size. Therefore projects serving rural clients could have a different cost structure and demand pattern. Thus it would be hasty to generalize the overall impact.

- Recall error on part of the respondents.

- Problem in getting the list of respondents at district levels – officials being busy in their work schedules.

- Sometimes the respondents do not fit into the eligibility criteria.

- Lack of data /Delay in getting data as the respondents who were primarily wage workers left for work.

- Inconsistency in responses.

- Exclusion of respondents using intermediaries, amongst those who use agents – certain questions can be answered by the respondent himself but due to inability to comprehend a large number of questions relating to assessment of e-Governance on numerical scales they are excluded. (In Tamil Nadu a number of responses of the users surveyed were discarded due to gaps and inconsistencies.)
• Some of the delivery centers chosen did not have a proper list of users
• Many users who are registered with the old system have not got their registration renewed under the new system. Thus such users could not be included as a part of the survey since it covered the users who have used both the systems.

On an on-going study using this framework more projects are being assessed, however one of the key concern has been to have the base line data for each project against which the new system indicators can be compared to assess the impact. In case of non-availability of the base line data the comparison of the project impact is based on the perception of the citizen, that may not give the correct performance assessment. Now, as part of the National e-Governance Plan (NeGP) the Department of Information Technology, Government of India is supporting the initial study to collect the base line data for each project. This should give a more authenticate comparison to give the impact of the specific projects for the citizens and businesses.
2.5 eGEP - European Model\textsuperscript{34} [2006]

Overview

<table>
<thead>
<tr>
<th>eGEP European Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>The eGEP is an EU initiative to research into new instruments that evaluate and monitor the costs, benefits and outcomes of e-Government. Since the project spans over five years (2005-10), the project has changing criterion for itself. The indicators along with the risk factors and their percentages involved are framed into a metric to measure the impact of e-Government.</td>
</tr>
</tbody>
</table>

This assessment was integrated by a users survey conducted based on representative of 400 adults aged 18 and over for each of the 22 countries.

The MF is built on three drivers: efficiency, democracy, and effectiveness. The questions asked in these surveys included, among others, the following topics:

Ease of use

1. On government capacity to recall data already entered
2. Comparison of citizens evaluation of the easiness of channels (telephone, internet, in person, post/mail);
3. General assessment of eGovernment services (Excellent, good, fair, poor);
4. Level of citizens’ comfort with information sharing;
5. Perceived usefulness of various possible services.

\textsuperscript{34} eGovernment Economics Project (eGEP) Measurement Framework Final version, 15\textsuperscript{th} May 2006; eGovernment Unit, DG Information Society and Media, European Commission.
**Challenges**

The link with the economic-impact study places significant constraints on how far the framework can evolve toward business case development and portfolio management. Secondly, most of the proposed measures defined as "improvements" or "increases" require a reliable baseline to be meaningful. However, it is unlikely that such baselines will be available when the framework is first applied.

**Measurement Framework Objectives**

The eGEP Measurement framework is an EU initiative to research into new instruments that evaluate and monitor the **costs, benefits and outcomes** of e-Government. Since the project spans over five years (2005-10), the project has changing criterion for itself. The three key project objectives are to:

- Identify and analyse the costs of setting-up, providing and maintaining eGovernment services in the European Union - Expenditure Study
- Provide the basis of a measurement framework to assess the impact and performance of these services – Measurement Framework
- Provide an economic analysis of eGovernment impacts: - Economic Study
a) **Expenditure Study** forms the input information which includes coming up with:
   - eGovernment expenditure state of play report
   - Interpretative data model and cost analysis methodology
   - Assessment of eGovernment expenditure and financing

b) **Measurement Framework** forms the core project component which includes coming up with:
   - eGovernment performance measurement state of play report
   - Measurement Framework Model and Indicators
   - Measurement Implementation methodology

c) **Economic Study** forms the scientific underpinning for the core project by giving theoretical focus. This involves:
   - eGovernment impacts economic model
   - Predictions and observed outcomes of eGovernment impacts
   - Policy recommendations to improve eGovernment take-up

eGEP will produce a general Measurement Framework for the analysis of e-Government socioeconomic and governance impacts, with the strong scientific underpinning of the Economic Study. The Expenditure Study might be useful as an independent tool, apart from being integrated in the Measurement Framework.
The implementation of eGEP was done through an engaging process where they do not try “reinvent the wheel” by starting from scratch but continue engaging with the various experts from different EU members who are involved in developing measuring tools and analyzing e-Government expenditure, i.e. by Integrating various benchmarking attempts. In specific: they involve institutional stakeholders to obtain:

- Feedback and comments on the project in-progress outputs;
- Information on e-Government expenditure through in-depth interviews and an online questionnaire;
- Information on any measurement methodology already running through in-depth interviews and an online questionnaire.

The Measurement Framework has greatly benefited from an in-depth and comparative analysis of the following national measurement methodologies:

- The Danish eGovernment Signposts methodology;
- The French Mareva methodology;
- The German WiBe 4.0 methodology;
- The Dutch Monitor: Multiple Use of Information;
- The UK business case methodology.

The analysis showed that, while national peculiarities and strategic priorities shape the more relevant differences, some common grounds can be found amongst them. The logic of measurement rests on the
simple fact that what you measure depends on which strategic objectives you pursue. Therefore it is evident that national peculiarities shape the measurement targets for which indicators must be developed and limit the applicability of a general rigid measurement framework suitable for all 25 Member States. This inspired elaboration of the measurement indicators full template which includes several items considered in the above listed methodologies.

**Measurement Framework Model and applicability**

The big picture of the Measurement Framework Model is illustrated in the figure 2.2

![Figure 2.2: Measurement Framework Model](image-url)
The MF is built on three drivers: efficiency, democracy, and effectiveness – henceforth includes giving value to the quantitative benefits as well as the qualitative ones.

In light of the comparative analysis of the relevance, cost and comparability of the needed data sources, from the full template (consisting of 92 impact indicators), a number of indicators have been selected and deemed suitable for EU25 benchmarking of i2010 eGovernment Signposts.

More complex and time consuming indicators are proposed for more qualitative and experimental exercises that we define as bench-learning. By this we mean EU supported peer-to-peer exchanges and explorations amongst selected administrations. This type of exercise would also allow an in-depth exploration of more sophisticated indicators by best addressing the comparability issue in the selection of the administrations to be involved. Clusters of administrations across the EU25 providing comparable services may voluntarily join an EU-supported programme and engage in the activity of gathering the relevant data, produce an aggregate index of the public value produced by the eGovernment service they run, and exchange their experiences. The indicators short listed for bench-learning are presented in the table 2.5.
Measurement framework must be applied on a regular basis, with a specific organization holding the role of playing as a hub of an ongoing process of data collection, provided by member states. This organization must ensure the homogenization of data, measures, and weights in order to make the benchmarking activities feasible. As this type of multidimensional measurement is a relative new issue in comparison with the state-of-the-art, the start-up a new organisation/agency, which acts as an independent observatory on “eGovernment Value Creation” is recommended.

Although the eGEP method is expected to further evolve before its November 2005 release, its fundamental structure is not likely to change.
In their report, Gartner\textsuperscript{35} has defined a criterion to evaluate various frameworks. Gartner has used its definition of Public Value of IT (PVIT) as the foundation to compare different frameworks. Gartner defines PVIT as “measures that demonstrate how IT-related changes and investments contribute over time to improved constituent service level, operational efficiency and political return.” Therefore, the three pillars of PVIT are:

1. Constituent service level — This can include offering financial benefits for constituents (lower cost of interaction or access to documents and more-rapid reimbursement or subsidies), new services leading to constituent benefits and a greater focus on constituent needs.

2. Operational efficiency — These are operational cost reductions or other financial benefits, streamlined supply chains, lower inventory costs, new revenue streams, higher productivity, and faster merging of administrative processes.

3. Political return — This can mean the satisfaction of political goals, an increase in consensus, and a positive impact on society (for example, wider reach of information, better connection with remote constituents, and closure of digital or cultural divides) and the economy (for example, growth of small and midsize businesses, lower unemployment, growth of exports, and trade balance).

\textsuperscript{35} Worldwide Examples of Public-Value-of-IT Frameworks, Andrea Di Maio, Gartner Industry Research document ID Number: G00146056, page 4-5, Publication Date: 26 February 2007
Accordingly, a good PVIT framework should possess the following features:

1. **PVIT dimensions** — An explicit coverage of every dimension of PVIT. The framework will not map exactly to the Gartner definition, but its dimensions should be semantically equivalent.

2. **Value separation** — An unambiguous classification of basic value criteria, it measures one of the dimensions of public value, that is, no measure should be such that it can belong to more than one dimension.

3. **Balance** — The framework should not favor any PVIT dimension over another. Users should be able to choose the measures they wish but be forced or guided to cover the different PVIT dimensions evenly. No implicit priority between individual measures or PVIT dimensions should be defined.

4. **Multiple-vs.-single-value score** — The framework should support the weighting of different measures from the same PVIT dimension but not allow or encourage the weighting of different PVIT dimensions. PVIT should not result in a single number but at least one aggregated measure per PVIT dimension.

5. **Inclusion of risks** — Some frameworks do integrate value measures and risk criteria. This can be particularly useful so as not to carry out risk assessment as an afterthought.
6. Mandatory use — Some frameworks are integrated with mandatory budget and capital planning processes. Although this can ease their adoption, it can drive a compliance behavior, in which users see the framework as an aggravation, rather than as an asset.

The eGEP framework tries to strike a better balance, and for each area of PVIT, it looks at quantitative and qualitative metrics. One school of thought suggests that a method should clearly distinguish between quantitative and qualitative aspects and keep them separate when building aggregated indicators from elementary measures. eGEP recognizes that those two aspects cannot be decoupled and aims to normalize different measures by primarily focusing on relative improvements expressed in percentage terms. To some extent, this can be seen as a variation on the balanced scorecard concept, with a particular focus on the relative scope for improvement, which is useful in the absence of rigorous baseline/benchmark data. Measures can be:

1. Observable and objective — Corresponding to tangible value creation
2. Unobservable or subjective — Corresponding to intangible value
3. Externally measurable — Mostly qualitative but measurable against standard, externally auditable criteria
For each proposed metric, eGEP suggests a possible source, ranging from administrative records (for personnel or material costs, as well as input and output volume) to Web metrics data (for portal access and e-service use), from official statistics to the standard cost model for administrative burden, based on work done by the Organisation for Economic and Co-operative Development. Although the eGEP method was expected to further evolve before its November 2005 release, its fundamental structure was not likely to change.

**Challenges and Learning’s**

Gartner Research lists the key strengths, weaknesses of the framework and challenges in implementing:

**Strengths**

1. In structuring the measurement framework, the eGEP method uses the three areas of PVIT as a starting point, which is a very clear way of looking at different areas of impact.

2. eGEP’s method is rooted in a thorough analysis of established methods, although it is slightly biased toward European methods.

3. The method offers a wide array of measures, indicating possible data sources and highlights how they can be combined. Although this

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series of measures is still work in progress, it constitutes a solid basis for future development.

4. As an EC project, eGEP undergoes formal reviews and is exposed to pan-European audiences during workshops, which enables its authors to gather beneficial input.

5. The link to the economic-impact model — which is in some respects a liability — forces the method to emphasize quantitative measures.

**Weaknesses**

1. Most of the proposed measures, defined as "improvements" or "increases," require a reliable baseline to be meaningful. However, it is unlikely that such baselines will be available when the framework is first applied. Some of the measures are not collected, and even when they are, because the purpose of eGEP is to run a benchmark, government departments in member states may be reluctant to provide them.

2. As with most frameworks, eGEP must establish a balance between rigor and completeness on one hand and simplicity on the other if it is to be used to perform ex post value assessment and serve as a basis for business-case preparation and portfolio management.

Some of the observations on the eGEP framework are as follows:

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• This assessment project is referring to e-Government and not e-Governance and focuses solely on the economic aspects of the projects.

• The assessment is focusing on integrating approaches of different nations - and hence is very rich. It identifies the common features of the various approaches despite the difference in the strategic priorities and differences unique to nations. It is deliberately kept at a generic level requiring specificities to come in later to suit the requirements of the Nation.

• By talking of quantitative and qualitative measures of measuring the outcome and impact – there is a clearer means of ensuring whether money spent for a project is worth it or not. Though a matter of interest is – what are the essential ideas that drive the qualitative measures – e.g. the notion of democracy might be perceived differently.

The fact that a comprehensive measurement framework for eGovernment, encompassing costs and benefits analysis and an understanding of macro level impacts, has yet to be developed and that the emerging attempts are facing serious difficulties in their implementation, depends to a large extent on a number of additional peculiarities with respect to the discussion above, which make measurement more difficult than in the private sector. Since
eGovernment is not any different from government, such peculiarities are in large part the same as those characterizing in general the measurement of public service provision and in part linked to the novelty of the delivery channel used. There are three set of challenges hindering measurement are:

1. Universalistic and multiple public value delivery;
2. Institutional conditions weakening incentives to measure;
3. Technical measuring difficulties.
2.6 A new e-Government Assessment Framework, Gartner\textsuperscript{38} [2007]

Overview

The approach stressed that the framework must help formulate core questions whether the government organizations involved in implementing the e-strategy have the right tools, resources, processes and political support required for a future-state vision to be realized. This leads to assessing both the \textit{completeness of vision} and the \textit{ability to execute}.

The framework focuses on the following criteria:

1. Understanding of citizen need and priorities from Government services.
2. Effective communication means
3. Right combination of service delivery channels
4. Within Government – does it have the right tools, resources, processes and political support

Key indicators:

1. \textbf{Completeness of Vision}
   a. Constituency understanding
   b. Constituent-centric strategy
   c. Service delivery strategy
   d. Service development strategy
   e. Transformation and innovation
   f. E-Government marketing strategy

\textsuperscript{38} A New E-Government Assessment Framework, Andrea Di Maio, David McClure, Richard G. Harris, Gartner Industry Research document id no. G00147284, Published on 28 March 2007
2. **Ability to Execute**
   a. Budget viability
   b. Agility and adaptability
   c. Political support
   d. Constituent service capacities
   e. Organization and governance
   f. Operational efficiency

**Challenges:**
The proposed framework has not been applied till now, however one of the key challenges envisaged is in availability and completeness of reliable, valid and comparable data on key indicators or suggested sub-criteria.

Gartner offers a new way of examining expected benefits, associated risks and performance results. It recommends the Government officials in charge of e-government strategy development and execution, both at a whole-of-government level or in individual agencies, must use progress assessment criteria and results measures that provide early capability and outcome risk indicators, rather than rely solely on traditional online service benchmarks.

**Gartner Study Key Findings**
- The critical path for successful e-government and transformation initiatives is in gauging a proper alignment between the completeness of

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39 ibid
the vision that guides the effort and the ability to execute and sustain key initiatives that are intended to make the vision reality.

- e-Government vision requires a transparent assessment of constituent-centric needs and priorities grounded in service development and delivery strategies that balance day-to-day tactical execution with essential progress in the process transformation essential to support change.

- The e-Government transformation vision must be supported by candid assessments of an ability to execute that considers political support, steady resources, responsiveness to changing and emerging needs, effective governance, and demonstrable improvements in operational efficiencies.

The study suggests, both the completeness of the strategic vision and the ability of all concerned government organizations to execute are key to the successful deployment of e-government transformation. New criteria and metrics that look at these two dimensions can be used both to assess individual e-Government strategies in order to identify potential weaknesses and areas for improvement, and to compare strategies across homogeneous agencies and/or jurisdictions. With governments issuing new or updated strategies, there is growing demand for alternative ways to assess e-government maturation beyond generic frameworks that assume universal end states.
**Gartner New Assessment Framework**

It further proposes a new framework that needs to capture whether an entity’s e-government strategic objectives demonstrate an understanding of constituent needs and priorities, the most effective communication means, and the right combination of service delivery channels and mechanisms. At the same time, the framework must help formulate core questions about whether government organizations involved in implementing the e-strategy have the right tools, resources, processes and political support required for a future-state vision to be realized. This leads to assessing both the completeness of vision and the ability to execute. The approach of this framework is in terms of understanding constituent needs; articulating measurable value; focusing on specific needs for a channel strategy; understanding how the e-services strategy responds to political agendas, goals, and high-priority demands by citizens and businesses; and improving the operational efficiency of governments.

**Assessment Criteria**

The study suggests evaluation criteria by assigning weightages for the various Completeness of Vision Assessment Criteria and ability to Execute Assessment Criteria. The proposed weightages are listed in the table 2.6 and table 2.7.

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40 Ibid.
### Table 2.6: Completeness of Vision Assessment Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th>Suggested Weighting*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constituent Understanding</td>
<td>The ability to identify and capture constituents' service needs and incorporate into prioritized service changes in proposed and ongoing transformation initiatives</td>
<td>15%</td>
</tr>
<tr>
<td>Constituent-Centric Strategy</td>
<td>The ability to direct resources, skills and offerings to meet needs of specific constituent segments</td>
<td>20%</td>
</tr>
<tr>
<td>Service Delivery Strategy</td>
<td>The ability to deliver e-government services through appropriate combination of physical and electronic delivery channels</td>
<td>20%</td>
</tr>
<tr>
<td>Service Development Strategy</td>
<td>The ability to establish an approach to service development and delivery that defines operational, constituent and political value of required investments</td>
<td>20%</td>
</tr>
<tr>
<td>Transformation and Innovation</td>
<td>The extent to which the strategy is fostering new thinking that balances day-to-day tactical execution with the need to support change</td>
<td>10%</td>
</tr>
<tr>
<td>E-Government Marketing Strategy</td>
<td>The extent to which positions, principles, objectives, strategies and plans are communicated internally as well as externally</td>
<td>15%</td>
</tr>
</tbody>
</table>

### Table 2.7: Ability to Execute Assessment Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th>Suggested Weighting*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget Viability</td>
<td>The absolute and relative budget available to support e-government programs and investments</td>
<td>20%</td>
</tr>
<tr>
<td>Agility and Adaptability</td>
<td>The ability to respond, change direction and be flexible in response to regulatory changes and new constituent needs</td>
<td>15%</td>
</tr>
<tr>
<td>Political Support</td>
<td>The contribution of e-government programs to create short- and long-term positive political returns</td>
<td>25%</td>
</tr>
<tr>
<td>Constituent Service Capability</td>
<td>The extent to which relationships and services/programs are in place that provide demonstrable value to constituents</td>
<td>15%</td>
</tr>
<tr>
<td>Organization and Governance</td>
<td>The extent to which requisite authority, responsibility and proper accountability are in place to meet e-government goals and commitments</td>
<td>15%</td>
</tr>
<tr>
<td>Operational Efficiency</td>
<td>The extent to which the e-government strategy has helped government business operations become more efficient</td>
<td>10%</td>
</tr>
</tbody>
</table>

*Actual weightings could be different, based on key concerns or drivers.

Source: Gartner (February 2008)

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41 Using the E-Government Assessment Questionnaire, Andrea Di Maio, David McClure, Gartner Industry Research document id no. G00153058, Published on 15 February 2008, page 6

42 Ibid., page 7
The report also suggests a detailed set of questionnaire\textsuperscript{43} for each of the criteria under the completeness of Vision and the ability to execute the Vision, which could be administered for any e-Government project.

\textbf{Study Recommendations}\textsuperscript{44}

\begin{itemize}
  \item Government leaders in charge of delivering e-Government programs should assess progress and results associated with their transformation objectives.
  \item Based on assessment results, government leaders should identify areas for strategy improvement and closer alignment with their agency or government execution capabilities to sustain progress and achievements in transformation goals.
\end{itemize}

Till now the Gartner proposed assessment framework has not been applied. The proposed two dimension approach seems to be a good approach, and is worth applying on e-Government projects. However, the challenge remains in getting reliable, valid and comparable data on key indicators or attributes.

\begin{flushleft}
\textsuperscript{43} Ibid., page 10-21 \\
\textsuperscript{44} A New E-Government Assessment Framework, Andrea Di Maio, David McClure, Richard G. Harris, Gartner Industry Research document id no. G00147284, Published on 28 March 2007
\end{flushleft}
2.7 VAM-DAM Model, Australia [2004]

Overview

<table>
<thead>
<tr>
<th>Australian VAM-DAM model</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Demand and Value Assessment Methodologies assist agencies in developing transparent and auditable assessments of demand and value propositions for online government programs. These propositions underpin the business case and assist in substantiating the viability of the initiative, in justifying resource investment and in demonstrating transparency and accountability.</td>
</tr>
</tbody>
</table>

The Demand and Value Assessment Methodology (DAM & VAM) comprises five phases.

- **Phase 1** is program identification, with a rough outline of the business case in terms of
  - scope, outcomes and outputs.
- **Phase 2** aims to assess the scope, nature and size of demand through a variety of
  - tools, including market survey, market research and focus groups
- **Phases 3 and 4** look at various elements of value, costs and benefits — if there is
  - demand.
- **Phase 5** analyzes any risks.

**DEMAND ASSESSMENT METHODOLOGY**

1. Source
2. Context
3. Measurement
4. Scope

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VALUE ASSESSMENT METHODOLOGY

1. Social Value
2. User Financial Value
3. Governance Value
4. Costs
5. Benefits

Challenges:
Detailing of the business case, Demand Assessment and Value assessment requires exhaustive data in the initial stage of project conceptualization, which requires sufficient capacities to be built within Government. This may practically be a difficult task for Government departments until made mandatory for implementing the project.

The Australian Government Information Management Office (AGIMO), which is part of the Department of Finance and Administration, has devoted substantial resources and management attention to helping departments articulate the return on investment of their e-government projects. This focus began in 2002 as a response to questions concerning the rationale behind the considerable level of spending on e-government initiatives, given the difficulty in demonstrating, in many cases, any hard returns.

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46 Australian Measure of the Public Value of IT Is a Good Start, Andrea Di Maio, David McClure, Gartner Industry Research document id no. G00126455, Published on 24 March 2005
In 2004, AGIMO developed its demand assessment method (DAM) and VAM to support business-case preparation. This method suggested different phases to identify demand for an investment, look at benefits and cost, and examine risk. The underlying model fully supports the concept of Public Value for IT (PVIT)\(^\text{47}\) and goes even further, by identifying benefits and risks on the same scorecard. The VAM forces the user to think in terms of the different aspects of public value and how the realization of benefits may be hampered by changes in the environment, as well as the way the program itself develops.

**DAM-VAM benefits**

The Demand and Value Assessment Methodologies\(^\text{48}\) assist agencies in developing transparent and auditable assessments of demand and value propositions for online government programs. These propositions underpin the business case and assist in substantiating the viability of the initiative, in justifying resource investment and in demonstrating transparency and accountability. The methodology provides for a consistent approach across agencies. The Demand & Value Assessment Methodology (DAM and VAM) is an interactive program designed to capture information to gauge and forecast how well equipped any proposed online delivery is to service its market and generate


valuable results. The DAM & VAM represents a standardized system to forecast and articulate demand and value in any proposed e-government service. The application of the Demand and Value Assessment methodologies has various advantages:

At a project level it enables:

- Preparation of a business cases, justification of expenditure and policy decisions;
- Assessment of progress towards project and program goals and targets; and
- Impact assessment on agency business, customer base, demand and social value.

At the government agency level it enables the:

- Evaluation of contribution to overall agency goals, and the agencies' contribution to whole of government strategies;
- Analysis of the capacity of agencies to deliver e-government services;
- Assessment of impacts on clients to ensure the right mix of services are on offer;
- Identification of future policy and priority areas for improvement and investment; and
- A mechanism for sharing of information, achievements and strategies with other agencies and contribution to the development of best practice approaches.

**DAM-VAM applicability**

The framework suggests assessment primarily in five steps:\footnote{AGIMO, Demand and Value Assessment Methodology, Manual, May 2004, Page 7-10}

1) **The first step, outlines the business case** in considering delivery options for any output or program. It includes the objectives, timeframe and how the mix of complementary and new services is intended to generate the proposed benefits. This preliminary business case underpins the decision-making process and cost benefit analysis and can form the basis for later evaluations or audits, and is meant to link the proposed e-government service clearly with the organization’s strategic goals, outcomes and outputs. Consistent review against targets can then determine the success of the program in the short, medium and long term.

2) **The second step, commences the Demand Assessment** and prompts the explanation of the business need. The rationale for the business case involves careful assessment of the various components of demand including; establishing the sources of demand; placing the demand in context with regard to the end user, the proposed delivery mechanisms and identification of any alternatives and impediments. The demand assessment cumulates with the measurement of demand and
includes forecasts and extrapolations based on existing figures and a
determination of the intrinsic value and Key Point of Difference in order
to assess whether the forecasted demand can be satisfied by the
proposed program.

3) **The third step, introduces the value component.** It reviews the
objectives and alternatives from the perspective of social and governance
contribution and fiscal outcomes for the end user. At this point it is
suggested to consider the market drivers and inherent value (primarily
social) of the on-line program alternatives being considered.

4) **The fourth step, considers the preferred response** based on the
demand and value analysis in steps 2 and 3. What is the solution you
propose? Revisit the costs, benefits and likely value to be derived from
the proposed program. What is the return on investment? What is the
flow on effect of introducing the program? This section encourages
participants to articulate and communicate these benefits so that the
true value of the proposition is understood and maximum support and
participation is achieved.

5) **The fifth step, is that of risk assessment and review.** At this point,
areas of risk are contemplated and rated according to their likelihood of
occurring. Performance targets for each dimension are also nominated so
that the agency has a base from which to compare and comment on final
performance against stated outcomes. This phase also presents the risk
benefit profile, a summary footprint that visually depicts the program’s
orientation (social or financial) and any biases. Phase 5 therefore weighs potential risk against expected benefits. In the knowledge that programs are not finite but cyclical, this phase also encourages users to be involved in the assessment of performance. Feedback on how systems might be streamlined, simplified and improved to generate maximum benefit from the investment is encouraged.

The important component of this model is the Demand assessment, which consists of four stages:\n
1) **Sources of Demand**
   - Identify triggers for demand

2) **Demand Context**
   - Identification of the target audience/users
   - How to stimulate, influence and create demand
   - The impact of delivery channels
   - The value or utility of the service to the target impediments

3) **Measurement**
   - Gauging demand
   - Capturing the anticipated demand data (using the Spreadsheet to record)

4) **Demand Scope**
   - What does this demand mean?

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50 Ibid., page 27
• What e-government service delivery is needed to satisfy demand?
• Is there a decision to proceed?
• How to continually review demand

The model raises an interesting area of understanding the source of demand as part of the Demand assessment. The model manual\(^{51}\) explains that at first glance it may not appear that the source of demand is as important as the user of the intended service. On the contrary, knowing the trigger is the first step to understanding the demand and all its nuances ie: why it is important, to whom it is more or less relevant and its various overlaps and implications. The critical question is, what is stimulating or triggering demand so that it is relevant at this point of time? (One might decide there is no trigger and demand is currently latent or dormant. This is particularly the case if demand is a function of a pull campaign. In this instance, demand must be deliberately stimulated via education or other means). Loss or attainments of rights, freedom, money, lifestyle, health, are some of the most powerful forces for change. These forces for change are closely linked to demand as one stimulates the other (eg. Expectation of change in the lead up to Y2K stimulated billions of dollars worldwide being spent on IT upgrades, not to mention the flow on effects with some segments of the population stocking up on supplies of canned food and bottled water, in case of

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\(^{51}\) Ibid.
major shut downs affecting basic services and amenities). Is the impetus coming from external or internal agency sources? Are the triggers examples of “pull” (what the community has or will ask for) or “push” stimulation (the things that government does and analysis of where e-government can assist)?

Subsequently, having determined where demand is coming from, the next step is to understand what comprises the demand. What are the expectations of each driving group — be they the community, business, business intermediaries or other agencies. Start with the most urgent recipient group and most important need requirement, and work your way through the list. Alternatively, discuss, describe and debate the order at a later point.

The model further emphasis as part of the process of establishing the business need and understanding demand, it is critical to define the source, triggers, audience and situational context of the e-government service demand being considered. Only then one can progress to a more considered review — estimating, forecasting and predicting demand. Similarly, the model elaborates the Demand assessment stage, and the completion of the DAM therefore is the foundation for completing the VAM. Without sufficient positive signals from the demand assessment, it is not recommended you graduate to the VAM. Having established a case for demand, estimated its volume and fluctuations and the impact on alternative channels as a result of its introduction, the next step is to
more accurately estimate the likely costs and benefits of the intended program.

The next steps for Value assessment\(^5\) are designed to provide a more objective basis for comparative evaluation and assessment of the potential benefits of the e-government service. Government online experiences to date show that benefits will broadly fit into two categories, community and agency benefits:

1. **Community benefits:** usually represented from a social perspective, include:
   
   - Improved service delivery (availability 24/7; seamless access; flexible access; equitable access);
   - Reduced cost to users (time & effort; price of service);
   - Improved business and work opportunities (improved processes; reduced cost of servicing);
   - Increased community skills and knowledge (intuitive; easy to find information);
   - More accessible government (policy familiarity; more transparency).

2. **Agency Benefits:** usually represented from a strong financial perspective, include:
   
   - Reduction in costs; lower cost channels of communication;

\(^5\) Ibid., page 62
- Increased resource efficiency
- Increased revenues from new and increased use of existing, chargeable services.

**Challenges and Learning’s**

The Gartner study on Worldwide Examples of Public-Value-of-IT Frameworks\(^{53}\), states that DAM and VAM received significant attention worldwide, because of its simplicity. It also analysis some of the key strengths and weaknesses of the model.

**Strengths**

1. Retrospective analysis of past IT programs, particularly those around e-government, helped frame which categories of value should be taken into account.

2. Keeping the model relatively simple and flexible encourages its adoption as a business case preparation tool and can facilitate the monitoring of benefit realization over time.

3. Integrating program delivery risks (technology) with benefit realization risks provides program managers with a more-complete toolset to assess the relevance and criticality of their initiatives.

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\(^{53}\) Worldwide Examples of Public-Value-of-IT Frameworks, Andrea Di Maio, Gartner Industry Research document ID Number: G00146056, Publication Date: 26 February 2007
Weaknesses

1. Demand assessment is an important part of the process, but the guidelines for balancing market research, market surveys, focus groups and other demand-forecasting approaches must be thoroughly tested — using real cases — to prove their value.

2. The method has its own merit in letting individual agencies make their business cases and manage value and related risks better. However, it will yield more-meaningful results when used across agencies. But this will require greater coordination and tighter governance processes than what is in place.

Critical Success Factors/Lessons Learned\(^{54}\)

1. Retrospective analysis of past IT programs, particularly those around e-government, helped frame which categories of values should be taken into account.

2. Keeping the model relatively simple and flexible encourages its adoption as a business case preparation tool, and facilitates, at least in theory, the monitoring of benefit realization over time.

3. Integrating program delivery risks (technology) with benefit realization risks provides program managers with a more complete toolset to assess the relevance and criticality of their initiatives.

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\(^{54}\) Australian Measure of the Public Value of IT Is a Good Start, Andrea Di Maio, David McClure, Gartner Industry Research document id no. G00126455, Published on 24 March 2005
4. Demand assessment is an important part of the process, but lead agencies that have little experience of this may find themselves in uncharted territory. The guidelines for balancing market research, market surveys, focus groups and other demand forecasting approaches need to be thoroughly tested — using real cases — to prove their value.

5. The method has its own merit in allowing individual agencies to make their business cases and to manage value and related risks better. However, it will yield more meaningful results when used across agencies. But this will require greater coordination and tighter governance processes than those currently in place.

In conclusion the DAM and VAM V1.0 is designed to be a first step in providing a comparative online assessment that can be applied across government departments. The objective is to provide clear, auditable baselines for assessment in a way that supports the business case for adoption or rejection of any e-government service.

The DAM-VAM model provides a good assessment framework which is applied from the stage of e-Government project conceptualization. The model also gives scope for self-assessment, audit and benchmarking. Such a model if made mandatory for application in the initial stage of the project could also help in mid-course corrections and making sure the
project is aligned to its set goals. However, detailing of the business case, Demand Assessment and Value assessment requires exhaustive data in the initial stage of project conceptualization, which requires sufficient capacities to be built within Government. This may practically be a difficult task for Government departments until made mandatory for implementing the project.
2.8 A Public Value Framework (PVF), [2005]\textsuperscript{55}

Overview

<table>
<thead>
<tr>
<th>A Public Value Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is called public value framework to emphasize the point of view of the public, not the government, as the basis for the assessment. The framework is deliberately presented at a moderate level of generality to make it most widely useful.</td>
</tr>
<tr>
<td>The basic elements in the PVF are:</td>
</tr>
<tr>
<td>1. the stakeholders,</td>
</tr>
<tr>
<td>2. Government programs &amp; operations, and</td>
</tr>
<tr>
<td>3. the technology investment.</td>
</tr>
</tbody>
</table>

Political Value (Direct)

1. Improved credibility and political support for agency resulting from improved government operations and money saved
2. Ability to report improved performance with fewer resources generates support for elected officials
3. Report improved government efficiency to stakeholders and general public; improves agency’s status in government

Political Value (In-Direct)

1. Improved internal government operations enhance support for other political interests and strategies, e.g., new system supports other parts of the government’s reform efforts and e-government strategy
2. Using “cutting edge” technology enhances reputation & status of officials

Social Value (Direct)

1. Resources reallocated to work on activities directly related to citizen

services

2. Financial service quality improvements due to better government decision making

3. Enhanced accountability, transparency; improved trust and legitimacy

**Social Value (In-Direct)**

1. Improved transparency of other government operations & decisions
2. Lower cost and faster development of service improvements overall
3. Potential for improved public access to information

**Background**

In 2005, the Center for Technology in Government\textsuperscript{56}, US in collaboration with SAP, hosted a consultative workshop on assessing public return on government investments in IT. Key Issues Characterizing the Complexity of Assessing Public ROI for Government IT Investments emerging out of deliberations\textsuperscript{57} are listed below:

- Lack of incentives to assess public ROI. There may be no consequences for absence of ROI or other demonstration of results.
- Lack of historical perspective and data. Government tends to be prospective (not retrospective), so it tends to focus on what should be done, but not on what has already been done.
- Governments have trouble harvesting savings, which often get moved around the budget.

\textsuperscript{56} Ibid.

\textsuperscript{57} Ibid.
• There is no straightforward quantitative bottom line value measure for ROI in public sector.

• Government is multidimensional. Non-linear, complex interactions among benefits—hard to measure results and link to specific programs or technologies, i.e., proving the causal relationship between the two.

• ROI requires advanced project management and portfolio management skills that are often lacking.

• Comprehensive ROI analysis can greatly increase transparency of government decisions and investment results. This level of transparency is a risk in and of itself, increasing the probability for embarrassment and criticism leading to loss of support.

• ROI is done in a vacuum. Not focused on the strategic investment.

• Lack of longer-term tracking and assessment makes it difficult to build a measurement model.

• It is hard to evaluate IT ROI elsewhere in the government enterprise because the outcome frameworks (inter-sectors) aren't established.

The traditional definitions of ROI consistently focus on the financial returns to determine whether a proposed investment is wise, and how it will repay the investor\textsuperscript{58}. It further states that ROI in IT is associated

\textsuperscript{58} Lucy Dadayan (2006), Measuring Return on Government IT Investments, Proceedings of the 13\textsuperscript{th} European Conference on Information Technology Evaluation Genoa, Italy 28-29 September 2006
with both tangible and intangible benefits, costs, and risks. The intangible benefits, costs, and risks are sometimes the most important factors for IT decision-makers, but they are typically the most difficult to quantify and measure. One of the good ways to assess the project assessment is by having done a public value RoI when initiating the project and later assesses the RoI it has delivered.

Reflections on the Framework and the Value of Public Value\textsuperscript{59}

This framework grows from the rather simple principle: that the value of a government's investment in IT should be assessed from the point of view of the public it serves. That principle leads us to identify two distinct but equally important types of public value: delivering benefits directly to citizens and enhancing the value of government itself as a public asset. From this seemingly simple beginning grows the rather high level of complexity involved in working through this framework and its potential application. That complexity derives in part from the way these ideas radically expand the possible scope of inquiry needed to identify and document public value creation. That expanded scope brings with it a host of measurement problems that emerge when the many social and

\textsuperscript{59} \url{http://www.ctg.albany.edu/publications/reports/advancing_roi?chapter=7}, Section IV. Reflections on the Framework and the Value of Public Value
political outcomes come into play. The cost of this expanded and more complex assessment can be quite high.

So government executives and IT planners can rightly question whether assessing public value is worth the effort. Part of the answer may be that they will have no choice. As we noted earlier, elected officials have begun insisting on more comprehensive cost and return analyses for IT investment proposals. Conventional approaches to ROI analysis may simply be inadequate for these increased demands.

More importantly, however, the desire for a more comprehensive and robust justification for new IT investments reflects their greater complexity and ambition. The low-hanging fruit available from earlier IT investments, such as establishing Web presence and automating simple service transactions, has typically been harvested. More substantial improvements in government are now possible by exploiting the integrative and transformative potential of IT, but they require much larger investments. These projects require a way of assessing public value that matches their greater scope and complexity, a way that can build the needed public support and guide development. In this light, the cost of using a framework such as this should be easily justified. Moreover, the new knowledge about public value possible from such an assessment can help guide other forms of investment and contribute to long-term government improvement.
Challenges and Learning’s

There are few of the available case studies on PVF application, like the Service New Brunswick case\(^{60}\). The focus of the PVF is on IT investments and its RoI, where as there are many e-Government initiative that are socially driven and may not have direct relevance to RoI for the Government. Estimating the savings would require comparison with the costs of maintaining and developing the existing system, so estimating these costs should be part of the design\(^{61}\). Therefore, one of the key challenge is to capture the base line data i.e. costs associated with the existing system, before moving to the new IT system.

Lucy (2006)\(^{62}\) has concluded in her analysis of RoI models that many IT investments fail to bring positive returns primarily due to failure to take into account different aspects of IT investments. Often IT decision makers fail to consider needs and capabilities of different stakeholders, particularly the end-users. Also, investment in IT is not an independent investment; it is dependent on other simultaneous investments including investment in upgrading personnel skills, investment in changing management styles and work processes, etc.

\(^{60}\) Theresa A. Pardo, Lucy Dadayan, (2006) Service New Brunswick, Public ROI - Advancing Return on Investment Analysis for Government IT Case Study Series

\(^{61}\) Anthony M. Cresswell (2004), Center For Technology In Government\(^{5}\) Return On Investment In Information Technology: A Guide For Managers, page 28

2.9 Assessment Models associated with Awards

It has been an on-going endeavor to appreciate and recognize the good efforts on these e-Government initiatives by way of awards. The research also studies some of the major assessment criteria adopted by some of these awards organizers.

2.9.1 Stockholm Challenge Awards

Overview

<table>
<thead>
<tr>
<th>Stockholm Challenge Awards</th>
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<tbody>
<tr>
<td>The Stockholm Challenge Award 2007 selected 7 criteria for assessment. The Award is open for projects that use ICT to improve people’s social and economic conditions and their environment. The Stockholm Challenge GKP Awards 2007 is a joint initiative with the multi stakeholder networking organisation Global Knowledge Partnership (GKP).</td>
</tr>
</tbody>
</table>

The evaluation criterion is based on the following seven attributes:

1. Empowerment
2. Equal Opportunity
3. Sustainability
4. Impact & Transferability
5. Entrepreneurship
6. Inspiration and transferability
7. Multi Stakeholder Partnerships (MSP)

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63 Information was taken from Stockholm website [http://www.challenge.stockholm.se](http://www.challenge.stockholm.se) for the year 2007.
Assessment Indicators

The Stockholm Challenge Award is open for projects that use ICT to improve people's social and economic conditions and their environment.

1. **Empowerment**
   
   Promote democratic governance and give users influence over and a measure of control of the services delivered by the project.

2. **Equal Opportunity**
   
   Equality regardless of gender, origin, age, physical or mental disabilities.

3. **Sustainability**
   
   Economic survivability, stakeholder support and environmental and social responsibility.

4. **Impact**
   
   Demonstrable effects on the project target groups and positive changes over time.

5. **Entrepreneurship**
   
   Local initiatives, ownership and innovation in providing services and products to target groups.

6. **Inspiration and transferability**
   
   Replicable ways of using ICT that inspire others to adopt similar solutions.
7. **Multi Stakeholder Partnerships (MSP)**

The existence of a formal agreement between at least three stakeholder organisations representing government, business and civil society. The partners share resources and competencies, have a shared goal and share the project risk, costs and benefits.

The evaluation is based on a sufficient good quality of indicators, covering various dimensions of the project impact. The subjective nature of information under various indicators is a challenge for analyzing the impact of the project. Further details on the evaluation process were not available to the researcher.
2.9.2 e-Award for Excellence in e-Government

Overview

<table>
<thead>
<tr>
<th>Australian Government, Excellence in e-Government Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>The e-Award for Excellence in e-Government was introduced in 2006 by the Australian Government to promote excellence in the use of information and communications technology (ICT) in Australia at all levels of government. The primary focus for the e-Award is the promotion of excellence in the use of information and communications technology (ICT) and takes into account the following criteria.</td>
</tr>
</tbody>
</table>

The evaluation is based on three key criterion:

Criterion 1 – Transformation of Services to Citizens, Government or Businesses.

Criterion 2 – Innovative use of ICT in the delivery of Government services.

Criterion 3 – Accessible and Usable ICT Solutions.

The e-Award for Excellence in e-Government was introduced in 2006 by the Australian Government to promote excellence in the use of information and communications technology (ICT) in Australia at all

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levels of government. The e-Awards characterize the best of government ICT innovation and what can be achieved towards the realization of the benefits of e-government and the positive impact the projects have had on the lives of Australian citizens, the community and business.

In its second year, the e-Award has established itself as highly prized recognition of excellence and innovation in the delivery of government services in Australia. All entries in second year’s competition were of an exceptionally high standard. The entries were assessed by a judging panel of seven government and industry representatives who evaluated them on the extent to which they transformed the way government operates and delivers services.

**Assessment Criteria**

The primary focus for the e-Award is the promotion of excellence in the use of information and communications technology (ICT) and takes into account the following criteria:

**Criterion 1 – Transformation of Services to Citizens, Government or Businesses** - How the project demonstrates that it has significantly improved services to the community and/or citizens, facilitated business or improved government capabilities. The assessment is made on the basis of the extent to which the project:

- meets the objectives of the agency while improving service delivery;
• demonstrates benefits to clients/end users; and demonstrates reformed and improved government processes and connected service delivery.

**Criterion 2 – Innovative use of ICT in the delivery of Government services** - How the project demonstrates that it has applied technology innovatively to create new or different services and has become a leader in its field. The assessment is made on the basis of the extent to which the project:

• innovatively uses information technology to improve services;

• demonstrates value-for-money use of ICT;

• demonstrates innovation or best practice through re-use of systems, open standards, shared systems, environmental achievements, interoperability, security, data protection, or scalability; and

• reflects a commitment to sharing the technology.

**Criterion 3 – Accessible and Usable ICT Solutions** - How the project demonstrates that it addresses accessibility and usability issues. The assessment is made on the basis of the extent to which the project:

• has considered accessibility and usability issues during development;
• conforms to accessibility guidelines (for example World Wide Web Consortium Level 1 standards for websites); has consulted with users in the design; and has undertaken usability testing.

**How the awards were judged**

Members of the judging panel made an individual examination of all nominations according to the selection criteria. Scores from the panel were compiled by the Australian Government Information Management Office (AGIMO), and the 10 highest scored projects constituted the finalists. The nomination with the highest overall score received the e-Award. The nominations with the highest scores from the three levels of government received highly commended awards.

The award criterion is primarily based on subjective evaluation, which could lead to non-uniform judgment. Next level of sub-attributes could be helpful to have a balanced evaluation format.
2.9.3 Malcolm Baldrige National Quality Award

Overview

While doing the literature review, the researcher came across two performance assessment frameworks that are not from the e-Government/ICT specific area, but provide an excellent insight to the approach performance can be assessed.

Malcolm Baldrige National Quality Award

Each year, The Quest for Excellence, the official conference of the Malcolm Baldrige National Quality Award, provides a forum for Baldrige Award recipients to share their exceptional performance practices with worldwide leaders in business, education, health care, and nonprofit organizations. Business units established in the United States are eligible to apply for the Awards.

The framework provides a rich learning for assessment of the overall organization based on two key items – Process and Result.

The Core Values and Concepts are embodied in seven Categories, as follows:

1. Leadership
2. Strategic Planning
3. Customer and Market Focus
4. Measurement, Analysis, and Knowledge Management
5. Human Resource Focus
6. Process Management
7. Results

Website: http://www.nist.gov/baldrige/
Assessment Indicators

This framework is being used as best practice from Industry, and provides an excellent approach for assessment. Each year, The Quest for Excellence, the official conference of the Malcolm Baldrige National Quality Award, provides a forum for Baldrige Award recipients to share their exceptional performance practices with worldwide leaders in business, education, health care, and nonprofit organizations. The Baldrige National Quality Program is conducted by the National Institute of Standards and Technology, Technology Administration, of the United States Department of Commerce.

The evaluation and assessment process for the award lays down a systematic approach covering various dimensions.

Criteria for Performance Excellence Goals

The Criteria are designed to help organizations use an integrated approach to organizational performance management that results in

1. delivery of ever-improving value to customers and stakeholders, contributing to organizational sustainability
2. improvement of overall organizational effectiveness and capabilities
3. organizational and personal learning
The Criteria are built on the following set of interrelated Core Values and Concepts:

1. visionary leadership  
2. customer-driven excellence  
3. organizational and personal learning  
4. valuing employees and partners  
5. agility  
6. focus on the future  
7. managing for innovation  
8. management by fact  
9. social responsibility  
10. focus on results and creating value  
11. systems perspective  

These values and concepts, described below, are embedded beliefs and behaviors found in high-performing organizations. They are the foundation for integrating key performance and operational requirements within a results-oriented framework that creates a basis for action and feedback.

The Core Values and Concepts are embodied in seven Categories, as illustrated in the figure 2.3.
The criteria are categorized under two items – Process and Results. Criteria from 1 – 6 are categorized under Process. “Process” refers to the methods your organization uses and improves to address the Item requirements in Categories 1–6. The four factors used to evaluate process are Approach, Deployment, Learning, and Integration (A-D-L-I).

“Approach” refers to

- the methods used to accomplish the process
- the appropriateness of the methods to the Item requirements
- the effectiveness of your use of the methods
- the degree to which the approach is repeatable and based on reliable data and information (i.e., systematic)
“Deployment” refers to the *extent* to which

- your approach is applied in addressing Item requirements relevant and important to your organization
- your approach is applied consistently
- your approach is used by all appropriate work units

“Learning” refers to

- refining your approach through cycles of evaluation and improvement
- encouraging breakthrough change to your approach through innovation
- sharing refinements and innovations with other relevant work units and processes in your organization

“Integration” refers to the *extent* to which

- your approach is aligned with your organizational needs identified in other Criteria Item requirements
- your measures, information, and improvement systems are complementary across processes and work units
- your plans, processes, results, analyses, learning, and actions are harmonized across processes and work units to support organization-wide goals
Results

“Results” refers to your organization’s outputs and outcomes in achieving the requirements for the following six outcomes:

1. Product and Service outcomes
2. Customer focused outcomes
3. Financial and Market outcomes
4. Human resource outcomes
5. Organizational Effectiveness outcomes
6. Leadership and Social Responsibility outcomes

The four factors used to evaluate Results are

- your current level of performance
- rate (i.e., slope of trend data) and breadth (i.e., how widely deployed and shared) of your performance improvements
- your performance relative to appropriate comparisons and/or benchmarks
- linkage of your results measures (often through segmentation) to important customer, product and service, market, process, and action plan performance requirements identified in your Organizational Profile and in Process Items
Evaluation Process

The scoring is based on the point values listed in the following table 2.8:

<table>
<thead>
<tr>
<th>2066 Categories and Items</th>
<th>Point Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leadership</strong></td>
<td><strong>120</strong></td>
</tr>
<tr>
<td>1.1 Senior Leadership</td>
<td>70</td>
</tr>
<tr>
<td>1.2 Governance and Social Responsibilities</td>
<td>50</td>
</tr>
<tr>
<td><strong>Strategic Planning</strong></td>
<td><strong>85</strong></td>
</tr>
<tr>
<td>2.1 Strategy Development</td>
<td>40</td>
</tr>
<tr>
<td>2.2 Strategy Deployment</td>
<td>45</td>
</tr>
<tr>
<td><strong>Customer and Market Focus</strong></td>
<td><strong>85</strong></td>
</tr>
<tr>
<td>3.1 Customer and Market Knowledge</td>
<td>40</td>
</tr>
<tr>
<td>3.2 Customer Relationships and Satisfaction</td>
<td>45</td>
</tr>
<tr>
<td><strong>Measurement, Analysis, and Knowledge Management</strong></td>
<td><strong>90</strong></td>
</tr>
<tr>
<td>4.1 Measurement, Analysis, and Review of Organizational Performance</td>
<td>45</td>
</tr>
<tr>
<td>4.2 Information and Knowledge Management</td>
<td>45</td>
</tr>
<tr>
<td><strong>Human Resource Focus</strong></td>
<td><strong>85</strong></td>
</tr>
<tr>
<td>5.1 Work Systems</td>
<td>35</td>
</tr>
<tr>
<td>5.2 Employee Learning and Motivation</td>
<td>25</td>
</tr>
<tr>
<td>5.3 Employee Well-Being and Satisfaction</td>
<td>25</td>
</tr>
<tr>
<td><strong>Process Management</strong></td>
<td><strong>85</strong></td>
</tr>
<tr>
<td>6.1 Value Creation Processes</td>
<td>45</td>
</tr>
<tr>
<td>6.2 Support Processes and Operational Planning</td>
<td>40</td>
</tr>
<tr>
<td><strong>Results</strong></td>
<td><strong>450</strong></td>
</tr>
<tr>
<td>7.1 Product and Service Outcomes</td>
<td>100</td>
</tr>
<tr>
<td>7.2 Customer-Focused Outcomes</td>
<td>70</td>
</tr>
<tr>
<td>7.3 Financial and Market Outcomes</td>
<td>70</td>
</tr>
<tr>
<td>7.4 Human Resource Outcomes</td>
<td>70</td>
</tr>
<tr>
<td>7.5 Organizational Effectiveness Outcomes</td>
<td>70</td>
</tr>
<tr>
<td>7.6 Leadership and Social Responsibility Outcomes</td>
<td>70</td>
</tr>
</tbody>
</table>

**TOTAL POINTS** 1,000

The evaluation process involves field visits to the business units with a basic purpose verify the testimonials submitted in the application form. Another important aspect of the evaluation process is the feedback report. Each Award applicant receives a feedback report at the
conclusion of the review process. The feedback report is a written assessment by an evaluation team of leading U.S. experts. The feedback report contains an applicant-specific listing of strengths and opportunities for improvement based on the Criteria. Used by companies, education organizations, and health care organizations as part of their strategic planning processes, the feedback report helps organizations focus on their customers and improve overall performance. Feedback is one of the most important parts of the Baldrige Award process; it provides a pathway for improvement. Feedback reports are mailed at various times during the Award cycle, based on the stage of review an application reaches in the evaluation process.

The framework provides a structured approach for assessing the performance of an initiative that not only helps in self-assessment but also provides a valuable feedback process for further improving the performance. Such a framework provides value not only for the individual initiative owners but also provides valuable benchmark data for others working on a similar initiative or planning to work on a similar type of initiative. This assessment framework provides valuable inputs towards framing the CII-EXIM Business Excellence Award, instituted for business units in India.
2.9.4  CII-EXIM Business Excellence Award (1994)\textsuperscript{66}

Overview

<table>
<thead>
<tr>
<th>CII-EXIM Business Excellence Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>The CII-EXIM Bank Award for Business Excellence was established jointly by Confederation of Indian Industry (CII) and Export-Import (EXIM) Bank of India in 1994 to enhance the competitiveness of India Inc. The Business Excellence Model is based on universally accepted standards and practices that are found in the European Quality Award, the US Malcolm Baldrige National Quality Award, Japan Quality Award and Australian Quality Award.</td>
</tr>
</tbody>
</table>

The Excellence Model is a non-prescriptive framework based on nine criteria\textsuperscript{67}. Five of these are ‘Enablers’ and four are ‘Results’. The ‘Enabler’ criteria cover what an organization does. The ‘Results’ criteria cover what an organization achieves. ‘Enablers’ cause ‘Results’.

<table>
<thead>
<tr>
<th>Enabler Indicators</th>
<th>Result indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Leadership</td>
<td>1. Key Performance</td>
</tr>
<tr>
<td>2. People</td>
<td>2. People results</td>
</tr>
<tr>
<td>4. Partnership &amp; Resources</td>
<td>4. Society results</td>
</tr>
</tbody>
</table>

The CII-EXIM Bank Award for Business Excellence was established jointly by Confederation of Indian Industry (CII) and Export-Import (EXIM) Bank of India in 1994 to enhance the competitiveness of India Inc. The CII-EXIM Bank Award for Business Excellence encourages

\textsuperscript{66} \texttt{http://www.cii-iq.in/CII-Exim Bank Award for Excellence.htm}, Accessed on 14-5-2009

\textsuperscript{67} The Excellence Model document, downloaded from \texttt{http://www.cii-iq.in/CII-Exim Bank Award for Excellence.htm}, Accessed on 14-5-2009
organizations to strengthen their management systems, practices and capabilities to enhance and sustain their competitiveness to become world-class organizations. The Award is administrated by CII.

The framework stresses on the fact that, regardless of sector, size, structure, or maturity to be successful, organizations need to establish appropriate management framework with clear purpose. Business Excellence Model is a practical and holistic tool that is used in a number of ways:

- As a tool for Self-Assessment by measuring where they are on the path to excellence; helping them understand the gaps; and then stimulating solutions;
- As the basis for a common vocabulary and way of thinking about the organization which is shared across all functions;
- As a framework for positioning existing initiatives, and identifying gaps;
- As a structure for the organization’s management system.

The Business Excellence Model is based on universally accepted standards and practices that are found in the European Quality Award, the US Malcolm Baldrige National Quality Award, Japan Quality Award and Australian Quality Award. The framework illustrated in figure 2.4
forms the basis as best practices for designing the proposed assessment model as part of this research.

**Figure 2.4: Business Excellence Model Structure**

The Model’s nine boxes, shown above, represent the criteria against which to assess an organisation’s progress towards excellence. Each of the nine criteria has a definition, which explains the high level meaning of that criterion. To develop the high level meaning further each criterion is supported by a number of sub-criteria. Sub-criteria pose a number of questions that should be considered in the course of an assessment. Finally, below each sub-criterion are lists of guidance points. Use of these guidance points is not mandatory nor is they exhaustive lists but is intended to further exemplify the meaning of the sub-criteria.
The model is primarily based on two key drivers\textsuperscript{68} i.e. Results and Enablers. Results cover what an organization is achieving. In an excellent organization the results show positive trends and/or sustained good performance. Targets will be set, appropriate and met or exceeded. Performance will be compared externally and will compare well with others, particularly against best in sector and/or world class. The cause and effect link between approaches adopted and results achieved will be clear. Additionally, the scope of the results will address the relevant areas. Where it helps understanding and the identification of improvement opportunities, the results will be segmented for example by customer or by department.

This model has structured the criteria and indicators for assessment for business excellence. The researcher draws the basic structure from this model to be applied to any type of e-Government projects.

2.9.5 CSI-Nihilent e-Governance Awards (2005-06)

Overview

<table>
<thead>
<tr>
<th>CSI-Nihilent e-Governance Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Computer Society of India and Nihilent in the year 2004 jointly instituted and managed a series of awards for recognizing the contributions made in the field of e-Governance in the country. 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.</td>
</tr>
<tr>
<td>The evaluation is based on five key criterion:</td>
</tr>
<tr>
<td>- Citizen Centricity (Efficiency, User Convenience, Services Provided and, Value Addition)</td>
</tr>
<tr>
<td>- Technology (Architecture, Standards, Security, Scalability, Reliability, External Audit Ability, Maintainability)</td>
</tr>
<tr>
<td>- Sustainability (Internal / Organisational, External, Cost Effectiveness)</td>
</tr>
<tr>
<td>- Replicability (Functional, Technical, Commercial)</td>
</tr>
<tr>
<td>- Integration (Services, Vertical, Horizontal)</td>
</tr>
</tbody>
</table>

Project Assessment Process

Assessing and selecting e-Governance projects have been one of the major focuses of these awards. There is a need for assessment
frameworks which provide tractable means of assessment that gives an “acceptable” assessment specific to the features chosen to be assessed in spite of constraints such as the ones mentioned above. It is to be noted that while the original problem of assessment itself is not studied in detail and there is a lot that requires to be done – it is important to point that it makes sense to look at this problem of assessment under constraints because that is a matter of reality faced by the teams which work on giving Annual Awards for e-Gov projects. Any progress in arriving at what is “acceptable” above would be desirable. This shall be obtained from the learning from the experience. CSI-Nihilent e-Gov Awards offer a nice platform to learn from the experience of assessing e-Gov projects.

It was for the first time that a detailed eGovernment project assessment was used for assessment for awards. The framework used was the EAF developed by IIM & NISG in India. The authors of the assessment framework for these awards in their paper emphasize that the Return on Investment is not the primary objective when e-Government projects are conceived. They have been mostly driven by achieving operational efficiency and effectiveness in service delivery. Governments run with tight budgets, hence there is an increasingly demand to reexamining

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69 Evaluating e-Government; M.P. Gupta, Jaijit Bhattacharya, Ashok Agarwal; page 1-56, Published in Governance Case Studies, Ashok Agarwal, University Press, 2007
their spending priorities. Further e-government programs are subjected to scrutiny to find out whether they are delivering the payoff as has been promising or not. This paper focuses on the various parameters for evaluating the success of e-Governance projects. A flexible framework is suggested to choose an appropriate strategy to measure the tangible and intangible benefits of e-Government. e-Government being a new phenomenon, at most of the places, e-government projects are found still in a nascent stage; hence proper information flow for calculating ‘return on e-government’ considering tangible and intangible benefits cannot be fully ascertained. Moreover an assessment of the same is possible.

There are three kinds of situations that require evaluation in e-government. One is the e-environment; second is evaluating the performance of an e-government program or project; and third is the overall impact of e-government on general government functioning, economic development and citizen servicing. The framework used broadly contains the following five factors:

1. Citizen Centricity (Efficiency, User Convenience, Services Provided and, Value Addition)

3. Sustainability (Internal / Organisational, External, Cost Effectiveness)
4. Replicability (Functional, Technical, Commercial)
5. Integration (Services, Vertical, Horizontal)

These factors are further explained in the paper by MP Gupta and others.\textsuperscript{70} Citizen Centricity gauges the extent to which the governance succeeds in treating the citizen as the focus of its end beneficiary of its actions. The author calls it Citizen Centricity instead of Service Orientation as in EAF because the author believes that governance is not just here to serve the citizens, but to involve and transform them. Services measure is to see the extent to which the service provided to the citizen through this project covers the entire gamut to citizen needs in that area for eg. If a form available online has to be downloaded, printed, filled and then the payment to be made at some facilitation centre, then the service provided is not complete. It would have been complete had the payment also been completed online. To calculate this score, see the percentage the service is providing compared to what it ought to provide for the transaction to be complete. Measure the % fully executable service as score 1 for 1-20%, 2 for 21-40%, 3 for 41-60%, 4 for 61-80% and 5 for 81-100%.

\textsuperscript{70} Ibid. page 23-36.
Technology parameter tests the technological soundness of the project. Alternate Delivery Channel in case of Break downs determines the extent to which the users can depend on the system's response in case of breakdowns (power, connectivity, hardware, software). Sustainability gauges the sustainability of the project manifested through internal or organisational stability, external sustainability and the financial sustainability of the project.

The four indicators and sub-attributes used for project assessment for the CSI-Nihilent e-Governance Awards are listed below:

1) Service Orientation
   a. Efficiency: Speed of Delivery of Service
   b. User Convenience
   c. Citizen Centricity
   d. Reduction of Touch points

2) Technology
   a. Architecture
   b. Standards
   c. Security Attributes
   d. Modularity of the Software

3) Sustainability
   a. Internal Sustainability
b. Trainings  
c. External Sustainability

4) Cost Effectiveness  
   a. Cost recovery  
   b. Cost reduction  
   c. Indirect costs reduction

**Framework Implementation Strategy**

What is now required is to develop a theoretically sound approach for determining the rankings of the different evaluation methods based on the parameters or the importance of each factor as derived from expert judgement; from a given set of options. A methodology using an analytic hierarchy process (AHP) is suggested as a means of formalizing the process of determining the suitability, ranking and contrasting of the system.

The Analytic Hierarchy Process (AHP) is a powerful and flexible decision making process to help people set priorities and make the best decision when both qualitative and quantitative aspects of a decision need to be considered. By reducing complex decisions to a series of one-on-one comparisons, then synthesizing the results, AHP not only helps decision makers arrive at the best decision, but also provides a clear rationale that it is the best. Designed to reflect the way people actually think, AHP was developed in the 1970’s by Dr. Thomas Saaty, while he was a
professor at the Wharton School of Business, and continues to be the most highly regarded and widely used decision-making theory. The AHP process is useful for systematically evaluating qualitative criteria. AHP attempts to resolve conflicts and analyze judgments through a process of determining the relative importance of a set of activities or criteria. The AHP can be summarized in terms of three basic components:

a. First, the principal problem is decomposed into a hierarchy. The top level of the hierarchy represents the overall objective of the process. In the approach discussed in this paper, this top level is the most suitable car in a given segment for a given set of potential customer.

b. Once the top level of the hierarchy has been defined, then the overall objective of the process is broken down into components. These factors compose the second level of the hierarchy.

c. Subsequently, each element in the second level spans a group of sub elements in the third level. This process is repeated until the final level is reached.
d. The final level represents the array of possible outcomes. In this case, the array of possible outcomes is the weightings of various assets held in a portfolio.

Within each level of hierarchy, the relative importance of all elements derived from a single element in the next higher level must be determined. For example, suppose element 1 in level 2 is decomposed in level 3 into three sub elements, a, b, and g. The AHP determines the relative importance of these three sub elements by constructing a complete set of pair wise comparisons among them. A nine point scale is used for these comparisons. A score of 9 signifies the highest level of importance for an element relative to other elements, and a score of 1/9th signifies an element is much less important. If comparison a to b is assigned 1, a and b are considered of equal importance. The comparison of b to a would be assigned the reciprocal value. Interpretations for the pair wise comparisons are summarized in Table 1. A complete set of such scores constitutes a pair wise comparison matrix. At the final level of the hierarchy each possible outcome must be considered relative to a single sub element of the previous level.

In the third and final phase of the AHP the pair wise comparison matrices are evaluated by solving for their eigenvalues. The eigenvalues represent the weighting functions for each set of pair wise comparison
matrices. Each set of lower level eigenvalues are then scaled by the eigenvalues corresponding to the next level in the hierarchy. Continuing the process of eigenvalue extraction and weighting through the levels of the hierarchy leads to a global weighting scale. The global priorities for the final level reflect the decision-maker’s relative weights for the alternatives.

The experts were asked to evaluate each of the models based on the three parameters which were found to be the most important. For each of the parameters, marks out of 10 were given.

In present case of illustration, inputs were taken from the experts and acknowledged persona in the e-Governance sector. The number of such inputs was small, and only averaging was done on the inputs thus received. The inputs acted to identify the parameters and also to define the impact of one of the parameters with respect to other. That is, the relative importance of the parameters. Each of the experts consulted were asked to rate the relative importance of each of the parameters. These were averaged out in fractions and then converted to the relations as depicted. We can use the Relevancy Test\textsuperscript{71} as shown in Table 2.9 to choose factors that may be applicable to our sort of project.

\textsuperscript{71} Ibid. page 41-45
<table>
<thead>
<tr>
<th>Factor</th>
<th>Sub-Factor</th>
<th>Sub-Sub-Factor</th>
<th>Relevant?</th>
<th>Supporting data/evidence/document</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITIZEN CENTRICITY</td>
<td>EFFICIENCY</td>
<td>Percentage compliance to Service Levels Specified</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total User time saved</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total User money saved</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of Intermediaries removed</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Percentage increase in usage</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Percentage target users reached</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USER CONVENIENCE</td>
<td></td>
<td>Availability of the system 24*7</td>
<td>No</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Use of Local Language Interface</td>
<td>Yes</td>
<td></td>
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<td></td>
<td></td>
<td>Simplicity of Usage</td>
<td></td>
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<td>Usefulness of Help Menus</td>
<td></td>
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<td></td>
<td>Knowledge of Service Provider / Staff</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Convenience of Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SERVICES PROVIDED</td>
<td></td>
<td>Alignment of Services Provided to User Needs</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extent of Process Re Engineering for Removal of Non Value Adds Actions</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of Service Chain that can be fully executed at Centre or Web</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VALUE ADDITION</td>
<td></td>
<td>Decrease in Corruption</td>
<td>No</td>
<td></td>
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<td></td>
<td></td>
<td>Increase in Transparency</td>
<td>Yes</td>
<td></td>
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<td>Increase in Demand</td>
<td></td>
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<tr>
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<td></td>
<td>Availability of Information</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>New Services Provided</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Increase in Government Citizen Interaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TECHNOLOGY ARCHITECTURE</td>
<td></td>
<td>Comprehensiveness of Architecture</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Conformance to National / International Architecture</td>
<td>Yes</td>
<td></td>
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</tr>
<tr>
<td><strong>STANDARDS</strong></td>
<td>Extent of Use of Open Source Systems</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Compliance with Open Standards</td>
<td></td>
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<tr>
<td></td>
<td>Design and Adoption of Meta Data Standards</td>
<td></td>
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<tr>
<td><strong>SECURITY</strong></td>
<td>Extent of Compliance with Security Architecture</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Privacy of User Data, Present and Known to Users</td>
<td></td>
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<tr>
<td></td>
<td>Extent of User and Financial Authentication Procedure</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Database integrity and scalability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Degree of Scalability of Project</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>SCALABILITY</strong></td>
<td>Scope for Enhancements of HW Interfaces</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Scope to work with alternate power and connectivity</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Scope to handle increased number of Users</td>
<td></td>
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</tr>
<tr>
<td><strong>RELIABILITY</strong></td>
<td>Accuracy of Results</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Repeatable</td>
<td></td>
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<tr>
<td></td>
<td>Reproducible</td>
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<tr>
<td></td>
<td>Meets SLA parameters</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>EXTERNAL AUDIT ABILITY</strong></td>
<td>System for Architecture Compliance and Audit</td>
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<tr>
<td></td>
<td>Open Standards Compliance Enforcement Mechananism</td>
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<tr>
<td></td>
<td>Security Standards Compliance Mechanism</td>
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<tr>
<td><strong>MAINTAINABILITY</strong></td>
<td>Ease of Installation</td>
<td></td>
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<td></td>
<td>Extent of parameterisation for customisation</td>
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<tr>
<td></td>
<td>Technology made according to Indian weather and Usage Standards</td>
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<tr>
<td></td>
<td>Remote System Maintenance Ability</td>
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<tr>
<td></td>
<td>Alternatives in case of System Breakdown</td>
<td></td>
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<tr>
<td>SUSTAINABILITY</td>
<td>INTERNAL / ORGANISATIONAL</td>
<td>Organisational structure to support the project</td>
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<tr>
<td></td>
<td></td>
<td>Extent and adequacy of employee training</td>
<td></td>
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<td></td>
<td></td>
<td>Role clarity and employee buy-in</td>
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<td></td>
<td></td>
<td>Employee involvement in design and implementation</td>
<td></td>
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<td></td>
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<td>Continuity of top champions of the projects</td>
<td></td>
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<td></td>
<td></td>
<td>Existence of User Groups and Service Reviews</td>
<td></td>
<td></td>
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<tr>
<td>EXTERNAL</td>
<td></td>
<td>Period of Continuous Functioning</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Strength of PPP arrangement</td>
<td></td>
<td></td>
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<tr>
<td>COST EFFECTIVENESS</td>
<td>Reduction of cost to Government</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>System of Collection of User Charges</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Extent of increase in Revenue</td>
<td></td>
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<td></td>
<td>Mechanism to recover capital cost</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>If PPP, extent of commercial viability to Private Partner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REPLICABILITY</td>
<td>FUNCTIONAL</td>
<td>Extent to which project results in a product</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extent of other projects that has been replicated in this project (not to be scored)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TECHNICAL</td>
<td></td>
<td>Extent to which project results in a product</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extent of other projects that has been replicated in this project (not to be scored)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Multiple platform deployment feasibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quality of project documentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMMERCIAL</td>
<td></td>
<td>Availability of Commercial arrangement for replication</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attractiveness of transaction costs to induce</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Challenges in implementing the framework:

The following main challenges are envisaged to be faced in using this assessment framework:

a. Subjectivity in information being analyzed, leading to variation in the nature of data/information acquired for the projects.

b. Attributes under each of the assessment indicators give a vast scope of assessment and judgment, again leading to subjectivity and variations in assessment.

c. Keeping the above challenges in view, this further gets enlarged with different teams assessing different projects using this framework.