Suggested Approach to Management of e-governance as a Cross-sector Programme
Executive Summary

The World Bank team found a number of positives that would help the Government realise its good governance objectives by using ICT. These include strong top level leadership and commitment and launch of key initiatives with clear timelines, as evident from constitution of a G2C task team under the Committee of Secretaries and establishment of community centres on top priority. There is also an appreciation of the need for citizen-centricity, service orientation and public sector accountability in drawing up e-governance project plans.

There is a clear need to leverage these strengths and take advantage of emerging opportunities by crafting a programmatic approach to e-governance, as has been done by several other countries the world over. In fact, recent initiatives like establishing a G2C group deriving authority from a Committee of Secretaries is a clear manifestation of the felt need within the Government for driving e-governance as an actionable programme spanning multiple sectors and Ministries. While emphasising the programmatic approach in the present mission, the World Bank team has built upon the recommendations of the previous mission of 2009, which addressed certain strategic, technological and architectural imperatives of Bhutan’s e-Governance programme in considerable detail. The present set of recommendations also draw parallels from India’s experience in formulating its e-governance programme; these are particularly relevant given the fact that several elements of Bhutan’s programme like establishment of community centres and creation of a gateway and G2C portal accessible from all such centres were similar to initiatives undertaken to neighboring India.

While formulating its e-Governance programme, it will be essential for the Government of Bhutan to identify certain high priority projects that could cover, but not be limited to the 110 services identified by the IPSBS
Group. Each project would be owned and managed by a nodal Ministry which would identify key services as Project deliverables and their targeted turnaround times.

(i) Each project would be headed by a **Mission Leader** belonging to the nodal Ministry. He should be hand-picked for his ability to visualise and drive change and would report directly to the Secretary. Each Mission Leader would be assisted by a dedicated inter-disciplinary **Project e-Mission team (PeMT)** including officers with both technical and domain expertise. Among other things, the PeMT would help in contract and vendor management, and in exercising **strategic control** of the project, even as major parts of it get implemented through outsourcing.

(ii) An Apex Body like the GNH Commission could oversee the programme; it would provide policy and strategic directions for its implementation and resolve inter-ministerial issues. The GNH Commission in addition would drive services, Turnaround Times, process reengineering of each High Priority Project, wherever required.

(iii) DITT would have a crucial role to play in tying up different projects and weaving other cross-sector initiatives of e-governance into a single integrated programme spanning the entire Govt. of Bhutan. While doing so, DITT would have to play the role of a facilitator and catalyst for the programme and also serve as Secretariat to the GNH Commission. Main elements of its secretarial role could include establishment of a Monitoring and Evaluation framework, placing monthly progress reports on the e-Governance programme along with a dash board before the GNHC and helping highlight issues where GNC intervention would be required.
(iv) For a uniform approach to project formulation, DITT would prepare a suitable template which could be used by individual departments for preparing their detailed project reports.

(v) As part of its programme management role, DITT would also undertake annual impact assessment of individual projects once they go online and place these reports in public domain. It would also frame core policies and standards for e-Governance and would evolve an e-Governance architecture encompassing an enterprise architecture and a interoperability framework.

(vi) DITT would establish a shared infrastructure in the form of a National Information Utility (NIU) which would include servers, storage and networking equipment, operating systems, database management systems, applications servers, etc. The shared infrastructure is proposed to be established by DIT as part of the emerging IT Park Infrastructure. Based on the constituent elements of the Platform, the NIU would be in a position to offer a range of services that would significantly reduce the efforts of individual Departments/Agencies in delivering e-Governance Services. It would also assist the G2C group in establishing a portal and gateway which would later be merged with the national information utility.

(vii) Projects should be executed using shared infrastructure at the programme level established by DITT. Thus, individual procurement of data centres, servers, wide area networking requirements, etc should be avoided.

(viii) Awareness and promotion would be another critical area that DITT would be responsible for. Awareness initiatives would include facilitating demand creation, creating awareness agent e-Governance service and service delivery points and creation of an umbrella brand for country’s e-Governance plan.
(ix) DITT would have a major role to play in Human Resource management for the entire e-Governance programme. It would establish an HR pool that can be suitably deployed at the various Project e-Mission teams. In addition to Govt officers, the resource pool would include professionals hired on contract at market-linked salaries and other resources hired on wet lease from consulting firms. Supporting a Government-wide e-Governance programme, would place considerable demands on DITT’s own resources, as it gears up to meet new challenges and responsibilities. DITT’s HR pool would additionally support its programme management requirements besides supporting individual projects. Funding for individual project teams would have to be sanctioned under the respective project proposals. In addition, DITT itself would need to be adequately funded for inducting suitable Human Resources for programme management if Bhutan’s e-governance programme is to be launched and implemented as suggested.

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1. National Policies in Bhutan are informed by Bhutan’s Vision 2020 and the principles of Gross National Happiness. Good governance is one of the pillars of Gross National Happiness (GNH) in Bhutan. To help bring about good governance the Royal Government (RGoB) has clearly envisioned the role of Information and Communications Technology (ICT): “With people at the centre of development, Bhutan will harness the benefits of ICT, both as an enabler and as an industry, to realize the Millennium Development Goals and towards enhancing Gross National Happiness”\(^1\) Furthermore, in pursuit of this vision, the RGoB has formulated comprehensive policy and strategies on the use ICT in the country\(^2\).

2. The World Bank team found a number of positives that would help the Government realise its good governance objectives by using ICT. These include—

(x) Strong top level leadership and commitment

\textit{(e.g. G2C Task Team under a Committee of Secretaries established with the required convening power)}

(xi) Some specified and focussed initiatives with clear timelines

\textit{(e.g. G2C program and establishment of community Centres being undertaken on priority)}

(xii) Appreciation of the need for citizen-centricity, service orientation and public sector accountability in drawing up e-governance project plans.

(xiii) Mature understanding of issues impacting e-governance including

\(^{1}\) From ICT White Paper, October 2003.

• Ability to see e-gov as part of a larger ICT-driven Vision for achieving a knowledge-based society
• Recognition of e-governance as a cross-sector programme.
• Recognition of the need for standards and an inter-operability framework
• Solid policy and strategy foundation
  • (BIPS & BICMA; McKenzie Report: GNH through ICT; HRD Master Plan; Prioritized list of services)

(A more detailed SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis was undertaken after the previous mission of October 2009 and is available in the World Bank document – “Strategic Assessment of Bhutan’s e-Governance Program” of June 2010)

3. The team felt that there was a clear need to leverage the strengths and take advantage of emerging opportunities by crafting a programmatic approach to e-governance, as has been done by several other countries the world over. In fact, recent initiatives like establishing a G2C group deriving authority from a Committee of Secretaries is a clear manifestation of the felt need within the Government for driving e-governance as an actionable programme spanning multiple sectors and Ministries.

Under the Bhutan Information and Communications Technology Policy and Strategies document (July 2004), using ICT for Good Governance is spelt out as a key policy objective. Further, it lists certain strategies and components which are of particular relevance to good governance. The objectives are in keeping with the best practices obtaining elsewhere
globally. In particular, they are in close alignment with policy objectives in neighbouring India; this presents us with an opportunity to learn from the Indian experience of formulating and implementing their e-governance programme as an action-oriented plan. India’s programme, the National e-Governance Plan, was approved by its Union Cabinet in May 2006. It spelt out the approach and key components of a strategy for e-governance at the national level. Over the years, several new aspects that address key issues and bottlenecks that arose during implementation have become a part of the action framework. The recommendations below seek to apply some of these programme level strategies (both in terms of best practices and improvements) to help Bhutan achieve its ambitious vision for e-governance.

The recommendations complement the report that followed the earlier mission of the Bank’s team to Bhutan in 2009, which focused on the following 5Ps as the core areas that DITT and its internal Departments need to focus on to achieve Bhutan’s stated e-governance objectives:

- **People & Institutional Arrangements**
- **Policies, Standards, Technology & Infrastructure**
- **Process reforms, Streamlining & Project management**
- **Promotion, PR & awareness**
- **Partnerships (internal & external)**

While making suggestions, some specific facts / illustrations regarding the programme’s implementation in India have been highlighted alongside to indicate that these suggestions are based on actual experience in implementing the recommended policies and practices.
Parallels between e-governance initiatives in India and Bhutan include:

- **Vision of Common / Community Service Centres as a means, among other things, of delivering G2C services. India has rolled out nearly 85,000 CSCs across 29 states covering a population > 400 million (as on end 2010).**

- **Establishment of common infrastructure in the form of Gateway/Portal which will be used for delivery of G2C services and providing a unified interface with the citizens. Each Indian State is in the process of establishing an e-governance gateway / portal similar to that being established by Bhutan.**

- **Formulation of a programme framework in India was preceded by the existence of a number of standalone projects led by individual Ministries and Departments. This is similar to the situation existing in Bhutan today.**

- **Both countries**
  - Have very high mobile penetration among the poor and the underserved and seek to use mobile as a delivery channel.
  - Need augmentation of capacities within the Government to plan and execute projects.

**KEY SUGGESTIONS FOR E-GOVERNANCE PROGRAMME MANAGEMENT**

4. Based the strategic assessment of Bhutan’s e-governance Programme undertaken earlier and the progress made thereafter, as also discussions held during the present Mission, the team recommends the following as key elements that could lay the basis of Bhutan’s national e-governance programme:
(i) **Identification of High Priority Projects.** These would include but not be limited to projects that cover the 110 services identified by the IPSDS Group.

(ii) Each of these Priority projects would be required to identify key services that would be delivered electronically. The Project would also specify Turnaround Times for each service as also the channels through which the service will be delivered. These services would include the 110 services already identified.

(iii) Every project would be the owned and managed by a nodal Ministry that would be responsible for driving the project and achieving its objectives.

(iv) Each project would be headed by a **Mission Leader** who would be responsible operationally for the project. He would also be empowered to the extent required for achieving stated objectives. The Mission Leader should be a person belonging to the nodal Ministry and should be hand-picked for his ability to visualise and drive change. He would report directly to the Secretary.

(v) Each Mission Leader would be assisted by a dedicated inter-disciplinary **Project e-Mission team (PeMT)** including officers with both technical and domain expertise. Technical officers could be in-house or those positioned by the Department of Information Technology (DITT). Among other things, the PeMT would help in contract and vendor management, and in exercising **strategic control** of the project, even as major parts of it get implemented through outsourcing.

(vi) Nodal Ministries / Departments would work in a project mode within a tight, defined timeframe for project execution. To begin with, each
Department would prepare a Detailed Project report (DPR), which would clearly spell out all important aspects of the project like services and Turnaround Times (both current and proposed), Project e-Mission Team (PeMT), process reengineering proposed, change management plan, project management plan, timelines, etc. The services and Turnaround Times would be determined in consultation with the actual users and for this purpose, each department concerned would form an Advisory Committee on which users would also be represented. The key objective is to leverage ICT as a means of bringing about governance reform and citizen-centricity to Government functioning.

(vii) For a uniform approach to project formulation, DITT would prepare a suitable template for preparing project documents, which could be used by individual departments for preparing their detailed project reports.

(viii) An Apex Body like the GNH Commission could oversee the programme; it could provide policy and strategic directions for its implementation and resolve inter-ministerial issues. The GNH Commission in addition would drive services, Turnaround Times, process reengineering of each High Priority Project, wherever required. The Apex Body would be the source of authority to achieve the difficult horizontal aspects of e-Governance that cut across multiple Ministries and are indispensable for effecting government transformation.
All e-governance projects would follow the same mechanism for financial approvals as those prevalent for projects in other sectors. However, the DITT should be represented as a member of the Committee under Department of Public Accounts / MoF that approves the financial proposals of identified Priority Projects. The proposals would be formally sent to the DITT prior to any meeting of the Committee for appraisal. DITT’s appraisal would cover technical issues as also alignment with the overall vision and implementation strategy of Bhutan’s national e-governance programme. Comments arising from the appraisal process would be presented by DITT’s representative at the meeting of approval committee constituted by Department of Public Accounts. For undertaking e-governance project appraisal, DITT would put in place an appraisal framework to enable an objective and constructive evaluation of individual e-governance proposals.

The Government of India identified 27 Mission Mode Projects to be implemented under the National e-Governance Plan in May 2006. Over a period of 4+ years since its inception, e-gov projects worth Rs 258 billion (USD 5.73 billion) have been conceptualised and approved under programme level monitoring by the Apex Committee through this Plan / Programme.

Implementation Strategy: Projects should be executed using shared infrastructure at the programme level established by DITT. Thus, individual procurement of data centres, servers, wide area networking requirements, etc should be avoided. Also, to the extent possible, DITT should have rate contracts for commonly used Government premises equipment such as PCs / smart terminals,
printers, switches, routers, etc. Software licenses should also be centrally procured to take advantage of quantity discounts.

The penetration of the mobile in Bhutan should be suitably leveraged to help reach out services to the underserved sections of the population. This will include using the mobile as a means of financial inclusion by extending basic financial services over mobile phones and also by possible linkages with Bhutan’s Citizen’s Identification Number.

**ROLE OF DITT IN PROGRAMME MANAGEMENT OF E-GOVERNANCE**

(xi) DITT would be the **facilitator and catalyst** for the implementation of the programme.

(xii) **Secretariat Role:** It would serve as the secretariat to the GNH Commission and assist it in managing the programme. To help it perform the role, DIT would need staff with cross-sectoral expertise that is able to understand wider policy and governance issues besides ICT matters. The following would be the main elements of the secretarial role of DIT:

a. Establish a **Monitoring and Evaluation** Framework for the Programme. Each project would be monitored for its progress through the following programme stages –

   i. Conceptualization

   ii. Design and development (including possible pilot)

   iii. Implementation

   iv. Post-Implementation / Continuous Process Improvement
The above four project stages were arrived at by DIT, India based on an analysis over time of e-gov projects executed by different Ministries. As in the Indian case, there could be a situation in Bhutan where live legacy projects delivering services would need to get back to the conceptualisation stage. This could be done by launching a “Phase 2” of the project that would be aligned with the integrated citizen-centric vision of Bhutan’s new programme. Services under “Phase 1” of the project could be continued till “Phase 2” is operationalised.

b. Formulate a reporting format for each nodal ministry to report progress on the Priority Project. These would be collated and presented to the GNH Commission along with a dashboard for monitoring project progress. (An online reporting system can also be devised for tracking progress though this is not critical to success of the monitoring framework).

c. Help GNHC prepare agenda for monthly meetings on the projects (frequency of review meetings can progressively reduce over time as the programme matures). Essentially, these meetings would be reviews of the progress made by individual projects. DIT would provide secretarial support for these meetings, and help capture decisions that resolve issues and drive projects forward.
Undertake annual **impact assessment** of individual projects once they go online. Assessment of projects would be carried out with a [citizen-centric focus](#) based on key parameters. It would involve a survey of users using an Impact Assessment framework designed to capture dimensions such as:

a. Direct and Indirect Costs borne by citizens (including possible bribes)
b. Service Quality
c. Governance
d. Outreach

Assessment reports would be put on the public domain. Results from the Impact assessment will help highlight pain areas of citizens / businesses using the service and serve as drivers for the effecting Continuous Process Improvement during the Post-Implementation phase of the project.

**DIT, Govt of India has been undertaking several such assessments of select projects over the past few years and the assessment reports have been placed on the public domain. By highlighting issues such as corruption, transaction costs and waiting times experienced by citizens, it has helped focus attention on actual issues that routine Government reports do not highlight.**

**Core Policies and Standards for e-governance**

DITT would have the responsibility of framing standards for e-governance systems which will need to be adhered to by all individual projects. It would also have the responsibility of framing an e-governance architecture which would encompass an Enterprise

After an extended period of consultation involving the academia, industry and stakeholders within the Government, the DIT Government of India released its policy on Open Standards in November, 2010.

Shared Programme Level infrastructure Established by DITT

(xv) Establishment of community centres: These are being established by DITT across Bhutan to serve as access points for a variety of ICT-enabled services which would include G2C services.

(xvi) Establishment of Portal + Gateway: This is being established by the G2C group with the assistance of DITT. The common infrastructure is being initially used to deliver a set of 49 services spanning multiple Ministries. The Portal would also be accessible at the Community Centres. The Portal+Gateway should be scaled up and shared for delivering the entire range of e-governance services envisaged under Bhutan’s National e-governance programme. These components should be hosted at a “National Information Utility” being established by DIT (see xvii below)

(xvii) Establishment of a National Information Utility (NIU) – A Shared Platform for e-governance:
The Portal + gateway would be part of a shared infrastructure established by DITT which would include servers, storage and networking equipment, operating systems, database management systems, applications servers, etc. This infrastructure can be termed as a **National Information Utility (NIU)**. The shared infrastructure is proposed to be established by DIT as part of the IT Park Infrastructure being put in place in a PPP mode. Based on the constituent elements of the Platform, the NIU would be in a position to offer a range of services that would significantly reduce the efforts of Departments/Agencies in delivering e-Governance Services. Five different service models can be offered by the NIU by leveraging cloud computing technologies and over a private cloud hosted and supported by DITT. These models are described in greater detail at Annex 1.

Additionally, a **Mobile Service Delivery Gateway along with a platform for developing and deploying mobile applications** can be established as part of the Portal and Gateway infrastructure.

(xviii) **Awareness and Promotion**

To ensure success, any e-Governance programme requires citizen participation right from conceptualization through to its implementation and post-implementation phases. Awareness and Promotion of e-governance programmes as a means of engaging the citizen is therefore one of the key responsibilities that could be taken on by DITT. The following could be some of the activities that can be initiated (based on what is being done in India) –
a. Sharing Success Stories of Ministries, Departments, and States
b. Creating awareness about e-Governance services and service delivery points.
c. Facilitating demand creation for e-Services
d. Creating an UMBRELLA brand for Bhutan’s National e-governance Programme
e. Creating joined-up campaigns with Ministries & Departments
f. Awareness at grassroots level through Outreach activities
g. Celebrating an e-Governance Day
h. Use of Mass Media & the Internet to engage with citizens (DIT, India has recently launched a facebook page on its national e-governance programme)

A visit to a Citizen’s Information Centre established near Paro was revealing. Lack of demand for services had reduced the margins of the young entrepreneur to a bare minimum. And to cap it all, he actually had to spend money advertising on the local cable attracting attention of students to the DITT-assisted computer certification programme being run at his CIC. Addressing promotion and demand creation at a national level would not only make such promotional initiatives more cost-effective, but also help make community centres more sustainable.

(xix) Role of DITT in HR Management
The DITT has a significant role in play in helping Ministries in project formulation and development. It will also need to assist individual projects in establishing dedicated Project e-Mission Teams (PeMTs) for conceptualising, developing and retaining strategic control of individual projects, as these are outsourced through a variety of contracts to external vendors. This team would not only guide and support field units to drive implementation and change management but also work closely with the policy makers at the Ministry to ensure that necessary legal and policy changes are put in place to ensure project success.

To fulfil its roles and responsibilities the PeMT should comprise an appropriate mix of professionals drawn from multiple disciplines. While domain skills would be brought in from the Ministry concerned, skills in contract and vendor management, technical skills and project management skills will need to be supplemented from outside. Listed below from (a) to (d) are the main mechanisms (in the order of priority) available for staffing of PeMTs:

a) Designating suitable officers to the Implementing unit from the Ministry itself.

b) Taking resources on deputation from other Ministries / Departments.

c) Positioning professional resources at market-linked salaries.

d) Hiring Consultants on wet lease from reputed consultancy organizations at market rates on contractual basis, with adequate precautions to avoid conflict of interest.
DITT would establish the necessary processes and mechanisms for establishing and mentoring / managing the pool of resources with respect to (b) to (d) above. These resources can be deployed at individual PeMTs based on changing project needs over different stages of the project life cycle. This pool would also be used by DITT to augment its own Human Resources for its enhanced role for programme management (also refer para xx).

DITT would need to evolve appropriate policies to attract and retain the best of talent available for the purpose. While all resources at the PeMTs would administratively report to the Mission Leader, the DITT would be responsible for long term career prospects of professionals that it positions for e-governance implementation.

The DIT, GoI has established a mechanism for centralized recruitment and training of professionals in technology management, project management, financial management and change management to be deployed across 35 States for implementation of e-governance programmes. These professionals are on contract with a central agency; they are governed by a common HR Policy but report locally to the IT Secretaries in individual States.

(xx) Programme Management Team within DITT

Supporting Government-wide e-governance programme as a cross-sector exercise would be a mammoth task; it would entail dealing with major managerial and technological challenges which can be overcome through consistent strategies for integration, resource optimization, prioritization and resolution of conflicts and overlaps.
In summary, the programme management role outlined above for DITT will entail the following:

a) Monitoring and evaluation
b) Strategic planning
c) Impact assessment
d) Appraisal of project proposals
e) Development of Standards and a Government Interoperability Framework
f) Human Resource support to individual projects
g) Strategic communication & Awareness creation
h) Research and Development
i) Technical assistance
j) Procurement support
k) Establishment of shared infrastructure in the form of an NIU
l) Management of Finances

(and more...)

To effectively discharge these responsibilities proposed to be assigned to it, existing DITT resources would need to be supplemented. DITT would need to establish a National e-Governance Programme Management Unit (PMU) that would comprise an appropriate mix of professionals who would need to be sourced from multiple channels (see Para (xix) above). Some of the areas where such expertise will be required include:

a) Programme/ project management
b) Human resource development

c) Communication and awareness creation

d) ICT procurement and implementation

e) Technology -- hardware, software, networking, security governance, etc

f) System administration

g) Financial management

h) Research & Development

i) Law

The shared pool of human resources proposed to be established by DITT should also cater to the programme management needs of DITT itself. In fact, some of these resources would be unique to the needs of programme management, while others would be fungible across project and programme levels. Funding for individual project teams would have to be sanctioned under their respective project proposals. In addition, DITT itself would need to be adequately funded for inducting suitable Human Resources for programme management if Bhutan’s e-governance programme is to be launched and implemented as suggested.
Annex 1

Service Models that can be offered to individual e-governance projects by the National Information Utility established by DIT

1. **Infrastructure as a Service (IaaS):** Will provide the user Department processing power, storage, and other fundamental computing resources on which the Department will be able to deploy and run their own software, which can include operating systems and applications. The user Department will not need to manage or control the underlying cloud infrastructure but would have control over operating systems, storage, deployed applications, and possibly limited control of select networking components (e.g., host firewalls).

2. **Network as a Service (NaaS):** Will provide Network as a service from the shared Infrastructure location to the Departmental office locations / other identified Point of Presence to facilitate connectivity to the shared Platform.

3. **Platform as a Service (PaaS):** Will provide the user Department the facility to deploy onto the cloud infrastructure applications either developed by the Department or acquired off-the-shelf using programming languages and tools supported by the shared Platform. The Department will not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but would have control over the deployed applications and possibly application hosting environment configurations.

4. **Software / Solution Development as a Service (SDAAS):** Software development as a service will provide user Department the ability to develop
software in accordance with its unique needs. The Software will be developed on top of a platform provided as a service by the NIU as a PAAS offering. The resource requirements to be deployed by the NIU for Software development would be mutually specified by the user Department and the NIU and could potentially span the entire set of skills starting from Conceptualisation to Analysis, Design, Testing, Porting and Implementation. The Department could then be billed on the basis of the resources deployed at pre-determined rates agreed upon as part of the overall NIU offering. Any software developed for a particular Department by any NIU would be available for deployment by any other Government organization.

5. **Software / Solution as a Service (SaaS):** Will provide the user Department the usage of applications running on the cloud infrastructure. These could either be applications developed by the NIU or off-the-shelf applications procured by the NIU and made available as a service. The applications will be accessible from various client devices through a thin client interface such as a web browser and / or using mobile devices. The user Department will not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings.

**Migrating e-Governance Applications to the NIU**

Once the shared infrastructure is established, a detailed migration Plan will need to be worked out with respect to existing legacy applications running in a distributed environment. The migration will involve
(i) Adopting service-oriented and web-oriented architecture and technologies and converting applications to a form that can be delivered as Web services. The application should have Citizen’s interfaces that can be delivered through the Portal and should be potentially accessible at the Community Centres wherever relevant. 

*(Please refer to the World Bank document – “Strategic Assessment of Bhutan’s e-Governance Program” of June 2010 for details of the suggested application architecture)*

(ii) Ensuring connectivity for all field offices catered to by the Departmental application, so as to enable implementation of a centralised solution from the shared Platform.