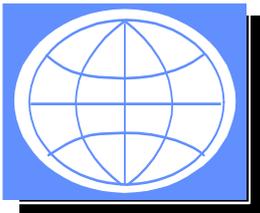


BHUTAN
ELECTRONIC GOVERNMENT PROCUREMENT
READINESS ASSESSMENT & ROADMAP

June 2007

Procurement Services Unit
South Asia Region



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CURRENCY EQUIVALENTS

(Exchange Rate Effective May 14, 2007)

Currency Unit = Bhutan Ngultrum (Nu)

US\$1 = 40.70 Nu

FISCAL YEAR

July - June

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AAC	Anti Corruption Commission
BIPS	Bhutan Information & Communications Technology Policies and Strategies
ICT	Information and Communications Technology
MoF	Ministry of Finance
MoIC	Ministry of Information and Communications
MoLHS	Ministry of Labor and Human Resources
PPPM	Public Procurement Policy Mechanism
RAA	Royal Audit Authority
RGoB	Royal Government of Bhutan
SASEC	South Asia Sub-regional Economic Co-operation
SME	Small and Medium-Sized Enterprises
UNSPSC	Universal Standard Products & Services Classification
WB	World Bank

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PREFACE

Date and Basis of Report

This report details the findings, conclusions and recommendations of a World Bank (WB) team that visited Thimphu, Bhutan, during February 12-18, 2007, in order to prepare an electronic Government Procurement (e-GP) Readiness Assessment and Roadmap report. The readiness assessment and roadmap for implementation are the first two components of the E-GP Assessment and Implementation effort to assist the Royal Government of Bhutan (RGoB) develop an e-GP Implementation Plan. The report was prepared for the RGoB's Ministry of Finance under the funding of a Japanese Consultancy Trust Fund. The contributing reports on e-GP Readiness and the Roadmap were prepared by Nippon Koei Co Ltd and International Governance Solutions.

The third component of this e-GP initiative support is to convene stakeholders to a workshop, to be staged early in the next fiscal year, where they will review and discuss the assessment and the roadmap, agree how these should be finalized, and draft an indicative/draft implementation plan for the government.

This work is part of a wider ongoing initiative for public procurement reform, which the RGoB is undertaking with WB and other donor funding, which also looks into areas concerning; (i) revisions to the legal framework (i.e. the procurement manual and supporting bidding and consultancy documents), (ii) procurement complaints mechanisms, (iii) the establishment of a public procurement policy mechanism, and (iv) procurement capacity building through existing national training institutions.

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4.	Department of Revenue and Customs	14.	Ministry of Foreign Affairs (2)
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EXECUTIVE SUMMARY

Background

The RGoB has undertaken various steps towards creating an efficient, effective, transparent, and fair national procurement system. The Asian Development Bank (ADB) provided the original assistance to the government in the mid 1990s to create procurement rules and regulations, which were incorporated in Chapter 17 of the Financial Manual. Recognizing that the procurement rules were due for further updating to align it with contemporary international best practice and to cater for the changing Bhutanese context (political and economic), the RGoB requested assistance from the World Bank in September of 2005 to this effect.

Under the agreed work plan for wider procurement reforms, the RGoB, in collaboration with the Bank and other donors in Bhutan, is working on the following areas: (i) renewing the procurement manual and its accompanying standard bidding documents and request for proposals (largely completed), (ii) creating a public procurement policy mechanism, (iii) addressing the need for procurement grievance mechanisms, (iv) building the capacity of national institutions responsible for training people on public procurement, and (v) introducing electronic forms of procurement. It is this latter area of the reforms that this report focuses on and intends to assist the government in preparing itself towards adopting such systems.

Rationale

The rationale for electronic government procurement (e-GP) is established in terms of efficiency of processes, the quality of information for management and policy development as well as increased transparency of public procurement. A further aim is to promote the broader agenda of driving the take-up of technology in governments (e-government) and industry in pursuit of the well established productivity gains associated with this.

It is important to appreciate the role of e-GP in relation to the reform of public procurement. In Bhutan as elsewhere in the region and worldwide, there are many efforts being made to promote the reform of public procurement systems. E-GP does not render these efforts redundant - rather the introduction of e-GP tools complements and strengthens these efforts and is also dependent upon them.

The application of information technology to the management of procurement needs to be a key component of procurement reform. Procurement reform and the development of national systems encompass the development and promulgation of comprehensive procurement law, subordinate regulations and associated training and process developments.

A key feature of an effective public procurement system is *accountability*, and accountability is driven by two ingredients – the probability of discovery and the consequences of the discovery of malpractice and negligence. These two ingredients in turn require *transparency*, and transparency is substantially a function of access to and analysis of *information*. This is the role that technology facilitates and that in practical reality cannot be delivered without technology, any more than we can conceive of a modern financial management information system existing without modern technology – there is too much information and data that in a paper environment is too costly to access and analyse in any regular and systematic

fashion. The application of information technology greatly reduces the cost of access and analysis of information and thereby enhances transparency to levels that were formerly impractical.

Of equal or greater significance in some jurisdictions is the objective of improved efficiency and the quality of management and policy. In the case of efficiency for small value acquisitions it has often been observed that the cost of the process can exceed the value of the acquisition itself. Typically, efficiency savings in terms of transaction costs for small valued purchases that have been attributed to e-GP mechanisms are of the order of 10-20% or sometimes higher. For high value purchases e-GP also is credited with delivering significant savings through its capacity to increase competition.

The significance of these and other issues for Bhutan is demonstrated through the Bhutan readiness assessment in which respondents indicated in particular that there is an expectation for significant savings and efficiency of processes.

Readiness Assessment

The assessment focuses on the degree of readiness of the Royal Government of Bhutan's (RGoB's) current public procurement environment for making a transition from traditional paper-based, manual methods of procurement transaction processing and communication to electronic government procurement (e-GP). Some 26 public and private sector organizations, involved in a wide range of functions that relate to public procurement, provided comments on the degree of readiness of nine key components related to e-GP, namely: *leadership, human resource planning, procurement planning and management, procurement policy, legislation and regulation, Internet and electronic infrastructure, standards, private sector integration, and current e-GP systems and initiatives.*

The assessment found:

- adequate evidence that an Internet infrastructure and web services are in place to allow for the phased adoption of e-GP;
- some evidence that government leadership, procurement legislation, regulatory procedures, and planning are in place and being supported;
- a proposed e-Tendering system is being developed,
- limited evidence that policy, management, or standards are in place and being supported.
- little evidence that adequate human resource planning or private sector integration were in place.

Respondents were generally positive to the RGoB proceeding with the transition to e-GP and commented that RGoB has the political will to make change and needs to make public and private stakeholders fully aware of what it intends to do. This is particularly important given there are many mixed views on issues, and some uncertainty in the private sector. The key constraints were seen as a lack of funding and public data on procurement.

The key priorities for change recommended by respondents were:

- Provide more comprehensive training for procurement managers and staff and suppliers on procurement issues and the use of computers.
- Raise the competency and number of people with ITC skills and procurement management skills.
- Speed up the payment of suppliers.
- Review and standardize the procurement guidelines (something which has now already been done).
- Take base measures in the procurement environment before implementing e-GP so that benefits and other key indicators can be measured.
- Improve the consultation and participation process between the Government and the private sector.

The e-GP Readiness Assessment Report makes the following recommendations with regards to the phased implementation of e-GP in Bhutan:

1. Communicate the vision and objectives of the wider procurement reform agenda to the public and develop a strategic plan for the implementation of e-Government Procurement.
2. Quickly establish the roles, responsibilities, powers and resources of the Public Procurement Policy Mechanism (PPPM) within the Ministry of Finance with a clear mandate for procurement reform and management coupled with sufficient resources to enable effective action when required.
3. In conjunction with the establishment of the PPPM, review the overall structuring of regulatory and management functions to sustain good procurement performance.
4. Ensure the provision of a formal specific education, training and awareness program in strategic and operational procurement and the impact of change, to meet the needs of procurement management and staff, suppliers, and the public, as is currently being envisaged under the capacity building project preparation.
5. Review the procurement function from a strategic point of view and develop a career structure commensurate with the responsibilities and outcomes that will be required, as currently is being initiated under the new position classification system and organizational development exercise of the Royal Civil Service Commission.
6. Identify a small group of people with procurement experience, and support them with a high-level procurement expert and training, to develop a core resource to staff the PPPM and support the planned changes in public procurement.
7. Support the development and implementation of an e-GP Implementation Plan that will result from consideration of this report, the current planned initiatives for procurement reform, and the inputs of the public and private sector respondents to a draft Implementation Plan. This e-GP plan will need to complement the developing plans for e-Government and Information and Communications Technology.

8. Carry out timely reviews of the existing procurement manual, and the procurement process in order to ensure that these will provide appropriate support for the phased adoption of e-GP mechanisms.
9. Fully support the role of the PPPM and the Ministry of Information and Communication to coordinate the development and implementation of procurement market, system, and management standards required for e-GP and other proposed e-services.
10. As a matter of urgency, develop a public sector strategy for achieving the more formal participation and involvement of the private sector to support the implementation of forthcoming changes in the public sector procurement environment.
11. Once the PPPM has been established, private sector concerns and issues have been addressed, operational and support resources made available, and the e-tendering system currently being developed is deemed suitable, conduct a pilot involving about four ministries and their associated suppliers to test that system.

Roadmap

There is currently no e-Government Procurement website with significant functionality already operational in Bhutan. The level of readiness for e-GP in Bhutan is affected primarily by the absence of a lead agency, without which the program is at significant risk. The immediate imperative is for the creation of a leadership function in this area, preferably through the activation of an appropriately resourced Public Procurement Policy Mechanism (PPPM).

There is also an immediate need to specify a whole-of-government architecture for this and other e-government developments in order to ensure efficient development into the future. The clear need for procurement training in Bhutan, addressed under the capacity building project, should also incorporate training for e-procurement from the outset.

The following analysis emphasises that e-procurement is not a separate agenda from procurement reform per se but instead forms part of such reforms and complements and strengthens that agenda.

This roadmap seeks to define such a rationale and the key characteristics of e-GP that would be appropriate, as well as some of the developments to be avoided. Lessons from experience in other countries are provided and support the report's strong recommendation for an incremental approach to e-GP implementation in Bhutan. The report sets out a full program, options and recommendations for such a phased approach, together with the resources that could be used to accomplish this. It also identifies the next steps to be taken.

First Steps:

1. Create a leadership function preferably in the form of the PPPM.
2. Unify independent e-GP developments by individual agencies to avoid duplication and differing systems being created which are incompatible.
3. Disseminate this report and the indicative implementation plan, hold meetings and roundtables to ensure familiarity by all actors, and develop an agreed strategy.

4. Specify an e-government architecture that will guide the technical standards for e-GP development.
5. Identify funding sources and SASEC shared development options.
6. Working from the schedule of features presented in the roadmap from this report, identify e-GP features that can most readily be implemented in Bhutan. These should align, where possible, with work that has already been undertaken.
7. Map the e-GP components including the e-Procurement Management Information System (e-PMIS) and ensure consistency with all key stakeholder requirements so that all agencies are served by the one development.
8. Develop a schedule for the phased developments of these features.
9. Identify the resource requirements for these phases and seek any required support.
10. Specify expertise required and where possible acquire these through internal retraining as specified in this roadmap.
11. From the schedule that is decided upon for e-GP, develop an implementation team to activate the program.
12. Assign the implementation team formal terms of reference and accountabilities for the program.
13. Ensure that the whole program and the methodology have high-level political support. Gaining high level political is essential to provide the authority to drive this reform program

These steps need to be explicitly harmonised with the broader procurement reform agenda mentioned above and should not proceed independently of these.

Implementation Plan

As was discussed in the Roadmap the steps for implementation cannot be prescriptive for e-GP. Instead the Roadmap sets out the issues and recommendations that relate to decision-making for implementing this agenda. The Table below outlines the recommendations made in this report in relation to the key components underlying e-GP and puts them into a broad timetable. Some recommendations have been combined because they are strongly related to each other. The numbers are just to identify each recommendation in the Table and do not strictly indicate the order in which things are done. Many of the recommendations for different components could be implemented simultaneously. This Table would provide a base framework for developing specific action plans. The report contains the details relating to each recommendation. It is considered that Bhutan can regard these steps in short and medium term goals and can proceed more rapidly than some other countries in the region due to the foundations provided by its existing reforms.

SUMMARY IMPLEMENTATION PLAN

COMPONENT	No	SHORT TERM (1-12 mths)	LONGER TERM (12-24 mths)
Preliminary Planning & Leadership	1.	Communicate the vision and objectives of the procurement reforms	
	2.	Gain high level political support for the overall reforms, which include the implementation of e-GP	
	3.	Identify and resource the Lead Agency to implement e-GP	
	4.	Establish PPPM Staff the implementation team with the skill range recommended. Conduct executive level training for the team	
	5.	Use Roadmap to identify immediate implementation plan issues and phasing required. Unify this plan with the existing reforms that are planned.	
	6.	Conduct awareness seminars with agency staff and suppliers to gain understanding and support for the plan.	
Human Resource Management	7.	Develop initial training for procurement managers and officers to support reforms and widen expertise	Implement change management strategy Review procurement staff positions/career Plan and deliver formal education
	8.	Engage procurement, technical, workflow, risk management and information specialists to support implementation plan and system development.	
Initial Strategy	9.	Establish base outcome measures.	Measure and report on outcomes over time
	10.		Redefine policies related to procurement management practices and the electronic environment
Policy			

SUMMARY IMPLEMENTATION PLAN (Continued)

COMPONENT	No	SHORT TERM (1-12 mths)	LONGER TERM (12-24 mths)
Legislation	11.	Implement new regulations and procurement manual	Consider specific e-procurement legislation based on available international models
	12.	Review the new procedures, rules and management processes on a timely basis to accommodate the phased introduction of e-procurement systems over time.	
	13.	Consider development of e-PMIS, to support regulatory activities	
Management			
Regulation			
Private Sector Integration	14.	PPPM with input from business to develop and deliver Business Activation Strategy	
	15.		Establish formal consultation process with private sector
Infrastructure & Standards	16.	Establish enterprise architecture and technical standards before implementing e-procurement systems	
	17.		Ensure e-Procurement architecture is compatible with national framework. PPPM, Service Providers and IT business associations to influence government policy on connectivity and infrastructure
	18.		Adopt an international standard for procurement catalogues (e.g. UNSPSC)
System Development	19.	PPPM to develop business model/costs for system development, operation and risk management	
e-Tendering	20.	Consider adopting e-Tendering initially, review functionality of potential existing system with that outlined in this report	Develop and implement a single portal e-Tendering system based on functions identified in this report. Consider having an externally hosted electronic tender box.
	21.	Identify, with agency input, information requirements of an e-PMIS in relation to workflows, document templates and performance measures and reporting	

SUMMARY IMPLEMENTATION PLAN (Continued)

e-Purchasing	22.		Leave until e-Tendering established
e-Reverse Auctioning	23.		Leave until e-Tendering established
e-Procurement Management & Information System	24.	Engage expert to map e-PMIS data	
	25.	Identify work flow requirements for e-PMIS	Develop e-PMIS
	26.		Match agency process & rules to e-PMIS
	27.		Establish standard documentation to support e-Tendering and e-PMIS
	28.		Confirm standards & templates for reporting

GOVERNMENT OF BHUTAN
ELECTRONIC GOVERNMENT PROCUREMENT READINESS & ROADMAP

1 INTRODUCTION

1.1 What is E-GP?

Electronic Government Procurement (e-GP) is the application of an efficient high-quality management framework to public sector procurement, facilitated through online information and processes. E-GP has the potential to strengthen the accountability, transparency, efficiency and effectiveness of this sensitive high-value government function.

For most jurisdictions, it represents both an opportunity for procurement reform and for changing the way procurement is conducted. The development of e-GP depends more on getting the policy, strategic planning, management and governance components in place, rather than just the actual application of the technology.

E-GP is usually conducted through a common website that allows for the registration of suppliers and buyers and for public access to procurement policy, guidelines, procurement opportunities, process stages, and procurement outcomes (e.g. who won the contracts, cost, duration, etc). The procurement systems on the website can be accessed by both buyers and suppliers and allow the procurement process to be conducted online. They can cover:

- e-Tendering: public tendering for works, goods and services;
- e-Purchasing: the purchasing of high-volume, low-value goods such as stationery, furniture and tools;
- e-Contract Management: the development of electronic contract management tools to assist managers to provide good quality documentation, and to manage more effectively the quality of the procurement outcomes, timelines and costs.

Further details on e-GP are provided in Annex 1.

1.2 Benefits

E-GP has the potential to greatly enhance the governance of a large proportion of government expenditure each year. E-GP can increase the efficiency of RGoB's procurement administration as well as reduce the cost of government supply. Experiences with e-GP in other countries show that the resulting savings can amount to 10-20 percent or even more. Thus for Bhutan, where government procurement equates to around 15 percent of GDP, the value of a saving of this order or even much lesser amounts would be of major budgetary and economic significance: a gain of about Nu55 million can be expected from each 1 percent of savings in public procurement.

Budget constraints on many governments worldwide are becoming more severe, with public expectations increasing, while the tax base is under pressure from globalization and other factors. The experience of many countries is that traditional public procurement frameworks need to be able to deliver better outcomes by way of value-for-money and also to become more transparent. There is also often an economic development agenda associated with public procurement. However, it is clear that traditional paper-based procurement systems are often limited in their

ability to achieve these outcomes even when they are well designed and properly applied.

Reasons for this include that traditional administrative processes:

- do not provide potential suppliers with full information concerning total public sector demand, so that opportunities for bidders are missed;
- do not provide government purchasing units with information on all potential suppliers, which reduces the government's choice and ability to attract competition;
- do not provide adequate means for the general public to oversee procurement processes;
- often lack the transparency and accountability standards required for good governance, again reducing choice and competition,, and
- are less efficient than electronic equivalents.

As a result, opportunities to do business with the public sector are limited by the paper-based tools available and the existence or perception of privileged access and the exclusion of other potential suppliers becomes inevitable.

Traditional procedures can thus have the effect of limiting the scope for competition and often require strict internal control and approval procedures that make the procurement process less efficient and more cumbersome. When this occurs, delivery times are longer and processing costs higher, both for the Government and the suppliers. In addition, the amount of time allowed for the execution of some types of contracts may become excessive, because it is not feasible to process a series of contracts for more reasonable time periods. Higher processing costs lead to higher costs for goods and services being acquired. Estimates for some countries indicate that most purchases involve sums of less than about the equivalent of Nu50,000 but involve administrative costs of up to 50 percent of such purchase prices.

New technology has the capacity to substantially improve the efficiency of public procurement by removing the need for some of these procedural impediments and by speeding up communications and processes and to modernize the administration of the State. Technology has the capacity to give extra drive to the procurement reforms as well as to the wider e-government program in Bhutan; further and more comprehensively than would otherwise be possible. However, the dominant lesson from international experience is that the application of technology alone does not represent reform and cannot succeed in addressing the issues on its own, in isolation from other changes to the procurement organization, processes, and supporting expertise.

The transformations made possible by e-GP are not directly generated by the technology itself; they arise out of the institutional changes made possible by that technology. The transforming influences of technology are transmitted through well-designed policies and activities that make use of these new technologies to help modernize processes and policies. It is this transformation process that is the target of this strategic e-GP implementation roadmap for Bhutan. E-GP is therefore a **management** rather than a **technical** challenge and has its greatest prospect of success by being treated as a management exercise. This is why the implementation strategy of e-GP should go hand in hand with the overall procurement reform agenda.

1.3 E-GP Assessment and Implementation initiative

This e-GP Assessment and Implementation initiative is a part of RGoB's wider program of public sector procurement reform. As of September 2005, the following five areas of reform were being initiated.

1. The establishment of a Public Procurement Policy Mechanism (PPPM), which will have the mandate to set policy and provide advice to government agencies on procurement regulations, administer the e-procurement system, administer an independent review mechanism, monitor procurement performance, etc.
2. The revision of the procurement guidelines and supporting bidding and consultancy documents. The new manual was issued in March of 2007 and work will commence on the supporting documents in the next couple of months.
3. The preparation of a procurement capacity building program which would focus on building the capacity of national training institutes to deliver professional procurement qualifications and certifications to the newly created professional procurement cadre under the RCSC's position classification system. This training program will include modules on e-GP and technology and also support the introduction of the new guidelines and supporting documentation.
4. The review of existing procurement complaints mechanisms in Bhutan to ensure that an improved public grievance system can be put in place to be used by aggrieved bidders.
5. The adoption of electronic procurement mechanisms through conducting a thorough investigation of the current environment to assess Bhutan's readiness to adopt e-GP and to devise an indicative phased implementation plan.
6. A number of further supplementary issues have been identified as worth pursuing in future years once the above 5 areas have been adequately addressed, including:
 - the introduction of coding for items and products
 - the improvement of inspection and supervisory systems
 - assistance with contract dispute resolution mechanisms
 - assisting the Royal Audit Authority to develop a manual for auditing the performance of public procurement.

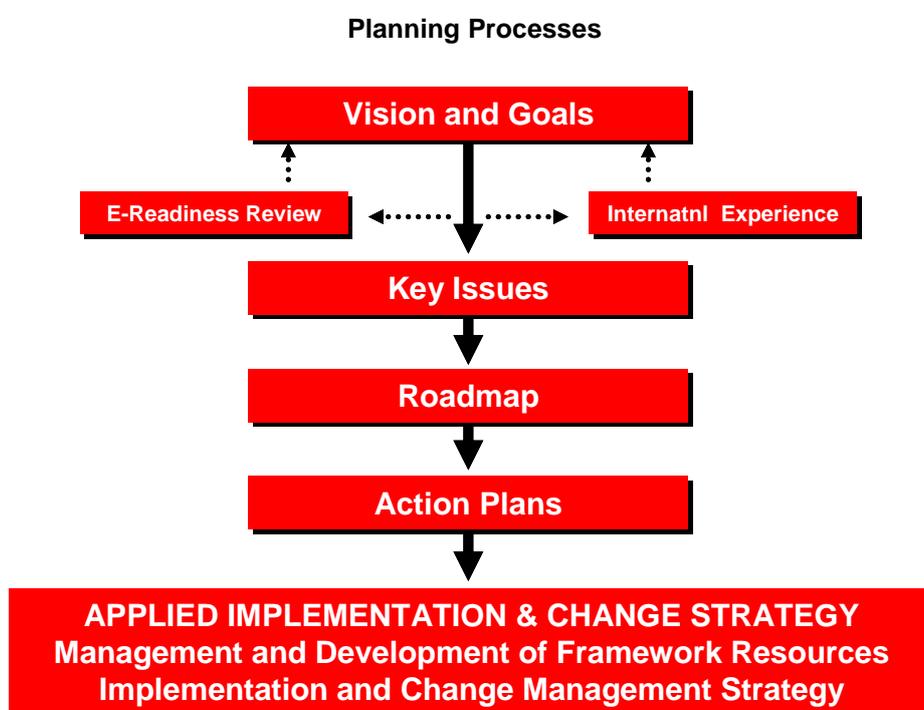
Once all these initiatives are implemented, Bhutan will have achieved significant improvements in public procurement and possess a modern procurement system. However, unless more resources are applied directly by the RGoB to all these initiatives, progress will remain very slow.

Work on these initiatives will develop a comprehensive plan for procurement reform. The timing of these elements is important. Activities such as training, which take time to implement and are critical to the reform, need to be addressed as early as possible in the overall plan. An integrated plan will also require fewer resources

to manage than a piecemeal approach, which is why the establishment of a central body to manage these reforms is of great benefit..

The readiness assessment and roadmap in this report are the first two components of the e-GP Assessment and Implementation initiative. The third and last component is to convene stakeholders to a workshop where they will review and discuss the assessment and the roadmap, agree how these should be finalized, and draft an indicative implementation plan. The final report and implementation plan will then be delivered to RGoB.

Although the conceptual framework that guides the initiative would normally require an agreed vision and goals for the procurement change process prior to definition of a roadmap (see figure below), this readiness review was undertaken even though the vision and goals have not been formally established and/or communicated in a specific policy document in Bhutan. Consequently, the considerations of experience in other countries and insights from the readiness review and other discussions served to identify the key issues that have guided the establishment of the framework for the roadmap in this report.



2. READINESS ASSESSMENT

2.1 Summary of Methodology

Readiness indicators can provide signposts for what path may be preferred for the implementation of e-GP. The e-GP Assessment survey questionnaire was distributed to informed respondents who are stakeholders in the public and private sectors to complete based on their areas of expertise. This was followed up by group discussion and some individual meetings with the respondents. The responses to the assessment were complemented by information from other relevant reports and documents made available.

For each component discussed, examples of best practice were given and respondents were asked to comment on the extent to which the subcomponents

were both in place and supported (degree of readiness). They were also required to demonstrate evidence for each comment made. The readiness levels set out in Table 1 below were applied. Descriptions of best practice for each component are outlined in Annex 1. The methodology is further explained in Annex 2.

Table 1. Component Readiness Levels

Level	Description
1	No evidence that the component is in place and no evidence it is supported.
2	Little evidence that the component is in place and little or no evidence it is supported.
3	Some evidence that the component is in place and some evidence it is supported.
4	Adequate evidence that the component is in place and adequate evidence it is supported.

2.2 Summary of Component Assessments

The Government has a significant number of plans to deal with many of the key issues identified in this assessment. However, these plans will not be achieved unless a clear implementation strategy is developed and the necessary resources are put in place. The readiness assessment has rated the key components for e-GP implementation as shown in Table 2.

Table 2. Observed Levels of Readiness for e-Government Procurement

No	Component	Level of Readiness (Feb 2007)
1	Government Leadership	3
2	Human Resource Planning	1
3	Planning & Management	3
4	Policy	2
5	Legislation & Regulation	3
6	Infrastructure & Web Services	2
7	Standards	4
8	Private Sector Integration	2
9	Systems	1

2.3 Observed Strengths and Weaknesses

At the top level of Government, there is awareness of the strategic significance of ICT for national development and there is an ICT Plan and an e-Government Strategy in progress. There are also specific factors that are favourable for the implementation of e-GP in Bhutan at this time, and some encouraging developments:

- Infrastructure to support e-GP is sufficient, including some remote area coverage, to ensure a reasonable beginning albeit at a relatively high cost.
- There appears to be sufficient IT expertise to support *early* development of systems and infrastructure.
- Procurement Guidelines are consistent and processes are in place;
- Standardised documents are being used in some sectors and work on updating them is being planned in the near future with donor assistance.
- Some agencies monitor contract risk and performance.

- The Ministry of Labour and Human Resources is planning to pilot an e-Tendering system utilising a local vendor.
- That proposed e-Tendering System appears to have the structure and functions necessary to be a national system.
- A number of ministries have websites to advertise and download bidding opportunities.
- There are some procurement and IT standards in place.
- Item coding will be reviewed.
- There is some collaboration between agencies on procurement issues.

Thus, there are some procurement-related activities and projects currently underway in Bhutan to address specific issues, and an opportunity for the Government to review the existing e-tendering developments quickly to ascertain the suitability for a wider pilot and consistency with prospective policies and governance.

On the other hand, as yet there is no clear overall vision for procurement and there is limited leadership or coordination available in this area of public administration in Bhutan. There appears to be no overarching policy or lead agency in Government with the required resources, which is responsible for procurement policy. Political changes currently underway seem to indicate that this environment for procurement is unlikely to change in the short term. Significantly, the establishment of a Public Procurement Policy Mechanism (PPPM) is planned, but has yet to be implemented.

Corruption, although perceived internationally as comparatively of low impact, can also become an issue and is currently being addressed through the recently created Anti-Corruption Commission.

Suppliers to government are currently skeptical of the capacity of government to implement e-GP, the reform agenda and its benefits, nor have they been consulted. There is little or no formal training for buyers or suppliers, while IT awareness in the public sector workplace seems to be generally low. The business sector would want to see realistic value propositions before they become positive, and existing suppliers in Bhutan, as in other countries, may also be resistant to e-GP, because it can promote competition and disturb the monopoly relationship that some may have with parts of Government.

Stakeholders expressed the views that ongoing procurement activities needed to be accompanied by:

- significant education and training,
- better coordination within Government,
- a phased and simple approach to e-GP implementation,
- revision of guidelines and processes

Given that the first point raised by the workshop participants is actually being planned by the government at this moment in time, and that the last point (i.e. revision of the procurement manual) has actually been completed, highlights the need for a clear communication from the Ministry of Finance to all the stakeholders in Bhutan about the reform agenda it has developed and is undertaking.

A principal issue is the lack of a high-level sponsor for procurement modernization. However, there are signs of leadership at the operational levels within some ministries that are significant for this opportunity. Also while the Government does not have a high level of awareness of the significance of procurement, the same

cannot be said of ICT more generally and there is considerable support for this wider agenda.

The grassroots leadership among the Bhutanese, may, with support, be sufficient to deliver significant progress in this area, but it is important that individuals work together with common goals, vision and objectives, and that they are prepared to develop a common framework, if maximum benefits are to be derived. Conversely, a set of diverse and independent developments in different departments would represent a lost opportunity. Therefore, it will be the focus of this roadmap to develop a common e-GP framework, objectives, and methodology that can be used as the foundation for bringing together a common agenda consistent with maximum national benefit.

2.4 Key Conclusions

The key conclusions based on the assessment of each of the key components are summarized below. The full readiness assessment findings are provided in Annex 2.

Government Leadership

Overall, the RGoB has several plans to address some critical issues in public procurement and for its future planning. These plans need to be integrated to be effective and the implementation plan provided under this project will support these initiatives. More needs to be done to promote, consolidate and implement the changes made thus far and make the intentions of the government clear to both the public and private sectors and the public.

The proposed PPPM needs to have its mandate and resources established quickly to support the existing reforms which will include the future implementation of e-GP.

Human Resource Planning

Overall, there are significant gaps in the level of human resource management to support current and future reforms in procurement. There is a shortage of expertise in ICT and strategic procurement. The Royal Civil Service Commission (RCSC) has catered for a professional procurement cadre under its new Position Classification System, which aims to address this issue. The capacity building project, currently being prepared, will work with the RCSC to strengthen the job descriptions and create national qualifications for these positions. The Royal Institute of Management will also receive assistance to enable them to then train these procurement professionals. It is imperative that this training program starts as quickly as possible to support all the other areas of the reform, including e-GP as the training will incorporate courses on e-GP and ICT..

Planning and Management

Overall, some effective planning to introduce changes to public procurement has taken place. A number of policies, strategies and guidelines in relation to procurement, ICT readiness, governance, and e-Government and their links to e-procurement have been developed. This has provided a good context in which to now develop a specific implementation plan for e-GP.

Most of the reform initiatives have yet to be implemented. This reform may not be achieved unless a strategic implementation plan and matching resources to consolidate, manage and monitor the outcomes expected are put in place. The management of the procurement process is largely under resourced.

The PPPM needs to be established as a matter of urgency to provide leadership and a critical mass to resource the implementation of currently planned initiatives and manage the implementation strategy for e-GP. Some external assistance may be required to raise the expertise of the new PPPM so it can quickly be effective. The planning and management of e-GP is very dependent on these resources being put in place. This is particularly important for having the ability to set up a more formal management and monitoring of public procurement trends and performance.

The process for external, independent audits is in place. A more comprehensive approach to procurement performance auditing may be required, to complement improved formal management control and monitoring of procurement responsibilities.

There appears to have been little private sector involvement in the planning for procurement and developing the process.

Policy

Overall, a range of policy and strategies have been developed to provide direction for, and integration of, government procurement with other e-commerce issues. If e-GP is to be implemented, then policy to define direction, and address issues such as assisting supplier uptake, ensuring common standards, and achieving effective procurement outcomes will need to be considered. Without policy (and a plan) the implementation of procurement reform and e-GP could become a series of disconnected projects with few benefits being achieved. Clear direction is also required to maintain the trust and confidence of the private sector.

Legislation and Regulation

The existing procurement legislation is contained within the financial legislation. The new procurement manual has been reviewed to ensure that it supports the adoption of e-procurement through a general enabling clause. More specific procurement legislation could be developed at a later date. The supporting and cyber legislation that is in place will provide good support for e-GP.

Effective, well resourced, management, monitoring and enforcement of the legislation and regulations will be critical to the success of the reform process and any introduction of e-GP. If this is not done then procurement initiatives are in danger of providing a façade behind which poor performance, unethical practices, wastage of funds, and low confidence in the government procurement process will flourish.

The role of the proposed PPPM and the existing review committees in controlling and monitoring public procurement needs to be identified, and matched with the role of external regulators such as the RAA and Anti-Corruption Commission (ACC). This would show how these parties may work together and how the regulatory procedures would be enforced. The introduction of e-procurement systems would assist the regulatory process by improving the transparency and integrity of the process and providing comprehensive information on which to monitor procurement activities.

Infrastructure and Web Services

The current telecommunications and internet infrastructure in Bhutan can easily support viable e-procurement systems. The number and quality of ICT professionals

to further develop, maintain and operate the national infrastructure and e-services needs to be increased. The e-Governance Strategy is to address this issue.

Standards

Some initial progress has been made in this area in setting some standards and allocating responsibility to the MoIC. The development of national standards is complex and difficult, but is essential if the long-term effectiveness and efficiency of e-services, including e-GP, are to be sustained.

Private Sector Integration

There is little information currently available on the attitudes of the private sector to making the transition to e-GP. The government does not appear to have a formal approach to discussing procurement issues with the private sector. The private sector has a number of issues to be resolved regarding the process including what are the government's intentions and the need for an independent complaints process.

The involvement and support of significant stakeholders in the private sector is critical to procurement reform and the transition to e-GP in particular. The Government could encounter serious resistance if it intends to continue with procurement reform and the introduction of e-GP with the current low level of private sector participation. The key to the relationship is to build trust and confidence with the private sector by effective consultation, awareness raising of Government's intentions, and addressing the concerns of suppliers. A clear communication strategy needs to be adopted for these reforms.

Systems

Bhutan has a potential e-Tendering system (created under the Ministry of Labour and Human Resources) that appears to have most of the required functionality, but may not have the policies, resources, support, and training available to operate it successfully. The development of this system is timely and the MoLHR is to be congratulated in taking the initiative. However, there are some issues related to the future development of e-GP that the RGoB should now consider as follows:

- Is this system functionally and technically capable of being used as a National system in the future?
- Can it be easily extended further and developed, and will it be inter operable with other government systems (e.g. online payment, accounts, budgeting)
- Would the rollout of this system be cost effective in the long term?

If the system is to be used as a pilot, then the size and viability of the procurement market needs to be examined. Given the small size of the public procurement market in Bhutan, a pilot of the system using only one ministry may not be viable or provide a realistic test of the system. It is suggested that a pilot with at least 4 ministries, with a least one of them having buyers and suppliers in the more remote (but connected) areas, may be more appropriate.

Respondent's Views on Priorities for Change

Respondent views reflected many of the conclusions of this report. The key priorities for change recommended by respondents were:

- Provide more comprehensive training for procurement managers and staff and for suppliers on procurement issues and the use of computers.

- Raise the competency and number of people with ITC skills and procurement management skills.
- Speed up the payment of suppliers.
- Review and standardise the procurement guidelines (something which has already been done).
- Take base measures in the procurement environment before implementing e-GP so that benefits and other key indicators can be measured.
- Improve the consultation and participation process between the Government and the private sector.

3. ROADMAP

The roadmap presented here seeks to build understanding as well as a realistic implementation program. The view of e-GP as a “black box” installation that only needs to be plugged in and turned on, is a barrier to understanding and disempowers those who would use it. With real understanding come new roles that replace obsolete processes, and new capabilities and empowerment rather than disempowerment. The implementation strategy embodied in the roadmap seeks to recognize the status of public procurement in Bhutan, create the necessary understanding, and address decisions about goals, strategic planning, private sector participation and other issues, as well as the technological and systems specifications.

3.1 Procurement Objectives and the role of e-GP

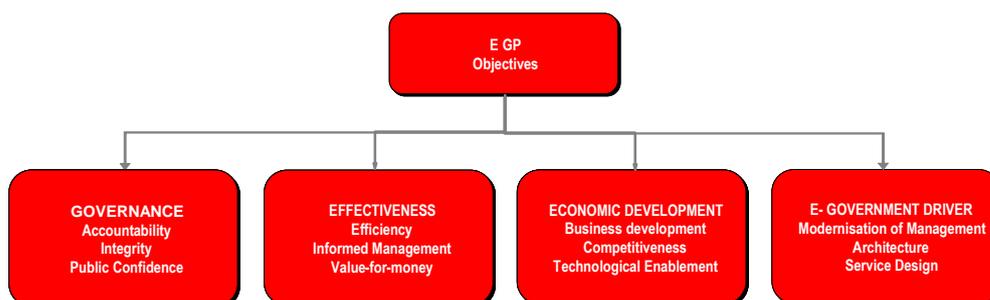
All roadmaps need an origin and a destination. A clear statement of the objectives of an e-GP program is an essential condition to developing this implementation roadmap. The starting point has already been described in the previous section on the readiness assessment.

The management of public procurement is measured, in most countries, in terms of:

- governance, accountability and professionalism, fairness and equity as measured by public and international confidence;
- efficiency of public processes, effectiveness of outcomes, and public value for money;
- business and economic development through efficiency, competition, opportunity and technology.

These objectives are also proposed here for e-GP reform. Bhutan has explicitly accepted the objectives of efficiency and governance through its endorsement of its e-Government strategy. It is less clear whether it has recognised the objective of business and economic development as one of the goals of public procurement.

In the case of Bhutan, e-GP can have a fourth objective: it can be a significant driver for the broader e-government strategy that is already acknowledged as being of particular significance to Bhutan.

Figure 2. Reform Objectives for E-GP

It is **recommended** that the Bhutan procurement reform initiative formally adopt all four objectives in Figure 2 as the goals for e-GP. The four objectives are often interrelated and mutually reinforcing and can all be addressed for similar effort and cost as a more limited agenda. Economic development is an important goal here because there are aspects of e-GP that can be particularly beneficial for the wider promotion of economic productivity. The fourth objective both extends the impact of e-GP work beyond the realm of public sector procurement per se, and also makes it imperative that the e-GP applications support are supported by a consistent e-government technical architecture. This will mean that the e-GP design should place more emphasis on the procurement management information system (e-PMIS) that might otherwise seem justified; at the same time, the development of the e-PMIS will be instrumental in the wider modernization of management generally.

These objectives guide the development of the implementation roadmap and shape the specifications that follow. The Government also needs to develop an e-GP strategy to clarify to all stakeholders why it wants e-GP, what its policy will be, and how it intends to implement this and address the major concerns of the stakeholders. This message needs to be packaged as part of its larger overall procurement reform strategy and presented vigorously to both the public and private sector. The strategic objectives can also be important criteria in the selection between alternative e-GP systems that might be candidates for application in the Bhutan public sector.

3.2 Leadership and Strategy

The single most important factor for e-GP implementation is leadership. E-GP is unlikely to be implemented successfully as a devolved initiative. The prospective Public Procurement Policy Mechanism (PPPM) would appear to be a potential lead agency to take charge of this strategy. Thus it is **recommended** that the formation of the PPPM be the first step for the implementation of e-GP.

The PPPM will need to fill the essential lead agency roles of developing a unified strategy, coordination, and leadership in order to ensure interoperability as well as other values such as accessibility, transparency and simplicity. The development of a unifying strategy should draw on existing work where possible without compromising the principles laid out in this roadmap. The PPPM needs to fully understand and fulfill this role.

E-GP is very much a part of a reform program and as such can be expected to meet resistance from several sources, including procurement professionals who may fear that they will have reduced job security, and elements both within the public and private sectors that might have vested interests that are inconsistent with the greater transparency and competition that e-GP can deliver.

The PPPM will need sufficient policy authority across this area to ensure that there is no separation between procurement and e-GP. This agency can only be successful if it has the capabilities, mandate, seniority, and skills to perform these duties.

3.2.1 Terms of Reference

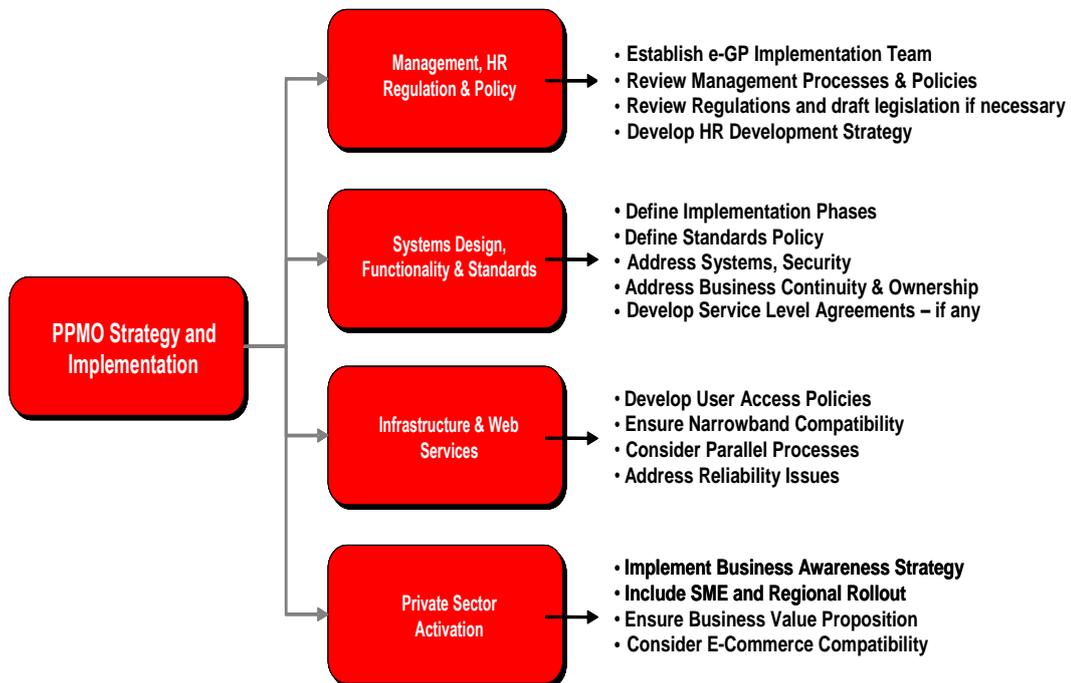
With respect to the e-GP component of the reforms, the PPPM appointed roles and responsibilities should include a capacity to:

- mandate a national framework for e-GP including a single integrated system;
- mandate common system protocols, standards, architecture and templates;
- arrange and engage service providers if necessary;
- recommend e-GP whole-of-government policies including use of e-signatures;
- arrange industry briefings and an online service center.

Peter

The PPPM should also be **required** to ensure a common architecture across Government including a single central e-GP portal through which departments will conduct their procurement activities. The common architecture should be developed from the framework in this report.

Figure 3. Components of an E-GP Implementation Roadmap



It is of fundamental importance that the PPPM appreciate the potential of e-GP at the outset and recruit and draw on individuals into its structure who are experienced in procurement and can understand and become champions of this modernization approach through technology; without such staff at inception the PPPM will need to undertake a professional development process of its own. Should the PPPM be formed at an early stage (this is preferred), it is **recommended** that it adopt e-GP as part of its new role.

3.2.2 Strategy

The PPPM needs to define an e-GP strategy. It is **recommended** that the components of Figure 3 be used to form the structure of this strategy.

The figure identifies the implementation processes as being principally about **management** rather than **technical** issues. The roadmap adopted by the PPPM should also recognize that e-GP reform is **an incremental process** and as such, it is a progressive implementation path, rather than a “big bang” or “plug and play” approach where changes are made all at once.

This strategy will address issues such as:

- Why the government wants to make the transition to e-GP
- Benefits to suppliers and government
- Government’s vision and objectives for procurement reform and the role of e-GP within it
- Government’s e-GP Implementation Plan, stakeholders, and resources to be applied
- Key issues to be addressed (including dealing with supplier and buyer concerns)
- Training and other support for suppliers and buyers
- Contracted suppliers, non-contracted suppliers
- Business association involvement, including the IT industry associations.
- Service industry development
- Push-out services to suppliers
- Costs
- Government e-GP management policies and protocols.
- First steps
- Project Contacts

E-GP is sensitive to the various elements that define organizational success, including management and leadership culture, regulations, skills and expertise. Accordingly, an e-GP implementation strategy is firstly a management task and requires coordination and strong leadership as well as consultation and shared objectives. This requirement underscores the role and significance of effective leadership for this reform.

The PPPM needs to not only establish and drive the e-GP strategy but also clarify to all stakeholders why it wants e-GP, what its policy will be, how it fits into the larger picture reforms, and how it intends to implement this and address the major concerns of the stakeholders. This message needs to be packaged and presented vigorously to both the public and private sector.

3.2.3 E-Legislation

It is sometimes considered in some countries that an absence of legislation giving legal status to electronic or digital signatures or to electronic documents represents a roadblock to the early introduction of e-GP. This is, however, usually not the case and many countries, both developed and developing, have embarked on the

implementation of e-GP without such legislation. It needs to be recognised that in many cases an interpretation of existing procurement law allows the first stages of e-GP implementation to proceed and is not relevant to some other stages. For example it is common for existing law to require that tenders be widely advertised and frequently internet publishing can be recognised as one means of achieving this. The processing of electronic documents in many governments has outpaced the legislation – for example most treasury departments have for years been using electronic processes even where such legislation is absent. It is frequently found that business practice is ahead of legislation.

The role of e-legislation for e-GP is to ensure that documents signed with some form of e-technology and then delivered electronically can have legal status in the case of dispute. Without this legislation these documents are not illegal but cannot be used as evidence in court hearings. For most purposes the only part of e-GP where this is may become an issue is where there is electronic lodgement of tenders by bidders. This function is just one amongst many and there are many other developments under e-GP that can proceed without electronic lodgement of tenders as is discussed below.

3.2.4 Outcomes

A critical issue in managing the development of e-GP is to be able to measure the key outputs and outcomes that are planned to be delivered. The stated base outcomes of e-GP usually include improving the transparency, integrity, efficiency and effectiveness of the process, and raising participation by the private sector in public procurement. It is **recommended** that base measures in relation to these outcomes need to be taken before the roadmap is fully implemented. The base measures of the current environment that are required could include:

- Average time taken for procurement planning and development of documents up to the date of public advertisement.
- Average time taken to conduct the bidding process up to contract award, and the time taken from contract award to commencement of work.
- The complete cost to government and business separately of conducting standard small and large bidding activities up to contract award.
- Percentage of large, medium and small suppliers currently that have contracts (or subcontracts) in public procurement.
- Percentage of government procurement opportunities advertised online
- Percentage of government bidding documents made available online.
- Average number of bidders per advertised procurement opportunity.
- Price trends in standard items procured.
- Number of supplier complaints regarding transparency, integrity, fairness and efficiency of the government procurement process.
- Percentage of documents distributed to suppliers that are delivered electronically
- The level of information technology utilisation in the business community
- Percentage of tenders that are lodged electronically
- Percentage of suppliers satisfied with the current procurement process
- Percentage of current contracts that are over budget, over time, or both.

These include outputs and outcomes. The traditional procurement governance objectives are concerned with cost of procurement, efficiency of the process and transparency. The objective of transparency is addressed in the e-GP environment insofar as it can reduce the barriers to information access to almost zero.

3.2.5 Training

An international survey of 15 countries that have successfully implemented e-GP showed that the most important lesson they learned was the need to provide formal and comprehensive training to government managers and staff and suppliers.¹ Failure to address this issue led to a lack of confidence in adopting e-GP and extended the time to implement it.

In Bhutan, there are significant requirements for training in e-GP but also procurement more generally. It is therefore appropriate that a comprehensive training program is created which will cover all areas of procurement, including e-GP, for all levels of public officials in Bhutan. The capacity building project that is being prepared envisages such training in collaboration with the Royal Institute of Management, the Royal University of Bhutan, and the Royal Civil Service Commission.

The PPPM itself needs to be trained as a champion of this modernization and it is **recommended** that an executive level course be mandatory for all members.

3.2.6 Order of Implementation Phases

It is important that the online e-GP services and functions be implemented in a phased manner where each phase may be broken down into smaller steps (many of which can be developed locally) to match the resources, development and the business model. The complexity and cost as well as the legislative requirements, integration issues and expertise and understanding of the various subcomponents mean that the **recommended** path of this phased implementation will be structured along the lines shown in Table 3, although this should not be regarded as rigidly prescriptive. Within these phases there are incremental steps that can also be implemented in stages or simultaneously.

The order of the e-GP implementation phases recommended for Bhutan shown in Table 3 below is consistent with experience in many other countries that used different approaches and models, and is the approach recommended by the WB, the ADB, and the Inter-American Development Bank. Of particular significance is the **recommendation** that the first developments be around e-tendering. There is also some advantage in implementing the early stage developments with the assistance of contractors, rather than moving directly to a service provider model. By undertaking early-stage developments themselves, public officials become more familiar and knowledgeable about e-GP and skills transfer is more effective.

¹ International Survey of e-Procurement Systems (draft). WB,ADB, IADB, February 2007

Table 3. E-GP Implementation Phases

Phase 1	Information Service Tender Advertising Document Down-Loads Results Disclosure Bid Qualification Bid Up-Loads Bid Processing	} E-Tendering
Concurrent Development	Contract Management Contract Development	
Phase 2	Catalogue Purchasing Online Transactions Online Workflow Request for Quotations Reverse Auctions	} E-Purchasing, e-Reverse Auctions E-Contract Management E-Contract Development PMIS

Because the central website will ultimately permit access to full bidding documentation, the institutional challenges involved in the provision of access are substantial, particularly with regard to the need to streamline and standardize procedures and encourage businesses to make use of the information. The management and policy reform process involved in support of e-GP will have a significant bearing on the timeframes for the implementation of e-tendering.

To provide open access to bidding documents and permit them to be downloaded on demand, it is necessary to verify that the final and legally valid versions of those documents are available, that they include all the relevant information (including graphs and blueprints), and that the clarifications issued during the process are attached.

Prerequisites include the establishment of a complaints mechanism by the RGoB, which would cover complaints around the process of e-procurement procedures and Internet access for government departments posting bidding documents as well as suppliers. This process itself significantly enhances transparency – one consistent complaint from the business sector is that government procurement is difficult to understand and that departments undertake the processes with their own versions of documentation and policy interpretation. E-GP forces standardisation or consistency as well as enhancing access to the documentation.

Recommendation: The PPPM needs to establish a timetable for the deployment of e-GP phases that takes into account the managerial, policy, training, and business issues in the country context. The strategy and timetable will be published and promoted to Bhutan's technology professionals, government suppliers, and government agencies.

During the transition to e-GP, traditional paper-based procedures can be considered that operate in parallel depending on the level of SME access to the Internet and infrastructure policy.

It is **recommended** that Bhutan not engage in the development of an e-GP system or seek to acquire an e-GP system without having first established a whole-of-government enterprise architecture, especially the technical standards applicable to such an investment. The standards should be open international standards where these exist and catalogues of these as they related to e-government have already been established by other governments and need not be reinvented. Without this setting the Government may be inadvertently building systems that lack interoperability or other key systemic qualities. For Bhutan the potential cost and risk to its e-government plans of introducing conflicting architectures could be significant.

3.3 Procurement Management, Regulation and Policy

E-GP provides the potential for improved management information and performance. This potential will transform the management and policies around government procurement with new audit and compliance regimes. Improved management information about all aspects of procurement will allow management to re-examine its traditional supply practices and look at new procurement methods such as reverse auctions, business profiling, and the possibility of framework contracts.

E-GP provides the scope to address much of this by providing much stronger information management to deliver transparency with streamlined processes. To allow this to occur it is **recommended** that the PPPM undertake:

- Reviews of current rules and management processes to identify those that can be streamlined, modified or abolished for the electronic environment or where traditional rules for the non-electronic environment will continue to apply. Rules that change in the electronic environment are minor in relation to e-tendering, such as methods of tender advertising, authentication of documents, and identification or definition of ‘original’ document and definition of date of advertising. Also rules may be required in cases such as a discrepancy between the electronic documents and paper versions. Other rules may remain unchanged such as period for which a tender needs to be advertised. In the case of e-purchasing or e-reverse auctions there will be more substantial changes. Rules that should be re-examined will also include those for the selection of companies to bid or to provide quotes, pre-qualification procedures, procedures and rules for handing over bidding documentation, rules for bid openings, procedures for tender box management and security, rules and procedures for tender amendments, and rules for advertising of tender opportunities. Sometimes these requirements are stipulated in existing legislation or regulations but for which there is no meaningful electronic counterpart such as for e-signatures and ‘original’ document (copies of digital documents are taken as originals too). Sometimes procurement regulations stipulate that advertising must take place in various newspapers. Other process-related issues include online authorization and control of processes such as contract and document variations, control of collusive practices, and electronic records management and audit. Sometimes regulations apply for pre-qualification simply to reduce the number of potential bidders to a manageable level for the buyer

agency to process, but in e-GP this will be a quite unnecessary restriction on competition.

- Individual agency reviews to ensure consistency across the public sector so that a single e-GP framework can operate. E-GP can be customized to the management requirements reflecting procurement accountability in each agency.
- A review of procurement regulations to ensure compatibility with electronic processes. For most e-Tendering functionality it is unlikely that there will be any need for legislative change. Use of electronic signatures would be more consistent with business practice, is less complicated and less expensive, and is common in other countries. The principal area of concern is whether there is to be a requirement for the application of digital signatures to bidding documents for these to be valid. Bhutan has no law on this and so is in a position to avoid this problem. It is **recommended** that a regulatory or legislative approach be considered to allow electronic signatures rather than digital signatures, with correspondingly greater reliance on the due diligence phase of contract development. Draft legislation on e-transactions, e-signatures, and data messages is provided in Annex 3.

New management policies will be required for the management and security of electronic records, the management and security of the online tender box, and the reliability and performance of the systems.

Recommendation: Procurement policies should be redefined to include not only management practices in the electronic environment but also to cover circumstances of

- malfunction of government facilities,
- electronic tender bid opening protocols,
- electronic tender security,
- electronic contract development for template and document consistency, and
- engagement and facilitation of small and medium enterprises (SMEs).

New management protocols and the application of e-GP need leadership with strong direction and compliance processes. These should be designed around accountability principles but also around e-GP technology as set out in section 3.6 on e-Contract Management.

Recommendation: The PPPM will need to develop a human resource up-skilling and orientation program for its own staff and for the public sector. The PPPM will require resources and expertise not just in technical areas but also to undertake change management. Procurement managers have sometimes expressed a fear that they will be “disintermediated” by technology. Technology affects the skill requirements for procurement but is not a substitute for basic procurement skills; instead it generates a requirement for education and training of procurement officers.

Recommendation: The PPPM can develop a program to incorporate the current procurement managers and their supervisors in the transition to the new e-GP environment. This program should include, but not be limited to

- an orientation and awareness program for all procurement officers in the public sector,

- an awareness program for dissemination of e-GP objectives and characteristics to all public sector stakeholders including executives and policy officers.

The change management process will recognize that for professional procurement officers, these new approaches offer new opportunities and up-skilling rather than “disintermediation.” In fact, e-GP usually does not displace qualified procurement officials but rather does away with many of the more routine administrative processes.

3.4 Outsourcing Service Delivery and Support

While maintaining control of its procurement activities the government authorities should be focussed on its objectives and on monitoring results and outcomes. They need not become a software developer to achieve its desired outcomes. However the PPPM should have independent access to expertise on issues such as system portability and standards, in order to be able to assess whether a developer or service provider is delivering services in a way that is consistent with the objectives.

Private sector inputs of management, hardware, software, and communications are an option, as are the development and support services of technology firms. This means that the Government needs to retain authority and control over its procurement, but its conduct through a third-party service provider is an option.

Recommendation: The PPPM should define the business model, including development and ongoing operational costs, that is consistent with the objectives and policies established at the outset. The business model selected will help decide whether developments should be undertaken in-house or through a third party service provider (commercial and non-commercial options exist). The business model will also address the issue of ongoing maintenance costs. Just as other e-government services are provided free of charge to the broad public it is **recommended** that this e-GP service should not levy fees on users. Free access encourages transparency and competition. In some countries a fee is charged for online tender submissions directly by the service provider so that the service viability is never subjected to government budgets; if it is necessary to apply a fee structure then this is the preferred approach. Charges for downloading of documents are not advisable as these will discourage competition and transparency.

The business model can consider a third-party service provider but this is **not recommended** for the initial phases at least. If this is the preferred model it is **recommended** that the PPPM use this report to help it understand the issues and construct a third-party arrangement.

Recommendation: The PPPM should consider the engagement of a risk consultant to develop a business continuity plan as part of establishing any contractual relationship with any third-party service provider to ensure that it is not locked into an arrangement that may prove to be unsatisfactory in the future.

Also there is the issue of perceived and actual security of online bid submissions. Considerable distrust of this practice may exist in the business sector, and it can attract corrupt practices. Because it is difficult to construct 100 percent security, depending on the management and support arrangements of the virtual tender box, it is **recommended** that once the RGoB would be ready to get involved with online

bid submission (something that would be foreseen much more in the long term future), that the PPPM establish a third-party service provider in an alternative location (e.g. Canada, UK, Scotland, Australia, New Zealand) to provide a virtual tender box service and minimize risk. The remote location would have no effect on the service itself, and would have no management role (other than managing the technology according to agreed security protocols) or any role in tender openings.

Any development that occurs internally or that is provided by a third party must be consistent with the e-government architecture that should be the prerequisite for all e-government developments. It would be **highly recommended** that the e-GP program be accompanied by an initiative to specify the e-government architecture such as that under development in Bhutan. The discussion of non-functional requirements in Annex 1 also relates to this recommendation.

3.5 E-bidding Specifications

The development of the e-bidding (e-tendering) service requires the posting of all bidding information on a central Internet site and the streamlining of traditional systems of contract development and contract management.

This section specifies the functional and operational requirements for a successful e-GP system. These need to be clearly understood and specified for the e-GP service provider or developer for an internal or external service. The specifications in this section are generally consistent with those of the WB, with some minor variations arising from Bhutan circumstances and connectivity, and are designed to encourage international compatibility as well as good governance, efficiency, and economic development.

The **recommended** approach for Bhutan is for the PPPM to have a central procurement website created and for these capabilities to be gradually added. In addition to an e-Tendering system there are the e-Contract Management, E-Contract Development and the procurement management information system (PMIS) among other elements that are required for a full transformation, as described further in sections 3.6 and 3.9.

Recommendation: The functional capabilities which make up a comprehensive e-tendering service suitable for public procurement in Bhutan are **recommended** to be specified as follows:

- a supplier registry and single sign-on window
- online access to procurement legislation and regulations for all agencies
- online access to forward procurement plans for each agency
- online advertising of all bid opportunities
- downloading of bid documents and technical drawings
- awarded contract information
- intelligent search facilities by locality, business type and value
- early bid advice on tenders currently under preparation in public agencies
- electronic submission of bids by suppliers
- customized email notification of new bids and amendments to suppliers

- an online tracking capacity for suppliers in relation to their bid processing
- archived contracts with public search capabilities
- a secure management information system that enables audit trails and access logs as well as comprehensive management information

Most of the data requirements for all of this functionality can already be anticipated by a comprehensive e-PMIS management system (see section 3.9). Linking that system automatically with the e-tendering portal would fulfil most of the functional requirements.

The establishment of e-bidding procedures is to be accomplished progressively or, if management reforms of documentation, security protocols, and departmental technology interfaces permit, these stages can be combined. For the limited number of contracts that involve state security, parts of the documentation and reporting procedures will be modified.

The provision of information on **a single internet site** about the tendering processes will encourage technological take-up by the private sector. Civil works contracting are among the more demanding contracting performed by Government so this work will form a suitable and ready-made basis for whole-of-government e-tendering and eventually e-contract development and e-contract management.

Because e-bidding procedures are similar to traditional tenders, the laws and standards already in effect are expected to be applicable, with the possible exception of electronic bid submissions, which require legal status to be assigned to electronic documents and electronic signatures. Draft legislation for this purpose is provided in Annex 3.

The operations and qualities of the e-tendering service should be consistent with minimum standards and qualities that the WB requires if e-GP systems are to be applied to the loans, grants or credits that it provides. These should form a standard for the functions and qualities of the e-tendering system that will be developed.

These standards and qualities are designed to ensure that basic standards of good governance apply to these resources. Operational rules are also designed to add value for private sector suppliers and thereby encourage the take-up of online technology, consistent with the goal of promoting economic development, competition and efficiency.

Recommendation: The operational capabilities and rules which make up the technical and policy requirements of an e-tendering service suitable for public procurement in Bhutan need to be specified as described in sections 3.7.1—3.7.11 below, which also define much of the process and document reforms that need to apply; non-functional requirements are detailed in Annex 1.

3.5.1 System access

System access rules are designed to encourage confidence and value for private sector suppliers.

- System access is open, equal and unrestricted to all prospective bidders / consultants and members of the public. Those who want to submit information

- or receive online alerts or notifications of amendments or clarifications are offered an online registration facility. Registration is free of charge.
- The principle of single sign-on applies. Single registration allows bidders/consultants the multiple use of the same electronic system for different projects from different parts of the government.
 - The e-GP system is interoperable through open standards with ICT products in common use. The system is an Internet-based approach accessible by users through readily available and commonly used browser software.
 - Downloaded documents are readable through open standards with a range of commonly used office software. If specialized software is necessary, this is also downloadable (e.g. software required to read PDF documents), free of charge and compatible with commonly used system and office software. Similarly, the requirements for electronic submissions, where these are provided for, make use of open standard interfaces with commonly used office software, or the submission software is made available online from the system as required.
 - The principle of non-discrimination between paper-based and electronic information and transactions is, as far as practical, be reflected in the system.
 - The system performs reliably and securely in time-sensitive, commercial application.

3.5.2 Advertising

The bid advertising rules are designed to create transparency and value in the central site.

- All tenders are posted on the central web site that is reliable, and affords free and unrestricted access.
- There is no material difference between the paper documents (if any) and those advertised online.
- The bidding period is measured from the date of publication on the required sites / media as required in the regulations. A secure log of these entries is available for audit as required.
- The bid advertisements and results disclosures are not restricted except in special security circumstances.

3.5.3 Correspondence, amendments, and clarifications

Rules on correspondence, amendments and clarifications are designed to strengthen governance and transparency.

- All clarifications and amendments of the bidding documents, as well as any pre-bid conference minutes, are posted simultaneously onto a bid tracking page of the bid advertising website. Bidders who have already expressed an interest should be directly informed by the system of any amendments.
- Amendments and correspondence by any official are tracked and recorded by the system for audit. Systems shall ensure that only authorized changes can be made.
- In case of any amendments to the bidding Document/RFP by the Contracting Authority, the system does not replace the bidding Document/RFP with a new one, but rather provides such amendment by means of an additional document in line with the same distribution mechanism as for the bidding Document/RFP.

- The system tracks receipt by bidders/consultants when distributing pre-bid amendments and clarifications online.
- Online conferencing and chat facilities do not function after the bid submission deadline.

3.5.4 Bidding documents

The use of standard bidding documents is required to add value, competition, confidence and transparency for private sector suppliers:

- The use of standard bidding documents/RFPs is required. There must be no difference between electronic and print versions of the bidding documents/RFPs.
- The bidding documents use the contract procurement language as the catalogue standard defining its requirements.
- The system ensures the integrity of bidding documents in electronic format, and their online publication. Amendments are similarly secure and stored with the bidding document.

3.5.5 Submission of bids/proposals

The rules for online bid submissions are designed to strengthen governance around the bid management process. The possible eventual development of the security system for online bid submission requires developers experienced in this particular task and a clear understanding of the management protocols by the PPPM.

- There are security arrangements to ensure confidentiality and integrity of bids/proposals in electronic format.
- bids/proposals submitted online are virus-scanned by the system before being uploaded and accepted into the online bid box, and where this causes a bid to be rejected, the bidder/consultant is notified immediately by the system.
- Online submissions are received into an electronic bid box and maintained to high standards of security for long term record-keeping and audit. At no time are bids/proposals in unencrypted format. Copies taken and decrypted for bid evaluation purposes do not affect the integrity of the original record.
- There must also be secure procedures to ensure that the time settings are in accordance with regulations and international time-zone standards. A secure log of these processes is made available for audit as required.
- Bidders/consultants are allowed to submit modifications to bids/proposals or withdraw previously submitted bids/proposals electronically up to, but not after, the time of the bid submission deadline. Receipt of modification or notice of withdrawal including the date and time must be acknowledged, and this is also done electronically.
- The system accepts only those bids/proposals in electronic format the submission or modification of which is completed at the time of the bid submission deadline. Receipt of electronic submissions, including the date and time, must be acknowledged immediately, and are also to be sent electronically.
- The date and time for the receipt of bids/proposals is the same whether submitted electronically or on paper.

3.5.6 Public bid opening

Rules for bid opening are designed to strengthen governance and confidence in the processes.

- Electronic and or print bids if submitted are opened in a public opening at a location and time (deadline) designated in the bidding documents.
- bidders/consultants who choose to do so may attend the bid opening and are invited to sign a record of attendance. Information read out at the bid opening (prices, offered discounts, and pertinent information) is simultaneously posted on a website. A record of the bid opening must be kept in print copy and signed by individuals authorized to initiate the opening. The bid/proposal opening minutes are freely available by means of a website download.
- bids/proposals in electronic format are protected against access by unauthorized persons until the publication of the contract award.
- Contracting authorities ensure that, for RFPs, financial proposals in electronic format can only be accessed and opened after the evaluation of the technical proposals.

3.5.7 Bid evaluation and contract award

Automated evaluation processes impose severe constraints on the evaluation parameters unless the bid has been subjected to a two- or three-stage process. Automated evaluation may be inconsistent with the current management roles and expectations and are **not recommended**. The online publication of contract awards is important and is designed to strengthen governance, competition and confidence.

- Contract awards are published online consistent with bid advertising.
- The system shows the bids that have been entered, together with the identification of successful and unsuccessful bidders.

3.5.8 Information security management

Security management rules are designed to strengthen confidence, governance and audit processes.

- For any e-GP processes engaged internally or through third parties, the system and its management develop, maintain and implement an information security management system that conforms with international standards for information management and takes account of recognized best practice, including but not limited to asset security, access security, human resource security, operations management and business application controls, documentation and script sufficiency and security, physical and online security, business continuity, record-keeping and compliance.
- There must be no outstanding audit issues that represent material risk to the integrity or security of any project.
- Contracting authorities indicate in the bidding documents / RFPs the procedures to be followed in the case of any failure, malfunction, or breakdown of the electronic system used during the procurement process. The PPPM does not accept any responsibility for failures or breakdowns other than in those systems strictly within its own control.
- E-GP systems and information security ensure that secure records are kept of every process, procedure, transmission, receipt, and transaction in terms of the

content, executing individual and authorizations, time and date. These records are kept for at least five years after the closing date of the contract and are made available for audit on request.

3.5.9 Authentication

The PPPM should carefully evaluate whether digital Certification/Signatures are to be required as a condition of bidding, or whether management systems can be used instead. Digital certification is **not recommended** for Bhutan, but if adopted the following rules should apply:

- The certification process certifies bidders for a reasonable period of time (at least one year) and bidders are not required to request a certification for each bidding process.
- The certification process is kept open permanently, allowing bidders to submit the request for certification at any time, in order to allow them to register in advance for future bidding processes.
- The certification process allows international bidders to take all actions required for their certification within their own countries, without the need to travel abroad.
- The certification process accepts (i) an electronic signature or a digital certification/signature issued by certifying authorities within the country of the bidder, or (ii) submission of online or offline documentation for certifying the authenticity of the bidder representative, accepting such documentation that can be obtained under commonly used procedures in the country of the bidder (for example, no notarization in consulate or embassy is required).
- The certification process does not require a bidder to submit mandatory information from a location outside the bidder's own country.
- Consideration and consultation is required to address the practice by some countries of not requiring bidders to pre-qualify. An accreditation application must be filled out only by the winning bidder, who is given a reasonable time period (stipulated beforehand in the bidding documents) to do so. In the event of noncompliance, a penalty is applied and the contract is awarded to the second bidder on the list.

3.5.10 Payment

The use of e-GP is preferably without fees and charges. Free use encourages transparency and competition. If charges are to be raised then the rules to be followed are as follows.

- Specific Procurement Notices (SPNs): bidders have open and free access to all SPNs and bidding documents. No registration, certification or payment is required.
- Submission of bids: bidders can be required to make any payment as a pre-condition to be allowed to submit a bid.
- For charging, borrowers accept payments under one of the following options, at bidders' choice: (1) payments online; or (2) payments by any form of transfer of payment, in which case such time for payment is added to the minimum time for the submission of bids.

The cost of bidding for the supplier is less than the cost of paper-based bidding and is determined by negotiation between the lead agency and the service provider

3.5.11 Supplementary and archival information

It is useful to develop a planning discipline in the procurement system that requires government agencies to define their annual and quarterly procurement plans. These plans should be posted on a single website in order to add value that attracts suppliers to the site and enable suppliers to better prepare and plan their bids. The online submission by all government agencies of plans detailing scheduled tenders should be mandatory by the PPPM. The transition time required by agencies for this reform should not exceed six months.

Facilitating access to user-specified information will maximize transparency, efficiency, and the promotion of balanced development. The requirement for effective transparency is to provide user-friendly access to all available information and to facilitate cross-checks, classifications, data series, and comparisons. These outcomes can be accomplished with the help of a readily accessible database and customized information services operated by the PPPM including:

- on-line data and indicators on major procurement operations.
- automatic delivery, at the request of suppliers, purchasers and others such as the media, of the information they need (individualized data, data series, comparisons).

The documentation and dissemination of best practices from the perspective of suppliers and purchasing officials will serve as a tool for evaluating initiatives, making adjustments, and optimizing the relevant processes.

Recommendation: The PPPM, in consultation with procurement stakeholders, needs to identify supplementary information services to be provided by the system.

3.6 E-Contract Management

Government agencies typically manage a number of contract relationships simultaneously, each with various deadlines, expiry times, conditions and performance criteria. For construction contracts the problems are even more difficult and complex. Bids need to be able to be managed and tracked on the basis of a properly defined workflow, preferably in line with a Quality Accredited process, so that important schedules, conditions and performance criteria are not overlooked.

Standardized, structured workflows should be used to manage the sign-off processes required for contract award. Technology can be of significant benefit in managing these requirements.

3.6.1 Performance management

Performance management involves specifying interim and final outputs and the establishment of a timetable for producing them. E-monitoring of results will be used to signal when the deadline for a given output is approaching. In the event that an output is delivered after its deadline or its quality is deemed to be inferior to contract specifications, the person or factor responsible for this must be automatically flagged by the system (the contractor, the contract issuer, force majeure), so that the corresponding penalties or corrective measures can be applied and the performance and payment schedule adjusted.

It is best if the output monitoring system to be used in each sector and organization is designed on a consultative basis by suppliers and the purchasing organization. A component of performance management entails specifying exact payment dates and the requirements to be met for each payment and for automatic bring-ups to be generated. The purpose of this is to ensure efficiency and transparency, to ensure that the funds needed to make scheduled payments are set aside and drawn at the proper times, and to maintain up-to-date online accounts.

One of the major shortcomings that can occur in contract management systems is the lack of criteria and mechanisms for final acceptance of the work, good or service. This issue is addressed by the design of standardized procedures for these purposes and the maintenance of monitoring processes until the last day covered by the last performance security.

Performance management also includes the preparation of final evaluations of contract performance based on previously defined parameters. These evaluations are then used to compile records of each process, identify best practices, and systematize the information on each supplier's performance for use in subsequent operations.

Recommendation: The PPPM, with the participation of the major contracting agencies and suppliers, especially for works contracts, needs to develop workflow management, bring-ups and approvals templates for online performance management of large contracts as part of its PMIS data collection.

3.7 E-Purchasing

Many procurement transactions involve direct purchasing rather than contract tendering. E-purchasing is used for procurement of low-value goods and services based on the use of online price quotes from a list of sources of supply. Because e-purchasing is considerably more complex than e-tendering and requires a higher level of business capability, it is **recommended** that e-purchasing not be addressed until e-tendering is established.

Both procurement procedures require **electronic contract management** (e-contract management) in order to facilitate contract performance and the technical and financial monitoring of processes and results. Most agencies will also benefit from **electronic contract development** to ensure consistency and efficiency.

In the case of Bhutan this procurement framework remains equally relevant even though its relatively smaller procurement programme has relatively less expenditure at the high-value end of the scale.

The relatively larger weight of smaller purchases that appear to occur in Bhutan means that introduction of e-purchasing could be considered at an earlier stage than it might otherwise. However in light of its relative complexity, it would be preferable to simply reduce the tender threshold. It would appear that the cost of e-purchasing as distinct from e-tendering renders it uneconomic for a small jurisdiction unless it can obtain assistance from a jurisdiction with a similar program such as India. An alternative to a comprehensive e-purchasing system for a small jurisdiction can be the use of purchase cards with electronic reporting and auditing. It is **recommended** that this option be considered.

Recommendation: The functional capabilities that define an e-purchasing system suitable for public procurement in Bhutan are:

- decentralized buyers and sellers
- search for suppliers by name, category, locality code, and contract
- browse supplier catalogues
- random quote selection with minimum price benchmarking
- generate and award all procurement requests for information and quotes
- create purchase requisitions
- generate purchase orders while including optional approver workflow
- receive goods into the system
- allow for the customization of "buy policies"
- buyer data management
- supplier data management
- single sign-on capability
- FMIS integration
- reporting on all e-marketplace activity
- payment gateway integration
- supply chain workflow management, recording and reporting

The establishment of e-purchasing procedures requires significant systems integration in the major departments and substantial supplier connectivity. It is recommended that it be implemented only after the satisfactory take-up of e-tendering, which may take 24 months.

Recommendation: The operational capabilities which make up an e-purchasing service suitable for public procurement in Bhutan need to be consistent with those of the e-tendering system as applied to RFQs and RFIs and with WB e-purchasing guidelines. The e-purchasing system would operate as follows:

- When a specific good or services is to be purchased, the system automatically offers a shortlist of eligible suppliers (typically three in number).
- The rules may permit the purchasing organization to choose any short-listed supplier, but the chief procurement officer must be able to justify that choice to the organization and to the general public and there will be a mandatory field that requires this explanation to be entered.
- The selected good or service is ordered directly online from the supplier and the necessary funds to pay for it are automatically set aside within the FMIS.
- Once the order is delivered, the person who accepts delivery (the government agency's depot officer, for example) enters acceptance into the system.
- The system then automatically processes the payment order for the supplier, update the accounts, addresses any tax issues, enters the items in the inventory, and records the information in the database for use in governmental and public oversight.
- Inventory storage requirements and purchasing proceeds are minimized by using a just-in-time purchasing approach.

There are three stages involved in e-Purchasing: first, the eligible sources of supply are posted on the Internet; second, an on-line purchasing mechanism is created; and finally the range of customized information services is expanded.

3.7.1 Internet posting of sources of supply

The two main elements required in order to post eligible suppliers of low-value goods and services on the Internet are **catalogues** and the establishment of **reference prices**—or better, **competitive** markets. These elements provide the basis for open registration of suppliers that meet the eligibility requirements.

3.7.2 Use and coding of catalogues

Catalogues are used to facilitate product identification, searching, and price comparisons. For e-purchasing the use of the Universal Standard Products and Services Classification (UNSPSC) catalogue standard is **recommended**. This catalogue standard, which is maintained by UNDP to serve as a standard for the classification of goods and services (<http://www.un-spsc.net/>), is recommended for two reasons: its use will lower the cost of preparing and maintaining a separate standard and permit international price comparisons, and it will facilitate the use of e-GP within regional and global integration schemes. It is also an open standard and available without charge.

This UNSPSC standard is to be widely disseminated for use. Assistance should be available for both government users and businesses. There are two models for catalogue deployment. The first is to create a large centralized catalogue including price lists and suppliers, which uses a products and services classification standard such as UNSPSC to locate items within it. Such a central catalogue may include many tens of thousands of line items and requires substantial ongoing maintenance of products, suppliers, prices and other information, much of which is changing constantly.

The alternative model is for suppliers to maintain their own catalogues, also according to a classification standard set by Government, such as the UNSPSC. The efficiency of online search tools mean that it is now far preferable for suppliers to maintain their own catalogues rather than for Government or a service provider to maintain a single centralized catalogue. However the Government or service provider will search these catalogues using a centralized UNSPSC catalogue of search codes, with or without reference prices included for specific items within it. The imposition on business of maintaining their own online catalogues need not be significant and is not materially greater than for them to ensure that their presence on a central catalogue is up to date.

The relatively small size of the market in Bhutan might suggest that a central catalogue would not be too difficult to maintain, but the advantage of the small market size would be more than outweighed in this case by the corresponding shortage of available staff to do the job. A decentralized catalogue methodology is **recommended**.

3.7.3 Systems for establishing price

There are two main price formation systems for ordinary goods: (i) e-bidding on large volumes of the product in question, which may be used to obtain a floor price; and (ii) historical cost information, which will provide an average price for use as a benchmark.

When e-GP begins to be implemented for online purchasing, the tendering system can be used to arrive at a reference price. This approach should be effective if the market is competitive, and competitiveness may need to be assured through the inclusion of international competitors. Once a database has been formed, price

information can be kept up to date. Alternatively, and preferably, where the market is mature and competitive with little risk of collusion, there will generally be no requirement for reference prices, as the system can search automatically each time for the lowest catalogue price in the locality or region (or three lowest if three quotes are sought). The PPPM needs to be in a position to understand which of these scenarios applies and to establish policies for price determination.

3.7.4 Open registration for eligible suppliers

With the setting of the reference price for a specific good or service in the catalogue, eligible suppliers are defined as those who can provide the good or service at, or less than, the reference price. Where there is no requirement for a reference price because there is a competitive market, then all suppliers are eligible unless they have been disqualified for non-performance or other reasons.

Suppliers who can provide the product within the established price range may sign up with the system to offer the product. Suppliers must have an electronic catalogue according to the open standards stipulated for interoperability and classification (preferably UNSPSC-based).

Suppliers should be able to enter and exit the system automatically. Entries will only be valid, however, if suppliers provide all the information requested on registration. This information is essential in order to determine suppliers' contract performance record, verify the legality of their business activities, and generate the necessary statistics.

3.7.5 On-line availability of locally eligible price quote

Procurement policy decisions are established regarding the automatic electronic search rules. For example, subject to legislation, the search rules can initially seek suppliers within the immediate locality where the request has originated to ensure that local small businesses are not overlooked.

3.7.6 On-line processing of purchase orders

In addition to being able to consult lists of eligible supplier catalogues, government agencies must be able to order the product they select online. The system needs to be adjusted agency-by-agency: each agency has its own authorization hierarchies and rules that need to be built into the system to ensure that officers cannot undertake unauthorized buying and that buying policies are adhered to. To provide this function, supplier selection criteria will be established, while providing the purchasing organization with the capacity, and an online mechanism, for issuing purchase orders and for changing processes for approval, authorization, and notification as needed at numerous points throughout the organization.

3.7.7 Development of suppliers' online purchasing capacity

Suppliers also need the opportunity to be able to receive and fill purchase orders online, which requires connectivity and negotiated performance rules, for example for emergency hospital supplies.

3.7.8 Online receipt, payment, and inventory management

Government agencies need to have access to electronic means of recording the delivery of orders so that, in a single operation, they can authorize payment, update the accounts, record the shipment's entry in the inventory, and generate the statistics required for the system's monitoring and oversight.

3.7.9 Online production of public information and reports

The information generated during the online purchasing process must be automatically entered into a database for subsequent use in auditing and review of individual transactions and classifying information by purchasing individuals, organization, suppliers, region, price, type of good, and any combination of these criteria. Such information is vital for oversight by supervisory and auditing units and for budgeting.

3.8 E-Reverse Auctions

The operation of e-reverse auctions is similar to e-purchasing except that the online quoting facility has the capacity to operate interactively in real time, with bid prices posted instantaneously during the process. Like e-procurement, e-reverse auctions should not be initiated in Bhutan until e-tendering is operating successfully and the private sector has been able to adapt. In reality the lack of depth in many Bhutan markets may mean that reverse auctions are unlikely to be a meaningful proposition for local sourcing; they could nevertheless be considered for sourcing that is able to go into neighbouring countries.

Recommendation: The operational capabilities which make up an e-reverse auction system suitable for public procurement in Bhutan cover system preparation, bidding specifications, advertising, operation, clarification, access, evaluation, and information management.

3.8.1 System preparation

The procurement subject matter must be accurately specified and the purchase matter and requirements must be suitable for simple bidding processes (in terms of price or quantifiable in figures/ percentages). Procurement proposals that include multiple variables and qualitative factors are unlikely to be suitable. The auction system for Bhutan should operate only on price.

The auction scope (variables to be subject to numerical bidding) and the evaluation criteria for selection and award of a contract must be clearly established and advertised, and more generally, the value of purchase should be high enough to make it commercially viable for a competitive supplier base, but not so high as to materially reduce competition.

The PPPM must verify whether all operational conditions are met for starting the auction (all participants are connected and conditions required for safeguarding anonymity are in place).

There should be good intelligence on past transactions in the marketplace and market structure. Each auction should be carefully monitored for market manipulation. Auctions should not be used where the relevant market structure exposes them to significant risk of improper practice such as predatory pricing (low-balling) or collusion.

3.8.2 Bidding specifications

The published specifications should include:

- the quantifiable features whose values will be the subject of electronic auction, expressed in figures or percentages;
- any limits on the values that may be submitted, based on the specifications in the contract;
- the information that will be made available to bidders in the course of the electronic auction and, where appropriate, when it will be made available to them;
- the relevant information concerning the electronic auction process;
- the conditions under which the bidders will be able to bid and, in particular, the minimum differences which will, where appropriate, be required when bidding;
- the relevant information concerning the electronic equipment used and the arrangements and technical specifications for connection.

3.8.3 Advertising

The notification of an e-auction is posted on a publicly accessible website that is well-known nationally, well maintained, functional, and affords free and unrestricted access.

The notification period is measured from the date of publication on the required sites / media, and where these dates vary, the latest one will apply. A secure log of these entries should be available for audit as required.

The contract notice must mention that an e-auction will be used. Advertising must be electronic, including the specifications.

The published specifications must include all the features to be auctioned. In addition, they must include all the “rules of the game” (the event and timing of the auction, rules for participation, bid increment, how to bid, and whether the auction is divided into successive phases), as well as technical information needed to participate in the auction.

The contracting agency ensures the integrity of master documents in electronic format, and their online publication. Modifications must be similarly secure and stored with the master. The system would inform bidders/ consultants where such master documents can be accessed.

3.8.4 Operation

The system runs the auction according to information specified in the invitation to the e-auction. The auction device collects electronically and without human intervention, anonymous bids that are automatically ranked by the system. The system informs bidders instantaneously of new ranking(s) as they occur, together with price and other information as previously specified, in such a way that bidders are able to ascertain their ranking at any moment.

- Under no circumstances are the identities of the bidders disclosed during any phase of the auction.
- If a bidder submits an invalid bid, the bidder is notified online immediately with a message explaining why the bid is rejected.

- When deciding to give out additional information, the contracting authority verifies that this information does not distort competition and informs all bidders simultaneously.
- The contracting authority closes the auction in accordance with the option it has specified. Closure will be either (a) at the time and date previously published, or (b) when a previously advertised time period has elapsed during which no new valid bids have been received. It immediately informs bidders about auction closure.
- The contracting authority evaluates whether there has been improper use of the auction.

3.8.5 Correspondence, amendments, and clarifications

All pre-auction clarifications and amendments of the bidding documents, as well as any pre-auction conference minutes, are posted simultaneously onto the bid advertising website. Whenever possible these should also be emailed to businesses that have previously shown an interest.

Modifications by any operator will be tracked and recorded for audit. Systems should ensure that only authorized changes can be made. Modifications or amendments to the Master Bidding Document/RFP are made by providing the changes in an additional document distributed through the same mechanism as for the master document (and not by replacing the master with a new version).

No bidding documents will be available to any party in advance of the advertising of the opportunity.

The PPPM or lead agency tracks receipt by bidders when distributing pre-bid amendments and clarifications online.

Where contracting authorities stage online pre-auction conferences and clarifications using the same system, including for example online conferencing and chat facilities, such facilities are shut down and do not function once an e-auction has begun.

3.8.6 Access

Access is open, equal and unrestricted to all prospective bidders. Where a two-stage process is used, such as within a framework or panel contract, this open access requirement will apply to the first stage under the conditions set out in the e-tendering guidelines.

Where suppliers are required to pre-qualify, the pre-qualification processes are approved in accordance with the open and public bidding processes defined in the e-tendering rules. A reverse auction may not be used if pre-qualification has reduced the number of bidders to a level that materially affects competition.

Where pre-qualification occurs, an electronic invitation is issued to admissible bidders simultaneously, informing them of the e-auction. Bidders must be contacted electronically at least 2 working days before start of the auction.

Those that want to submit information or receive online alerts or notifications of auctions are offered an online registration facility. Registration is free, unrestricted and the principle of single sign-on apply.

The e-GP system is interoperable through open standards with ICT products in common use and accessible by users through readily available and commonly used browser software. If specialized software is necessary, this should also be downloadable.

The system should perform reliably and securely in time-sensitive, commercial application consistent with the number of bidders participating.

3.8.7 Bid evaluation and contract award

Contract awards from reverse auctions should immediately be published online, together with the awarded price or the results of any mathematical calculations as specified in the advertising.

3.8.8 Information security management, authentication and charges

Information security specifications for reverse auctions are similar to those for e-tendering.

3.9 E-PMIS Specifications

It is most common for countries to commence with the development of the electronic Internet procurement portal and build e-functionality around this portal. It makes sense to develop a Procurement Management Information System (e-PMIS) in parallel with the Internet portal, and mandate its use. E-GP implementation in Bhutan can be strengthened by developing such a procurement management information systems at an early stage, and this would also help drive e-government generally.

3.9.1 Development of the e-PMIS

The development of a e-PMIS could be led by the PPPM but would apply to any department and would be a valuable driver for the wider e-government strategy.

PMIS development could be implemented through the use of a consolidated template that accommodates agencies' specialist requirements with the scope for other optional data fields but also establishes a common core of data on which the management processes for each agency depends. Further development of the PMIS can allow for automatic uploads into the Government Procurement Portal (GPP).

The functionality specified in this section provides the scope for a e-PMIS that will deliver all of the objectives for e-tendering, including management integration with technology.

The PPPM with the participation of a technical specialist would establish an interagency task force including one authoritative officer from each of the lead agencies to map PMIS development. The PMIS should be designed to integrate with agency-specific developments so that the standardized core data requirements, including portal information, will be automatically generated as part of the individual agencies' management activities.

This mapping work should be time-limited to 3 months during which the mechanism for coordination of ongoing evolution in the system will be established. The task force will also coordinate a review of contract development, management and advertising to ensure interagency consistency for the portal.

The work that would be undertaken to develop a consolidated PMIS is closely related to the management systems for procurement in each agency. It is **recommended** that the opportunity should be exploited to use the consolidation of the e-PMIS to also review current rules and management processes of the agencies to identify rules and processes that can be streamlined, modified or abolished for the electronic environment. The Procurement Management Information System would become the Procurement Management *and* Information System.

3.9.1.1 Procedural rules

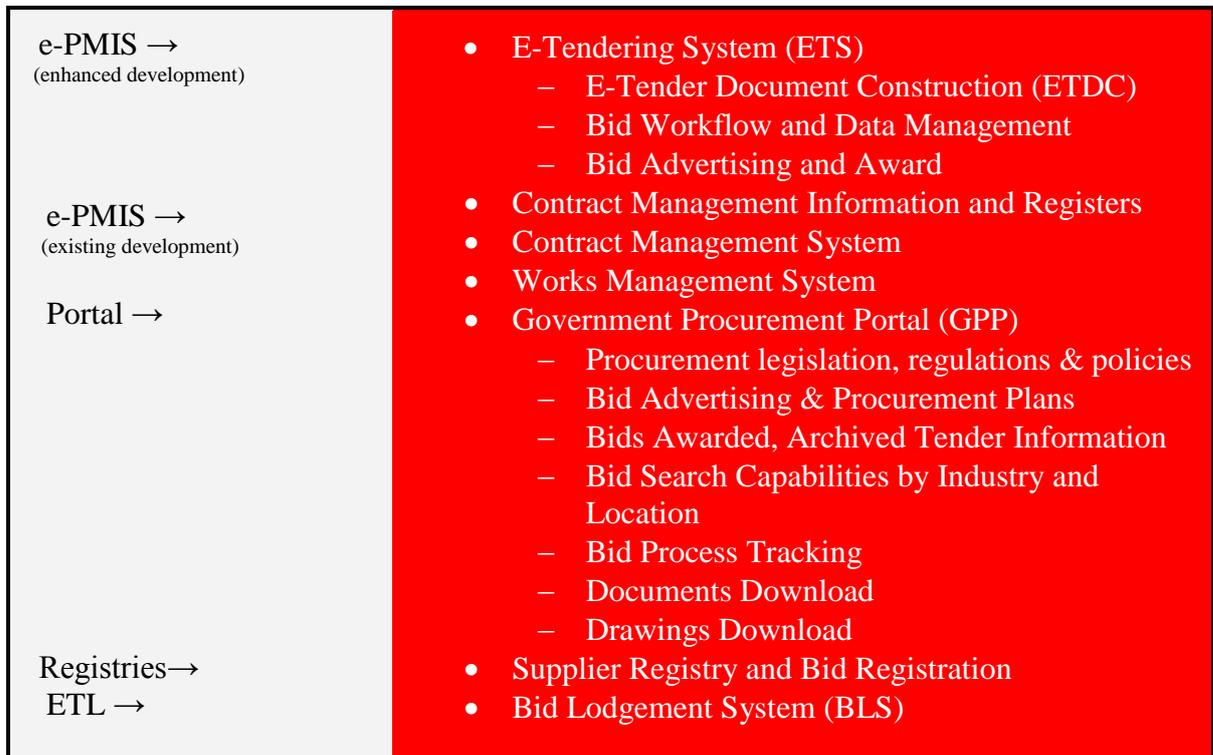
Procedural rules include the rules for the selection of companies to provide quotes, pre-qualification procedures, procedures and rules for handing over bidding documentation, rules for bid openings, procedures for tender box management and security, rules and procedures for tender amendments, and rules for advertising of tender opportunities. Sometimes these procedural requirements are stipulated in legislation but in language that does not encompass use of an electronic system. Other issues include authorization and control of processes such as contract and document variations, and standardization of contract terms and conditions.

The e-PMIS provides the basis for determining the data collection and standard reporting requirements as set out in section 3.5 above dealing with functional requirements. E-PMIS design must also include any supplementary information that may be required for ad hoc reports from the system.

3.9.1.2 Management and information systems

The enhancement of the e-PMIS encompasses contract development, the bidding process, contract management, and reporting, including the subsystems listed in Figure 4 and their functional and non-functional requirements.

Figure 4. E-GP Information Sub-Systems



The data management requirements of the system need also to identify and differentiate between framework contracts, agency-specific bids for goods and services, construction consultancies, construction works, and supplier performance.

3.9.2 Data field requirements

The consolidation of the PMIS would lay the foundations for e-bidding, e-contract development and e-contract management as well as for standard and ad hoc reporting. Comprehensive data should be recorded and archived and be available for ad hoc and routine reports, audit and other research as required. Data fields may need to be customized but should have a central core that includes:

- bid identification
- bid details
- bid addendum
- potential bidders
- bid submissions
- bid workflow actions
- bid method actions
- eligible suppliers (from supplier register)
- government personnel (from supplier register)
- client agency codes (from client register)
- bid search and enquiries
- record potential bidders
- advertising details
- direct notification
- pre-tender notification (PTN)
- advertise contract award

3.9.3 Supplier and government trainer

A module should also be included on the GPP central site that allows users to learn how to practice using the systems without creating real transactions.

3.10 Workflow Management Specifications

Regardless of whether the system is created by a contracted developer or a third-party service provider, the functional and operational requirements need to be clearly and contractually specified in a way that integrates the central site and online transactions with procurement work processes. The foundation for this is to be the e-PMIS extended as described in the previous section.

3.10.1 E-Tendering system

The e-tendering system (ETS) addresses the functionality required to initiate and register a bid (or tender). ETS then progresses the bid through the appropriate workflow processes, to the awarding of that bid and the output of that information to other systems. ETS selects the bid method, which will partly determine which process is used.

The central role of this system is to allow bids to be transparently and consistently initiated and maintained as they progress through to award. The scope of the system commences from the time an agency decides to enter into the bid process.

3.10.1.1 *Electronic Tender Document Construction*

ETS should provide the authorized official with an Electronic Tender Document Construction (ETDC) facility that is based on the use of standard bidding documents. On entry to the ETDC the system should provide a hierarchical path to the type and category of procurement for which the document is to be created. Selections can include goods (information technology, general commodities); services (management consultancy, information technology, cleaning, security); and works (works consultancy, minor works).

The ETS should provide a library of standard bidding documents with contractual templates for different categories of procurement, in a format accessible to common packages such as Microsoft Word and Mac so that general users as well as suppliers can download bidding documents. The document size will also be considered to ensure that it is compatible with remote infrastructure.

3.10.1.2 *Related registers*

ETS should automatically link to related databases (client register, contract register, government officer register, and supplier register) in order to provide part of the feed for a data warehouse for future analysis, decision-making and audit. Scope should be provided for secure and authorized deletion of bogus and obsolete records.

3.10.1.3 *Maintain officer access permission*

Officials will need a valid user identification and password to log into the system. It should be possible to restrict access to system functionality on the basis of an individual's access permission. Some access functions may require passwords from more than one individual. Access, entries or deletions by individuals with specific access levels may need to be automatically copied to others with higher access classifications or authority.

It should be possible to enquire on, add, change or delete access to system functions and data for an individual official. The security system will also be used to store an individual official's bidding approval limits.

3.10.2 Document Classification

ETS should allocate a system reference number (bid number) and then, using a Government File Management System, automatically generate a unique bid file using the ETS bid number. An option is for a file prefix to be used to denote individual government agencies. Government bid types are commonly:

- EOI - Expression of Interest
- RFQ - Request for Quotation
- RFP - Request for Proposal
- RFB - Request for bid
- FC - Framework Agreement

For the person initiating the bid, the system should provide online a list of pre-bid notifications. If there is no pre-tender notification, the system should provide a compulsory field for the accountable official to provide an explanation.

If the bid is a framework contract, the system should record it as such.

3.10.3 Document addendum process

The ETS must maintain information about the content and timing of addenda to bids. In case of any amendments to the bidding document/RFP, the ETS system shall not replace the bidding document/RFP by a new one, but provide such amendment by means of an additional document in line with the same distribution mechanism as for the bidding document/RFP.

3.10.3.1 *Enquiries about bid addenda*

It should be possible for any registered user to enquire about addenda to bids. More than one addendum may exist for a given bid. Any additions or deletions of addenda to any bid must appear automatically on the Government Procurement Portal and also be notified electronically to potential bidders.

3.10.3.2 *Add a bid addendum*

It should be possible to add new addenda to existing bids before the bid has been closed. Addenda may need to be added to bids with or without existing addenda. Business rules should be required for closing dates when addenda are added.

3.10.3.3 *Change or delete bid addendum*

It should be possible to change information about an existing bid addendum or delete the addendum. This may only occur if the addenda have not yet been sent out and the bid has not been closed.

3.10.4 Manage workflow actions

Each bid method in ETS should be conducted along a quality-assured workflow of actions and approvals, including planning and documentation development, to complete the bidding process. When a bid is registered, a bid method is automatically selected and this partly determines the actions to be followed. As the bid follows this path its progress must be recorded and trackable. The expected dates for each milestone action will be generated according to the bid method selected, but these should be able to be modified by the user at any stage (except retrospectively).

When the bid method is selected, a pre-bid estimate should be entered. Based on this value and the workflow method already selected, the workflow should direct the relevant actions to the users with the appropriate bidding approval limits.

3.10.4.1 *Bid evaluation*

The ETS may be able to undertake automated evaluation processes where these are both appropriate and have been defined (this will generally not be the case) in the standardized tendering documents and in doing so ETS should, in those cases where it is appropriate, be able to identify the winning tender and post it immediately onto the portal. It should be noted that automated bid evaluation can be very complex to develop and is **not recommended**. Automatic evaluation by mathematical formula in most cases does not lead to the best award decision., although it can be useful for the evaluation of some criteria.

3.10.5 Register contract award

Line items in the bid may be awarded to different bid submissions (there may be more than one bid submission per bidder). A flag may be set according to the bidding method, which will indicate whether prices may be released.

The award status may be one of

- declined all offers,
- shortlist,
- panel award, or
- contract award.

3.10.6 Electronic bid lodgement

If the RGoB chooses to adopt e-bid submission, then the ETS should be able to securely and confidentially receive bid submissions electronically. Bids submitted electronically must be stored securely and confidentially. Security methodologies are addressed under non-functional requirements, listed in Annex 1.

3.10.6.1 Supplier access

A supplier must be registered before lodging a bid. A supplier email address is mandatory. The bid should be registered against the bidder's ID from the supplier registry. If the bidder is not in the supplier register, a supplier ID must be requested from the supplier register and used to register the bid submission. One of the purposes of supplier registration is to allow for emailing of any amendments or further information to the potential bidder and is therefore to the bidder's advantage to register accurately. This should be communicated to the potential bidder at the time of registration.

- To execute online lodgement a supplier shall access the portal where a bid lodgement icon will appear.
- Activating the bid lodgement icon will display a list of current bids for which online lodgement is available.
- The bidder can click the ID of the bid they want to lodge against. If the bid opportunity has already closed the system will display a notice to that effect and the user will be unable to proceed further.
- They will then be shown specific details about the bid they have selected so that the bidder can verify they have selected the correct bid. They can then click the icon for lodging bid submission. Multiple bids will be lodged separately.
- The bidder is then asked to confirm or modify their supplier registration details and click an icon to confirm details.
- The system informs the user that their details are accepted and they are automatically transferred to a secure area where they will be invited to agree to the Conditions of Use.
- After the I Agree icon has been selected, the BLS checks the closing time for the bid and terminates with a message if closing time has passed.
- After checking on the conditions of use, the system invites the user to attach their documents and click the Lodge Response icon. Only if the bid is received in full before closing time will it be accepted. A receipt message will be sent to bidder acknowledging receipt and time of receipt.
- Submissions that are corrupted during transmission are rejected. This policy should be clearly communicated to potential bidders.

3.10.6.2 Authentication

The electronic bid lodgment system should be able to manage the authentication process if digital authentication is a policy requirement. Preferably it will use alternative authentication methodologies. This function will form part of the bid lodgment system to be implemented separately.

3.10.6.3 Bid box opening

The authorized agency official along with two or three witnesses will log on to the bid lodgment system and open the box normally by individually inserting their individual passwords. The process will be automatically tracked and recorded including the time and date of opening. The box opening will reveal encrypted files that will then be available for downloading. Once the files are downloaded they can be decrypted by using the private key installed on the authorized agency official's computer. Once a bid response is downloaded it is the responsibility of the agency officer to ensure its security.

3.10.6.4 Late bids and bid closure

The system will automatically close at the designated bid closing time so that late bids cannot be received. Notification of non-acceptance will be return emailed to source. The system does not allow amendments that bring forward a bid closing date.

3.10.6.5 Multiple suppliers (framework agreements)

A bid may be awarded to a panel of suppliers, without any specific contracts being awarded. When a contract is to be let against a bid of this nature, ETS should record the link back to the original bid number.

3.11 Reporting

Bid committee decisions and meeting minutes should be recorded in the ETS because they form part of the action sequence in the relevant bid method as well as part of the audit trail. Agenda item numbers should be allocated and reports generated for bids and procurement plans that the relevant bid committee will consider. ETS should identify the difference between a bid and procurement plan submission to a bid committee. Functionality should include the ability to:

- produce ad hoc reports in ETS;
- select data: It should be possible to select the items of information to appear on the report (for example, bid reference number; bid description; successful bid; date accepted; bid amount, officials ID at each stage)
- produce standard reports in ETS system as specified by the PPPM that can readily be extended over time;
- produce standard notices in ETS:
 - notices to advertise the bid
 - notice of bid submissions, accommodating
 - the modified qualifications based criteria selection (prices not released)
 - the standard system

- building works bids;
- successful / unsuccessful notices to bidders;
- for building works:
 - notices for bidder under consideration or not under consideration
 - contract award notices
- decline of all bids notices;
- addenda templates and notices;
- notices of invitation.

An online edit function should be available for the master documents which cannot operate after commencement of invitation to bid.

3.12 Private Sector Activation

All markets, including those relevant to e-GP, are comprised of a buyer (demand) side and a seller (supply) side. An e-GP strategy that attends only to issues within government bureaucracy may have little appeal to sellers, in which case they will stay with old processes and reform will be defeated. The participation of sellers in the private sector cannot be taken for granted. This risk will be particularly acute in regional areas. Businesses may be sceptical of investing in a new technology but receptive to a credible business case that offers lower costs or greater tangible opportunity. In Bhutan there is considerable scepticism about the Government's e-GP capability and intentions.

For these reasons it is important that any e-GP initiative provide real value to the private sector. The e-GP strategy will also need to ensure that the local IT industry understands the program, and is prepared to skill up to meet its needs. The small Bhutan IT industry may be capable of meeting these requirements but may require a lead from the Government about the Government's determination to carry this program through and assurances that it has the capacity to do so. The maintenance of e-GP and the wider e-government strategy will benefit from a local capability that will need to be nurtured from the start.

A business awareness, consultation, and orientation program is vital to the success of e-GP and business issues must be consulted on and addressed in the policy protocols by the PPPM. For example, in the case of e-purchasing (as opposed to e-tendering), the system of three random quotes will spread government business more broadly through the private sector than the lowest price bid, offering more incentive to businesses to participate.

Recommendation: The PPPM, in consultation with key major business associations, needs to develop a business activation strategy to address existing government contracted suppliers and non-contracted suppliers. The principal method of delivery of this strategy will include a road show to the major centres providing business seminars, e-mail, and advertising, and presentations to the business associations. This strategy will address:

- contracted suppliers, non-contracted suppliers
- business association involvement, including the IT industry association
- service industry development
- business selection and listing policies
- push-out services

- cost recovery
- Internet cafés
- government e-GP management policies and protocols.

Also relevant is the structure of the e-GP implementation program itself; where business is initially uncertain about the benefits, a phased approach is effective. E-tendering is easily picked up by business at little or no cost and represents an effective means of activation of the private sector, forming a foundation on which higher value services can be built. E-purchasing and e-reverse auctions will need greater business and Government online presence.

3.13 Infrastructure and Web Services

The potential of online technologies arises from *interoperability*, which is determined by standards, and *connectivity*, which is a function of infrastructure and web service availability. The limitations of Internet capacity, cost and reliability in Bhutan need to be recognized within the strategic plan and the plan needs to be tailored to accommodate this reality. For some communities outside of Thimpu, connectivity, bandwidth and reliability may be regarded as an obstacle to e-GP. However, it has been proven in other countries that valuable e-GP services can be delivered through very limited infrastructure.

The main driver for expanded Internet connectivity in the private sector will be the availability of valuable online services that can reduce business costs and expand business opportunities. Businesses do not need to be physically connected to make use of many basic services which can be delivered through Internet cafés and kiosks. E-tendering is capable of delivery through particularly weak infrastructure and connectivity, but reverse auctions and dynamic pricing are more demanding of bandwidth, reliability and connectivity both in the public and private sectors.

Initiatives should be devised for bringing about improvements in public sector connectivity and in Internet access for the private sector and the general community as a building block for e-GP and e-government more generally. These initiatives should seek policy support from the Bhutan public sector. E-GP implementation shall need to address connectivity issues through co-ordination and additional resources when necessary.

Recommendation The PPPM, in consultation with e-GP service providers and the IT business association, needs to coordinate government policy to assist the e-GP service provider and the IT industry in addressing connectivity and infrastructure in terms that include:

- departmental connectivity
- departmental kiosk services, retail connectivity (Internet cafés)
- ISP facilitation
- hardware interoperability (between Internet, fax, post)
- bandwidth design and compression
- business systems integration.

These demands are considerably less for e-tendering than for e-purchasing.

An important complement to these options is the reform of government documentation itself, such as standard terms and conditions, to ensure that these documents are readily downloadable across relatively narrow bandwidths typical in many regional areas.

3.14 Activities and Responsibilities

The roadmap presented in this report has identified a range of initiatives that need to be undertaken and issues that need to be addressed. The resourcing required will depend on the business model adopted. The PPPM would be best served by assembling an internal implementation team to manage the resources and the implementation of e-GP.

3.14.1 Implementation team

It is **recommended** that the PPPM create an implementation team that includes:

- a public sector management specialist familiar with the development of training and awareness programs and personnel placements for the public sector and who will also liaise with implementing agencies (from existing internal resources);
- an e-GP strategist with overall understanding of the vision and direction of the program (retraining of existing internal resources);
- a specialist in online technologies and especially with open international standards, and who is capable of international networking to monitor relevant trends and developments (engaged or trained from existing resources even if the service is provided by a third-party provider in order that the PPPM can monitor and manage its risks; could also be coopted from the National IT Centre);
- an industry and business development specialist capable of liaising with the private sector, raising awareness and representing their requirements (retraining of existing internal resources);
- a business manager who will monitor performance and manage the contractual relationship between the PPPM and the service provider if the service is provided by a third party (existing internal resources).

In addition, it is **recommended** that all members of this agency be required to undertake the procurement training programs that are being developed under the capacity building project including e-GP courses to aid the development of common goals. It should be communicated to these officers and to those in the line agencies that e-GP does not generally reduce job security of procurement professionals but often strengthens it.

The implementation team would appoint experts or committees to address each requirement within a specified timeframe. Most of these activities should be completed comfortably within 3 to 4 months and almost all can be developed concurrently if resources permit. An operational e-tendering system should be targeted to be widely operational within 12 months, with functionalities being activated as they become available.

It may be desirable for the relevant operational managers to visit operational sites in other countries at the outset of this exercise to build confidence and see first-hand the systems at work, including at the offices of the private sector. Relevant systems include those in Italy, India, the Philippines, Korea, and Australia.

Not included in the above work program are the risk audit and a risk management plan, activities that could be developed with the auditor's office. These discrete activities should be rolled into one or a few individual programs to minimize costs.

3.15 Capacity

To review existing developments and guide further systems development, an *international technical consultant* is **recommended** to be engaged. This consultant will be complemented by a *procurement consultant* who can assist in the workflow re-engineering required to align and interface agency procurement management systems and create standard bidding, reporting and management templates and monitoring frameworks. It is **recommended** that this work include predominantly national contractors where possible to encourage local skills development.

3.15.1 Technical consultant

The ICT technical consultant would have at least 5 years technical development experience with e-government procurement and be prepared to oversee the development of an e-GP management and reporting system in an open standards environment. The consultant would deliver or advise on the following:

- analysis of detailed requirements of the RGoB's e-Procurement strategy;
- review of system architecture within the context of RGoB's e-Government strategy;
- TOR for the engagement of a developer for additional e-GP systems;
- assistance in the evaluation of the bids from the TOR;
- assistance to local procurement staff in the acquisition of required software, hardware and data communications products and services;
- formation and coordination of project team incorporating staff from multiple vendors and local developers;
- implementation of technical infrastructure including in development, test and production environments;
- project management of development phases of project;
- development of a quality control or testing strategy;
- design and implementation of change management strategy;
- development of ongoing system management strategy (including risk and security) and service level agreements

3.15.2 Procurement consultant

The procurement consultant would have at least 10 years of procurement experience and at least 3 years of e-government experience with extensive record of business process re-engineering. This consultant would guide the development of a common government-wide Procurement Management and Information System (PMIS) that incorporates works, goods and services.

Activities could include:

- analysis of detailed requirements for the e-Procurement strategy;
- reengineering requirements for the development of enhanced management and information capabilities for a PMIS;

- lead guidance to the business process re-engineering of four major agencies' procurement management information systems to effectively incorporate new capabilities as specified.
- Assistance in the formation and coordination of project team incorporating staff from multiple vendors and local developers;
- project management of re-engineering processes of project;
- assistance in the development of ongoing system management strategy (including risk and security) and service level agreements.

3.16 Schedule and Costs

Once the PPPM is in place, implementation of e-Tendering could follow the indicative timeframe of activities set out below.

Activity	Expected output	Start Month	Duration	Related issue
1. Engage local ICT consultant.	Assess infrastructure and procurement reporting status of lead agencies.	1	Two months	Required to prepare the BPR.
2. Select consultant for e-tendering system planning and review.	Review existing system, security and future development plans.	2	Twelve months	Requires PPPM to be in place as client. Donor funding required.
3. Development of single web-based e-GP system	From this website, suppliers and public can get all relevant procurement information, and download documents. Includes procurement management functions.	8	Nine months	Requires single whole of government strategy
4. Extend single portal operations.	Include capability for secure bid submission and additional management capabilities.	12	Three months	Address security issues and policies and sign off on them.
5. Local consultants to be developed to support e-tendering for various procurement activities.	Recruitment and training of IT professionals who have sound knowledge of e-procurement and supply chain management to provide support to the procurement entities.	12	Three years	Without satisfactory recruitment of these consultants, skills transfer will be hampered. (Objectives 3, 4.)
6. Conduct IT infrastructure scoping for lead agencies.	Procure and install IT infrastructure for e-GP in lead agencies.	6	Three months	
7. Initiate e-tendering.	Operationalise e-tendering phases with lead agencies.	9	Two years	
8. Assess system impact.	Monitor, review, amend system.	20	Three months	

Activity	Expected output	Start Month	Duration	Related issue
9. Coordinate with capacity building project team to design appropriate e-GP and ICT training.	Develop online training module; train the trainer.	8	One month	
10. Conduct training for procurement entities.	Train procurement entities in e-GP through local training institute.	9	Once every month ongoing	
11. Conduct awareness activities among stakeholders.	Hold workshops, seminars for stakeholders, customized training program for bidders.	9	Ongoing	
12. Conduct IT infrastructure feasibility study.	Assess IT infrastructure to implement country-wide e-Procurement.	20	Three months	
13. Implement universal extension of e-tendering and e-contract management.	Launch e-Tendering and e-contract management in all entities handling public procurement.	24	Ongoing	Depends on the outcome of lead agency experience and IT infrastructure feasibility study.

Indicative costs for e-Tendering implementation as per this activities timeframe are given below. The cost of this program is sensitive to a range of factors and could be substantially reduced. In addition it is noted that Bhutan is a signatory to the SASEC Memorandum of Cooperation for ICT Development which includes e-GP and so drawing on the related developments from India, Bangladesh, and Nepal may also be an option that could substantially impact on costs of development and implementation.

	Activity	Assumptions	Estimated cost (USD)
1.	Local ICT consultant – 60 days	To assess the requirement (infrastructure and procurement reporting) of lead agencies.	\$7,000
2.	International consultant e-GP – 6 months.	One consultant to develop the TOR and RFP for the e-GP system and assist in preparation, short-listing, and technical evaluation. He will monitor and guide the implementation of system.	\$140,000
3.	Development of single web-based e-GP system including an e-PMIS component – alternative SASEC cooperation	Hardware, standard e-bidding, e-contracting, procurement information (MIS) software with minimal customization. Alternative costs also possible especially with local developers	\$550,000

	Activity	Assumptions	Estimated cost (USD)
4.	Annual hosting, maintenance, support, updates, helpdesk for e-GP system.	Yearly maintenance fee based on percentage of software & installation cost of the system.	\$110,000
5.	e-GP local consultants to support e-Tendering activity	Two technical experts will be required additional to 4 above.	\$60,000
6	IT Infrastructure	Some hardware, LAN, WAN and Internet to procurement entity.	\$300,000
7	Coordinate with capacity building project team to design appropriate e-GP and ICT training	Develop the training module and train the trainer.	subsummed under capacity building project
8	Training – Procurement entity through training institutes	Provide detailed e-Tendering training to procurement entities.	subsummed under capacity building project
9	Awareness activities among stakeholders. To include businesses, media. Major suppliers to be invited to interactive presentations, literature to be prepared.	Workshops, seminars for all stakeholders and customized training program for bidders including broad publicity & e-learning.	\$40,000
10	Feasibility study of IT infrastructure – major government procurement entities		\$20,000
11	Feasibility study for introduction of e-Contract Management		\$20,000
12	Personal development / scholarships	Three scholarships @ US\$10,000	\$30,000
13	Contingency	Considering 10% on total value	\$120,000
	Total		\$ 1,297,000

3.17 Next Steps

The roadmap has been constructed to allow for any rate of development, from slow incremental implementation to more rapid transformation. **The incremental approach is recommended** to allow for the training of staff to the new skill sets required by e-GP and for a full development of understanding by all stakeholders, and because it dissipates unrealistic expectations and avoids the “black box” syndrome.

It is **recommended** that the next steps for the implementation of e-GP in Bhutan should be:

- Create a leadership function preferably in the form of the PPPM.
- Unify independent e-GP developments by individual agencies.
- Create and disseminate a final Implementation Plan and hold meetings and roundtables to ensure familiarity by all actors.
- Specify an e-government architecture that will guide the technical standards for e-GP development.
- Identify funding sources.
- Working from the schedule of features presented in the roadmap from this report, identify e-GP features that can be readily implemented. These should align where possible with work that has already been undertaken.
- Map the e-GP components including the e-PMIS and ensure consistency with all key stakeholder requirements so that all agencies are served by the one development.
- Develop a schedule for the phased development of these features.
- Identify the resource requirements for these phases and seek any required support.
- Specify expertise required and where possible acquire these through internal retraining as specified in this roadmap.
- From the schedule that is decided upon for e-GP, develop an implementation team to activate the program.
- Assign the implementation team formal terms of reference and accountabilities for the program.
- Maintain a high level of political support for the program and the methodology in order to ensure the authority required to drive the e-GP reform program.

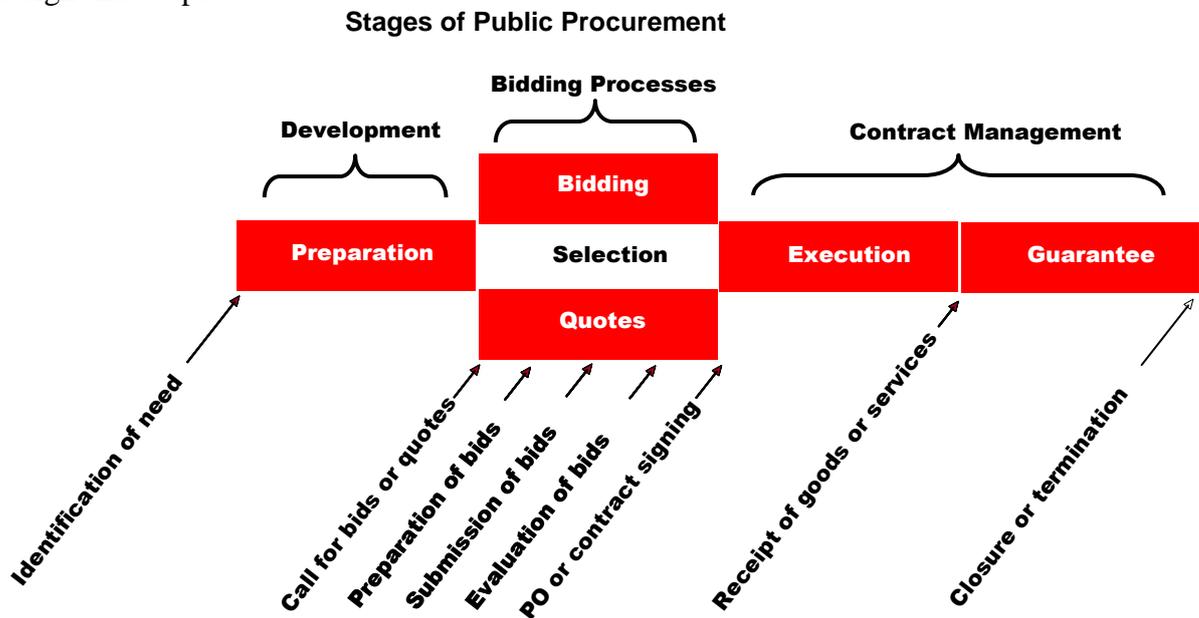
ANNEX 1: INTRODUCTION TO E-GP

E-GP offers many advantages to the management of public procurement as well as wider economic benefits. E-GP has the potential to greatly enhance the governance of a large proportion of government expenditure each year.

Scope and Definition of E-GP

Electronic Government Procurement (e-GP) is the application of technology (particularly online technology) to public sector procurement of goods, works, and services, under an efficient, high-quality management framework. E-GP has the potential to strengthen the accountability, transparency, efficiency, and effectiveness of this sensitive, high-value government function. For most jurisdictions, it represents an opportunity for both procurement reform and changing the way procurement is conducted.

All public procurement processes involve the four basic stages shown in the figure below. These elements of the procurement process also must be part of the e-GP design and scope.



Because end-to-end integration is required to attain the governance and efficiency objectives, the processes of procurement should be integrated by a Procurement Management and Information System (PMIS). This PMIS will greatly strengthen the management of procurement across the public sector.

Once the preparation stage has been completed, a procurement operation may be one of two primary types: suppliers may be selected through a tendering or bidding process, or through direct purchasing on the basis of a price quote. Both forms entail contract management functions.

The principal processes of government procurement are defined by the distinction between bidding (tendering) and purchasing. (E-Reverse Auctions form a variation to these). It is this distinction also forms the foundation for phased e-GP implementation.

Government Procurement via Electronic Bidding (e-tendering)

The e-tendering stage is about the acquisition of high-value, low-volume goods, works, and services by seeking bids (proposals) via a public process, followed by the evaluation of bids and award of contracts. For most governments this form of acquisition accounts for more than 85 percent of public procurement expenditure.

E-tendering is relatively easy to start for both government and suppliers, low cost to implement and maintain, and provides significant value to businesses, enhances transparency and strengthens management. Functionality can be increased incrementally and includes:

- Development of a central public procurement site for the Government.
- Publishing of all tendering opportunities and award outcomes on this single Internet site.
- Online registration for existing and potential suppliers.
- Online search tools for existing and potential suppliers.
- Open access via the Internet to all original bidding documents:
 - Secure electronic bid submission by suppliers
 - Customization options for agencies

E-Tendering usually does not include bid evaluation, unless the bidding documents are arranged so that evaluation is based on a simple scoring of objective measures such as price.

Also e-tendering usually does not include the development of pre-qualification lists of suppliers or potential suppliers. The technology does not gather or test data about businesses and allocate them to various levels of pre-qualification. Pre-qualification remains a largely manual process, often partly based on previous performance, with the results entered into the system, which then automatically applies these results when businesses seek to tender. Some systems, especially for services, allow performance reports to be entered by the buyers after each contract so that the data available for pre-selection is constantly evolving.

E-tendering does not define the optimum structure of a contract, such as whether a particular task should be the subject of a single large contract or whether it should be disaggregated into smaller contracts, nor does it define what the optimum timeframe of a contract might be or what many of the other final contract terms of reference might be.

Thus, e-GP usually **does not displace qualified procurement officials** but rather it does away with many of the more routine administrative processes as well as greatly enhancing transparency and management information and thereby the prospects for stronger governance of the process.

Government Procurement via Online Price Quotes (e-purchasing)

E-purchasing involves the acquisition of low-value, high-volume goods. Works, and consulting services by direct quote in the open market or from pre-qualified suppliers, and payment for the purchase. E-purchasing functionality is relatively complex because there is a need to integrate workflows and transactions, as well as manage a wide variety of purchases and information flows for many buyers and many sellers. There needs to be full integration of back-office and front-office systems as well as end-to-end supply chain management and also integration with

supplier systems. It is through this systems integration that valuable management information becomes available and process savings are made. Some of the basic capabilities include:

- buyer authorization management
- online quotations and information flows
- catalogue standardization and online searching
- e-purchasing transactions
- financial management integration
- data warehousing
- online catalogues

The implementation of e-purchasing (and e-reverse auctions, a special type of e-purchasing) is more difficult and expensive for suppliers and for Government, even though it deals with lower valued purchasing than e-tendering. E-purchasing requires much greater connectivity of businesses and entails extra expenses for businesses to develop and maintain online catalogues. Difficulties are increased where infrastructure is weak, especially for reverse auctions. E-purchasing systems for Government have a greater training component and are more expensive to implement than e-bidding systems, by a factor of ten.

As for e-tendering, e-purchasing does not usually develop pre-qualified supplier lists but is effective in managing them.

Description of a Mature e-GP System

The development of e-GP depends more on getting the policy, strategic planning, management, and governance components in place, than on installing hardware and software and using the technology. A mature example of e-GP is shown in the diagram below; e-GP systems are contained inside the dashed rectangle.

Schematic Representation of e-GP



E-GP is usually conducted through a common website that allows for the registration of suppliers and buyers, and for public access to procurement policy, guidelines, procurement opportunities, process stages and procurement outcomes (who won the contracts, cost, duration). The procurement systems on the website

can be accessed by both buyers and suppliers and allow the procurement process to be conducted online. They usually cover:

- e-Tendering: public tendering for works, goods and services;
- e-Purchasing: the purchasing of high-volume, low-value goods such as stationery, furniture and tools; and
- e-Contract Management: the development and management of contracts to assist managers in providing good quality documentation and managing more effectively the quality of the procurement outcomes, timelines and costs. Elements of this system may be incorporated in the tendering and purchasing systems.

There may also be other associated systems to provide information and management support, such as an online procurement library containing policy statements, guidelines, document templates, and procurement advice.

The procurement systems are usually integrated with government administrative systems so that payments can be made online, and issues such as asset planning and management information can be linked to the procurement cycle. They may also be linked to a data warehouse so that procurement trends can be tracked, and information analysis can be undertaken by both government and business to assist improved decision-making.

The diagram shows e-GP systems being supported by a viable information and communication infrastructure, which provides suppliers and buyers with good quality, inexpensive access to the Internet. There is also strong support from a number of other critical key components that would strengthen any approach to government procurement, including the current approach in Bhutan:

- government leadership and policy that sets the direction for e-GP;
- legislation and regulatory process that are consistently applied and monitored;
- comprehensive procurement planning and management in both the procurement agencies and in agencies across Government that support the integrity, transparency, efficiency, and effectiveness of the government procurement market;
- active integration of suppliers to support increased access to procurement opportunities and more streamlined and consistent processes, and to ensure a fair and competitive market.

The Nine Components

In a jurisdiction with a mature, self-sustaining approach to e-GP in place, the nine key components would appear in the following mature form.

Government Leadership

Jurisdictions that have successfully adopted e-GP have usually had significant Government leadership with funding, resourcing, planning, management, and implementation support to create an environment where procurement modernization and change can occur in a sustainable way. Government leadership is evidenced by the degree to which a national vision and objectives for procurement have been articulated, and whether a lead agency(s) is in place with responsibility for procurement policy and guidelines. The presence of an integrated implementation strategy for procurement reform and change, procurement career development and

education, and the provision of procurement advice to agencies is also evidence of strong leadership in procurement.

Human Resource Management

In jurisdictions that have successfully adopted e-GP, there have usually been significant Government efforts to make provision for the education and training of executives, managers, and staff with procurement responsibilities. Education and training is also available to suppliers, as they are also required to adopt the changes made. The career and job structure for public sector procurement managers and staff has been reviewed so that it matches the new responsibilities involved. The government lead agency(s) has had available to it the appropriate high-level policy, legislative, technical and management expertise and knowledge required. A range of education and training programs is provided via government agencies, private sector organizations, and tertiary institutions. A change management strategy is in place to assist procurement managers and staff to deal with the changes involved in procurement reform and making any transition to e-GP.

Planning and Management

For any e-GP implementation strategy, good planning and management are essential. The role of planning and management to support electronic-based services is complex and challenging.

Planning has been based on a clear assessment of the existing procurement environment. This assists management to define the direction, scope, focus and phasing required for their plans. A Strategic Implementation Plan including an e-GP strategy is in place and is linked to other current e-Government and e-Commerce plans. These plans were developed collaboratively with the involvement and support of major stakeholders in government procurement. These stakeholders represent government functions such as finance, asset planning, audit and review, legislation development, regulation, procurement management, education and training, and public sector management. In the private sector they represent industry sectors, professional associations, supplier groups, and watchdog organizations.

A lead agency (or agencies) is in place for the **management** of government procurement and to support buying agencies in meeting their procurement responsibilities. Clear guidelines and procedures that can be translated into consistent management actions and outcomes are available. Procurement guidelines and processes are well documented to assist users to learn and check their understanding as required. Contract outcomes are managed and reported and appropriate action is taken where required. Consolidated procurement data is available to support current understanding of the market and to support future decisions on government procurement.

Public information on the procurement process and outcomes is available. Sufficient management controls are embedded in the process to ensure effective compliance with policies and guidelines, risk management, probity and performance auditing, and quality management, so that corrective action can be taken. Independent external audits can be carried out for any agency with responsibility for government procurement.

Procurement staff has access to appropriate competent advice on procurement issues. Some level of procurement responsibility is usually devolved to government

agencies together with a mechanism (such as accreditation) to demonstrate that they can meet the standards required.

Policy

The development of policy gives important direction and intent to the procurement environment and its transformation. Policy is applied to issues such as value for money, open and effective competition, risk management, supporting local business, economic development, public procurement performance, common use contracts, and integrity and ethics. It is also applied to the development of e-procurement systems and their interfaces to other corporate systems.

A public policy-driven approach to procurement gives broad direction as to what outcomes government procurement should achieve without over-specifying how it is to be done. The procurement guidelines, based on policies, can then provide for some flexibility in how the process is managed for different levels and types of procurement involved. This approach appears to have had more success than adopting a rigid set of regulations that have little flexibility and that stifle management decision-making. Policies need to be well understood by all stakeholders and be independently monitored for compliance.

Legislation and Regulation

An e-GP strategy has to be linked with a range of direct and supporting **legislation**. However, because creating change through policy is often simpler than legislating change via Parliament, there is often much that can be achieved without legislative change. An e-GP strategy should recognize this distinction in its schedule of phased implementation. Legislation that allows for policy to be developed and changed without requiring major change to the legislation appears to have some advantage in dealing with the evolving issues in procurement. Some specific legislation may have already been enacted in relation to electronic commerce, including issues such as the status of electronic documents, digital signatures, authentication, privacy, and security of data.

Regulation is a key factor in determining the integrity, fairness and effectiveness of government procurement. Regulation is much more than the text of the regulations themselves. It includes enforcement, good management of behaviour and process, external and internal auditing of compliance and performance, and the maintenance of procurement responsibilities at agency level via accreditation and other means of performance management. It implies that comprehensive data on procurement process, management, and outcomes is available to support decision-making and taking corrective action. Often there are independent regulatory agencies in place with supporting authority to set and monitor legislation, policies and guidelines, to act as arbiter in disputes, to manage the accountability of agencies with procurement responsibilities, and to conduct reviews of procurement issues. The regulators also often have authority to audit government agencies and to ensure that standards are adopted for procurement.

Infrastructure and Web Services

Infrastructure is an important issue for e-GP. Reasonable connectivity, availability of web services, user access, and network reliability are required to support e-procurement systems. The services should be comparatively affordable for users. There needs to be interoperability between systems (telephone, Internet, email, fax) enabling systems to be linked. Some technical standards for telecommunications

and the Internet will have been applied. The speed and quality of the network should be sufficient to encourage growth in its usage and support the timely transmission of documents. There should be a viable hardware and software market and sufficient expertise available to support and maintain the infrastructure. The term “reasonable or adequate” can be quantified from comparative data provided from a range of e-readiness assessments in other countries.

Standards

The establishment of standards to support electronic-based services is a complex and developing area. E-GP, as part of e-Commerce, is inextricably part of these developments. The immature status of many, if not most, of the standards on which e-GP is dependent poses special risks to governments. These risks include systems obsolescence, lack of interoperability, higher operating costs, vested interest influences, sub-optimal functionality and reduced innovation and, more broadly, retarded technological enablement of commerce generally. These financial, commercial, and social risks mean that these standards become essential dimensions of government policy, legislation and leadership. It is important that executives and managers be able to appreciate and engage with these issues if the risks to governments are to be managed. The existence of a well-defined and broadly generic framework for standards in government can play a catalytic role in bringing together major developers in different sectors and networks to promote common methodologies, modelling, and standards.

The standards that underlie e-GP are not all technical. Identification of standards depends on what processes are to be integrated, the markets to which they are applied, and the qualities inherent in the sustainable technologies and business requirements applied to procurement. Some examples of where standards are being applied are:

Procurement Market Standards for supplier registries and catalogues, market networks and communities.

Systemic Qualities Standards for reliability, security, portability, communicability and management.

Procurement Process Standards for documentation, legal contracting, interpretation of legislation, process workflow and choreography.

Private Sector Participation

The participation of the private sector should not be taken for granted. Business will see benefits in e-GP, if it improves its confidence in the integrity, fairness, consistency, transparency, and efficiency of the public procurement process, and provides open access to a wider range of business opportunities. Training and advisory support needs to be made available to private sector entities. Private sector integration can be achieved in a number of ways. There may be a high level of consultation between government and business in relation to e-GP issues. Business may be represented on government decision-making bodies dealing with procurement strategy and process. The business sector needs in any case to have ready access to information and advice on government policy, regulations and procedures. Feedback for unsuccessful bidders and an independent appeal mechanism to deal with industry and public complaints should be available. The Government may initiate strategies to enable all business sectors to develop electronic catalogues and support business systems integration. The Government may have strategies to ensure that suppliers, particularly small to medium

enterprises (SMEs), have access to the electronic government procurement market through a well-distributed infrastructure or other mechanisms such as Internet kiosks. The Government may develop strategies to assist business in competing in regional and international procurement markets as well as meeting its international trade obligations. The cost of engaging in government procurement should not be a deterrent for SMEs nor put them at a disadvantage in the procurement process. Training and education on procurement should be readily available. When a significant percentage of suppliers participate in government work, this is a sign that private sector integration has been well fostered and is well advanced.

Ongoing e-GP Systems

Some governments already have initiatives underway to establish specific e-procurement systems, which may or may not be linked to an overall strategy to pursue e-GP. Guidance for integrating these initiatives into an overall e-GP strategy would consider both management and system technical perspectives.

From a management perspective, Government can develop an e-GP Strategic Plan to link e-GP with other e-initiatives and provide for the development and implementation of the e-procurement system(s). Government can provide policy and management direction in choosing the type of systems being considered. Some procurement market, process, and systems standards can be identified and adopted. Government needs to have created or designated a lead agency to oversee the development and implementation of the system(s). The Government retains control over the further development and use of the system (even though the delivery and support of the services may be via the private sector).

From a system perspective, the initial systems (usually tendering systems) commonly have been developed and implemented with the following functionality in mind:

- 1) Systems are web-based.
- 2) Information on all procurement opportunities is advertised on a single Internet site.
- 3) No proprietary hardware or software is required by suppliers to use the system other than a web browser and access to the Internet.
- 4) Buyers and suppliers can register for business online.
- 5) The system has a search engine to assist users in finding information.
- 6) Procurement legislation, policies and guidelines, and information on how to use the system, can be accessed online.
- 7) There is open access to all bidding documents.
- 8) Access to the system for registered buyers and suppliers is free or low cost.
- 9) Electronic download of bidding documents is available.
- 10) Electronic upload of supplier proposal documents is available.
- 11) The system provides for security and privacy of information.
- 12) Progress of the evaluation and award process can be accessed by the public.
- 13) Information on award outcomes can be accessed by the public free of cost.
- 14) Common interoperability and procurement standards are applied to all systems.

It is critical for the bidding documents, policies, and legislation that appear on this electronic system to have legal validity. The online documents must be equivalent to the originals and not simply represent copies.

Benefits of e-Government Procurement

Worldwide, some 20 countries have already developed e-GP to a significant extent over the past 10 years. Another 20 or so countries are in the process of planning for e-GP or are in the early implementation phase. This is not surprising given that government procurement usually makes up between 10 and 20 percent of GDP and the benefits are easily quantifiable and substantial. The benefits achieved include:

- a reduction in the cost of the procurement process for both Government and the private sector;
- improved process transparency, credibility, consistency, and integrity;
- improved accountability for procurement outputs and outcomes;
- increased participation by suppliers in the government procurement market;
- assistance to the conduct of international trade and commerce.

International Lessons

Among the countries that have launched e-GP, some have committed significant budgets and yet have not realized their objectives, while others have achieved good outcomes from relatively modest resources. Here are some of the lessons learned.

- E-GP implementation should be driven by a central procurement lead agency and requires effective leadership with a reform mandate.
- E-GP leadership and implementation requires a well-defined vision and strategy, with clear objectives.
- E-GP implementation is a phased process, rather than a once-and-for all event ("big bang"), and requires that objectives and functionality be prioritized and implemented on a scheduled basis according to what is realistic at each point of the program.
- E-GP requires officials who understand public procurement and also who are receptive to the application of new technology. This means that effective professional development is essential.
- Internet access is basic to e-GP, and policy is required that recognizes the state of the technology for smaller businesses.
- Implementation that approaches the issue as primarily one of technological installation rather than workflow and management reform is likely to falter because in fact the reverse is true.
- E-GP implementation requires new policies and procedures and therefore a detailed understanding of what e-GP does and does not do.
- E-GP requires choosing a business model.
- Implementation requires a qualified team which is responsible and accountable for the task.
- One of the most common mistakes by government officials is to regard e-GP as a "black box" technology installation. This misconception becomes a barrier to their understanding of what it is all about and effectively represents a disempowerment of their roles.

Often one of the most difficult aspects of e-GP for officials to understand is that they must come to understand e-GP. With this understanding come new roles that

replace obsolete processes, and new capabilities and empowerment rather than disempowerment.

Non-functional Requirements

Non-functional requirements (systemic qualities) are requirements that do not have a direct bearing on what a system does, but rather on how the system does it. Determining the non-functional requirements is a task for which the Government should seek technical advice independent of any service provider. Some or all of these requirements are often the subject of a service level agreement (SLA) A risk analysis to assist the development of any such agreement should be performed and discussed with an independent technical specialist in the context of an open international standards environment.

Non-functional requirements can be described in terms of a series of manifest, operational, and development qualities that should form a checklist for development, SLA or acquisition.

Manifest Qualities

Manifest qualities reflect the visible behaviour of the system from a user perspective. These qualities are mostly measurable and include:

Performance reflects user waiting times;

Reliability reflects the average time between system failures.

Availability reflects uptime vs. downtime, measurable in terms of partial or complete lack of availability.

Usability refers to the ease of use of the system.

Operational Qualities

Operational qualities relate to the system operations and operators. These qualities are generally not visible to users unless they become degraded. Supplementary measures may be envisaged to address inadequate operational qualities.

Throughput measures how many services or operations can be supported at required minimum performance thresholds.

Security is the prevention of undesired access to the system and its data. This typically centres on identity management. Currently this means that encryption standards must be at least 128 bit.

For any e-GP processes engaged internally or through third parties, the system and its management needs to develop, maintain and implement an information security management system that conforms with international standards for information management and takes account of recognized best practice, including but not limited to asset security, access security, human resource security, operations management and business application controls, documentation and script sufficiency and security, physical and online security, business continuity, record keeping and compliance.

Manageability reflects the capacity to readily start, restart, and stop the system or its processes, to monitor its performance against benchmarks, and to take corrective action.

Serviceability is the extent to which a system can be updated or repaired, as reflected by the ease and speed with which its components can be swapped, as well as the downtime effect on the system while this is taking place.

Development Qualities

Buildability is a measure of confidence that the system can be built within the given timeframe.

Interoperability is the ease with which other systems or sub-systems can be made to interface and interoperate with the system often through common standards.

- The e-GP system needs to be interoperable through open standards with ICT products in common use, be Internet-based, and accessible by users through readily available and commonly used browser software.
- Downloaded documents need to be readable through open standards with a range of commonly used office software. If specialized software is necessary, this should also be downloadable (such as software to read PDF documents), free of charge, and compatible with commonly used system and office software. Similarly, the requirements for electronic submissions should require only open standard interfaces with commonly used office software, or the submission software should be available online from the Contracting Authority's system.

Evolutionary Qualities endeavour to accommodate future system demands beyond the current version. Unlike performance qualities, these are generally difficult to measure since they are somewhat speculative and it is difficult to hold anyone accountable for them.

Scalability is the ratio between the capacity to support more users and the amount of cost and effort. Vendors often claim that their systems are scalable but sometimes fail to fully define the costs.

Maintainability is the ease with which faults can be detected (routine maintenance), diagnosed, and addressed within the design and application of the system.

Extensibility is the degree of ease with which significant enhancements can be made.

Reusability (or Flexibility) allows sub-systems of the system to be incorporated into other systems.

Portability enables the system to be moved to other platforms and can be managed by ensuring open standards-based interfaces between components to prevent the degree of tight integration that reduces freedom of choice later.

ANNEX 2: READINESS ASSESSMENT METHODOLOGY AND FINDINGS

Methodology

The readiness assessment survey focuses on the level of readiness for making the transition to e-GP. It does this by focussing on what currently exists, and what does not exist, within the existing, largely manual, government procurement environment in Bhutan, which would contribute to making the transition to e-GP. The survey asks respondents to comment on nine key components and associated sub-components in the existing procurement environment that are relevant to the adoption of e-GP.

The level of readiness has been constructed by reference to international practice with respect to these components. The premise is that if the existing procurement environment demonstrates a significant level of readiness on these components, then the jurisdiction is in a good position to adopt e-GP. Conversely, if the readiness level is low, then the adoption of e-GP is going to require some initial building of the key components, and will mean that the implementation strategy used will be different and probably require a longer time.

The survey focuses on nine key components that support the introduction of e-GP. These components are drawn from a consideration of the strategic foundations that underlie e-GP. A tenth area, participants' opinions on what they considered is required to best support e-GP in the jurisdiction, was also canvassed. This area does not involve readiness levels but provides valuable input to the assessment.

The assessment survey questionnaire was distributed to each participating organization and interviews with individuals and discussions with respondent groups were conducted. Some respondents followed up with additional comments within a few days. Respondents were requested not to attempt to give views on components that were outside their particular experience in the procurement environment. The responses to the questionnaire were complemented by information from other relevant reports and documents where these were available.

The nine components are outlined in the table below.

STRATEGIC FOUNDATIONS	e-GP COMPONENTS
Institutional Capacity (the capacity for Government to set directions and lead and resource the changes required).	<ol style="list-style-type: none"> 1. Government Leadership (vision, sponsorship, resources, stakeholder support and implementation support). 2. Human Resource Management (education, skills development, expertise and career development).
Governance (putting the rules, management support, performance monitoring and evaluation to support e-GP in place).	<ol style="list-style-type: none"> 3. Planning and Management (strategic planning and re-engineering of management protocols and processes). 4. Policy (setting intent and guidelines that can be consistently applied). 5. Legislation and Regulation (supporting rules and the external and internal monitoring of the efficiency, performance and compliance in relation to the total approach to e-GP).

<p>Business Functionality and Standards (sustainable infrastructure, support services and common standards are developed to ensure accessible, integrated and consistent procurement services can be put in place).</p>	<p>6. Infrastructure and Web Services (ensuring reasonable access to, and quality of e-services and their sustainable development and maintenance).</p> <p>7. Standards (development of management, procurement and technical standards to ensure consistency of the approach to e-GP and interoperability across the systems involved).</p>
<p>Private Sector Development (ensuring the private sector is enabled to both participate and be involved in e-GP)</p>	<p>8. Private Sector Integration (suppliers are enabled and have incentives to participate in e-GP).</p>
<p>Application of Technology (appropriate, integrated, sustainable and modifiable technology is phased in to provide tendering, contract management and purchasing services).</p>	<p>9. Systems (the planning, selection, development, implementation and support of e-procurement systems to provide tendering, contract management and purchasing services).</p>

In the assessment, each component is broken down into individual subcomponents. The respondents provided comment (evidence) to establish a level of readiness for each subcomponent. These levels were then amalgamated to describe the readiness level for each component. An example of how the component Government Leadership is built up from its subcomponents is shown below.

COMPONENT 1: GOVERNMENT LEADERSHIP

SUBCOMPONENTS	FINDINGS				
The degree to which	Y	P	N	Comment	LoR
a) The Government has set a vision and objectives for procurement.					
b) The Government's vision and objectives were developed in consultation with the key stakeholders in procurement.					
c) The Government's vision and objectives have been made public.					
d) The Government has issued plans for procurement modernization.					
e) The Government has nominated a sponsor for procurement modernization and change.					
f) A lead agency is available to provide leadership for public sector procurement management and modernization.					
g) The lead agency has adequate resources to provide its leadership role (for example, an implementation group).					
h) The lead agency has the authority to manage and modernize procurement.					
i) The lead agency is currently providing leadership to resolve some key issues in procurement (such as policies, governance issues, human resources management, standards adoption, third party involvement and application of technology).					

j) The Government is involving a range of key public and private sector and community stakeholders to support procurement management and modernization.					
k) Overall the Government has the capacity to lead, resource, and implement procurement modernization.					
l) Other related subcomponents					

Findings

Government Leadership

- A publicly available vision and objectives for public procurement is not available as yet. However, the RGoB is planning a number of projects to reform public procurement. These include the establishment of a new Public Procurement Policy Mechanism, revision of the procurement guidelines, improving training capacity and establishing a procurement profession, development of an independent review mechanism, and creating an implementation strategy for e-GP. The 10th Five Year Plan² identifies using ICT to improve government services by “achieving efficiency, transparency, accountability and professionalism within the government.” It does not identify e-Procurement specifically. The plan also calls for the establishment of Regional Information Centres to boost access to e-services in remote areas. The subsequent Bhutan Information and Communications Technology Policies and Strategies Report (BIPS)³ specifically identifies (E2.3) e-procurement systems in the statement: “Review current tendering and procurement procedures and establish e-procurement system (by 2007).”
- The Ministry of Finance (MoF) has responsibility for public procurement but is not seen to have sufficient resources to implement the reforms planned and to support any e-GP Implementation Strategy that may eventuate from this project. Procurement appears to lack an identifiable, high level sponsor in Government. Resources to support training will be an issue.
- No formal process to systematically involve the private sector is in place and the private sector stakeholders involved in the assessment (4) were uncertain as to the government’s intentions.
- Overall, the RGoB has several plans to address some critical issues in public procurement and for its future planning. These plans need to be integrated to be effective and the implementation plan provided by this project will support that issue.
- More needs to be done to promote, consolidate and implement the changes made thus far and make the intentions of the government clear to both the public and private sectors and the public.
- The proposed PPPM needs to have its mandate and resources established quickly to support the existing projects and the future implementation of e-GP.

² 10th Five year Plan 2002-2007, Royal Government of Bhutan

³ Bhutan Information and Communications Technology Policies and Strategies, RGoB, 2004

Human Resource Management

Overall, there are significant gaps in the level of human resource management to support current and future reforms in procurement.

- The Royal Institute of Management is responsible for training public sector officers but most respondents were not aware of training specific to procurement being conducted.
- The levels of IT literacy for both government officers and business people was generally seen as moderately low with e-mail and Internet use prevailing.
- There are no available comprehensive training courses for procurement managers and staff on strategic procurement. Some respondents in the private sector saw the need for government to significantly raise the level of expertise in both procurement and ITC, if the proposed changes are to be successful.
- The range of people with expertise on strategic procurement and ICT development available to the government is limited. There are plans within BIPS to raise the ICT expertise capability in government by 2009. This would involve increasing the numbers of IT professionals in government from 100 to 225. This expertise will assist the implementation of e-GP.
- No formalised program for procurement training and development is yet available to suppliers, but is being prepared under the capacity building project. A career structure in procurement managers and staff needs to be established. It is the current procurement workforce that will have to implement the intended changes. They will be exposed to new skill areas and responsibilities. They will also have perceived fears for their job security, which while unfounded, need to be addressed.
- A change management strategy to assist procurement modernisation has yet to be developed.
- Any procurement reform program and transition to e-GP will progress slowly and uncertainly unless the required levels of expertise to plan, implement and operate e-GP are available to government. The ICT planning currently being undertaken by Bhutan must address this issue.

Planning

- Overall, some effective planning and management has taken place in relation to key components of procurement reform. This reform may not be achieved unless a strategic implementation plan and matching resources to consolidate, manage and monitor the outcomes expected are put in place. Hence, the establishment of a central agency to lead the reforms is paramount to achieve this not only for e-GP but also all the other components of the reform agenda..
- The RGoB comprehensively assessed its ICT environment in 2003⁴ from a policy, infrastructure, resources and e-service perspective. The Bhutan e-Governance Strategy, 2006⁵ looked at realising the BIPS objectives. It

⁴ Bhutan e-Readiness Assessment, RGoB, 2003

⁵ Bhutan e-Governance Strategy, RGoB, 2006

reiterated the lack of required expertise, the need for coordination, and being realistic about the scope of the various strategies proposed. The introduction of e-procurement systems was described as a step by step process with integration of technology as it became available.

- A High Level E-Governance Committee has been set up to:
 - champion the e-governance policy and strategy.
 - identify the sensitivity and security of the services.
 - prioritize and approve e-governance applications.
 - mobilise and identify necessary resources to support application development and deployment.
 - budget and human resource allocations for development and deployment of systems.
 - ensure that relevant government agencies provide cooperation and support.
- The MoF is the lead agency for public procurement and reviews large scale tenders and tenders outside the guidelines. Procurement responsibilities are delegated to government agencies. There are Tender Committees established in each Ministry but their effectiveness is seen as questionable as the membership is seen as over prescribed and ‘top heavy.’”
- Currently an e-Government Procurement Plan is not in place. This project will address that issue.
- Other than involvement in the development of the Anti-Corruption Act 2006 the private sector do not seem to have been significantly involved in the planning of e-procurement thus far.

Management

- The Rules Section of the MoF is under resourced to take up its role of leading the planned and proposed changes to public procurement. There is a current proposal to develop and resource a Public Procurement Policy Mechanism within the MoF.
- The current procurement guidelines are readily available to those who are interested. A new draft procurement manual has been developed and issued (March 2007)
- The new draft procurement manual is well documented and sets out what is seen as a consistent process. The stated objectives are economy and efficiency of process, fair access to opportunities, and transparency and consistency of the process, Thresholds are set for limited enquiry, limited bidding and open bidding for works and goods. Open bidding thresholds are 500,000 Nu for works and 100,000 Nu for goods. The Manual currently contains general provisions to facilitate the introduction of e-GP in Bhutan. Further, more comprehensive, provisions may have to be incorporated over time as the phased implementation of electronic procurement takes shape. .
- Catalogues have yet to be established and common or framework contract to leverage government buying power are not used to date. The revised

procurement manual does allow for the use of such contracts and the RGoB intends to start making use of them in the near future supported by donor technical assistance.

- The public currently have access to advertisement of opportunities and information on contract award. This information is available on some agency websites.
- Little formal monitoring of contract performance and the achievement of outcomes was seen to occur. There is currently no comprehensive system for gathering storing procurement data to assist the management of public procurement.
- The Royal Auditing Authority, an independent body reporting directly to Parliament, has the powers to investigate any programs or government functions. It operates under the Audit Act 2006 and is involved mainly in issues of compliance, planning of procurement and verification of procurement.
- A number of policies, strategies and guidelines in relation to procurement, ICT readiness, governance, and e-Government and their links to e-procurement have been developed. This has provided a good context in which to now develop a specific implementation plan for e-GP.
- The PPPM needs to be established as a matter of urgency to provide leadership and a critical mass to resource the implementation of currently planned initiatives which includes the development and management of an e-GP implementation strategy. Some external assistance may be required to raise the expertise of the new PPPM so it can quickly be effective. The planning and management of e-GP is very dependent on these resources being put in place. This is particularly important for having the ability to set up a more formal management and monitoring of public procurement trends and performance.
- The new procurement manual needs to be supported with training for both government procurement staff and suppliers. This will assist in focussing both the public and private sectors on the government's approach to procurement reform.
- The process for external, independent audits is in place. A more comprehensive approach to procurement performance auditing may be required, to complement improved formal management control and monitoring of procurement responsibilities.
- There appears to have been little private sector involvement in the planning for procurement and developing the process.

Policy

Overall, little policy and strategies have been developed to provide direction for, and integration of, government procurement with other e-commerce issues. A comprehensive statement of policy on public procurement, how it will be communicated and implemented, monitored, and evaluated, has not yet been established. If e-GP is to be implemented, then policy to define direction, and address issues such as assisting supplier uptake, ensuring common standards, and

achieving effective procurement outcomes will need to be considered. Without policy (and a plan) the implementation of procurement reform and e-GP could become a series of disconnected projects with few benefits being achieved.

- A comprehensive statement of policy on public procurement, how it will be communicated and implemented, monitored, and evaluated, has not yet been established. Some brief procurement objectives are outlined in the procurement manual. Both public and private sector respondents stressed that the government must clearly communicate what it intends to do and how it intends to get there.
- There are supporting policy statements in the ICT and e-Governance strategies in relation to training, e-services, infrastructure, and procurement implementation that will assist the development of e-GP. These include recent policies on information sharing⁶ that focuses in information sharing between government agencies, to citizens and among citizens, and the further development of a government web portal. There are also technical ITC guideline⁷ for the next Five Year Plan (2008-2013) that outline objectives for mainstreaming ITC with 75% of government services online by 2010 and creating a knowledge society and universal information access.
- There was a wide divergence of views as to the extent that current procurement objectives are monitored for compliance.

Legislation

- The current procurement legislation to support public procurement is contained in the procurement manual.
- There is some supporting legislation in place including the Civil Service Rules and Regulations 2006, Telecommunications Act 1999, Information Communications and Media Act 2006, Audit Act 2006, Copyright Act 2001, and the Anti Corruption Act 2006, which set up the Anti Corruption Commission (ACC)
- The government has moved to modernise legislation relevant to e-GP. The Information Communications and Media Act 2006⁸ (Sections 136-153) comprehensively provides provision for recognition and use of electronic messages, digital signatures, electronic privacy and security, establishment of digital authorities, and the acceptance of foreign based digital signatures. The legislation is technology neutral.
- Most government respondents were unaware of this legislation. Some private sector respondents thought the legislation would need to be expanded to cover e-GP, and that the new legislation could be part of an awareness campaign on e-GP.

⁶ Bhutan Guidelines on Information Sharing, RGoB, Ministry of Information and Communications, Sept. 2006

⁷ Technical Guidelines on Information and Communications Technology for Preparation of the 10th Five Year Plan (2008-2013) RGoB, Ministry of Information and Communications, Aug 2006

⁸ Information Communications and Media Act, RGoB, 2006

- The Manual currently contains general provisions to facilitate the introduction of e-GP in Bhutan. Further, more comprehensive, provisions may have to be incorporated over time as the phased implementation of electronic procurement takes shape.
- The supporting and cyber legislation that is in place will provide good support for e-GP.

Regulation

- Currently there appears to be little formal management control and monitoring of how government agencies discharge their public procurement responsibilities. However the ACC and the RAA between them have independent powers to investigate or audit and report on procurement “irregularities” and allegations of corruption. The Public Accounts Committee reviews major works projects after completion. It is planned to set up the Bhutan Infocom and Media Authority to be the regulatory authority for ITC.
- The Office of the Auditor General can audit any government agency in relation to compliance and performance in relation to public procurement.
- No comprehensive procurement information is available to government as yet to identify trends and assist decision making.
- Government agencies have devolved responsibility for procurement.
- Currently an independent appeal process for suppliers has been planned but not yet established. Suppliers have to seek redress from the procuring entity itself or in the courts. Bidders in works procurement seek redress in either the Construction Development Board of the Ministry of Works and Human Settlement and/or in the Constructions Association of Bhutan. Neither of these is effective and independent enough.
- Bhutan, according to the International Transparency’s 2006 Corruption Perceptions Index⁹, is considered to be in the lowest corruption category (32/163), and is scored considerably below its neighbouring countries. The new AAC has been very active in its first year and conducts anti corruption surveys, education programs, and provides an on online facility for citizens to report incidents of alleged corruption.
- Respondents to the assessment were generally of the opinion that procurement process needed to be more consistent, although the perceived level of corruption was low.
- The role of the proposed PPPM and the existing review committees in controlling and monitoring public procurement needs to be identified, and matched with the role of external regulators such as the RAA and ACC. This would show how these parties may work together and how the regulatory procedures would be enforced. The introduction of e-procurement systems would assist the regulatory process by improving the transparency and integrity of the process and providing comprehensive information on which to monitor procurement activities.

⁹ Transparency International, Corruption Perceptions Index, 2006

- Effective, well resourced, management, monitoring and enforcement of the legislation and regulations will be critical to the success of the reform process and any introduction of e-GP. If this is not done then procurement initiatives are in danger of providing a façade behind which poor performance, unethical practices, wastage of funds, and low confidence in the government procurement process will flourish.

Infrastructure and Web Services

- The infrastructure and web services of Bhutan relevant to the implementation of e-GP can be summarised as follows:
 - Technology systems are already in place across government
 - Government ministries are connected on the web and PC are readily available to government officers. 82% of businesses have PCs and 85% use the Internet.
 - Telephone and Internet services are available to most government buyers and suppliers except in some of the very remote areas.
 - The quality, reliability and speed of the Internet is easily sufficient to support e-GP
 - Internet access is relatively more expensive than in neighbouring countries.
 - Sufficient maintenance and repair services are available.
 - Imported software and hardware is available
 - There is a shortfall of ITC expertise.
- Private sector respondents had concerns over access of small suppliers in remote areas.
- The table below identifies many of the subcomponents in relation to the key infrastructure and web services, and relates them to the readiness levels used in this assessment. The data has been based on figures from our own research¹⁰, international reports,¹¹ together with the views from respondents, who are either users and/or developers of the infrastructure and services. The figures should be treated with caution but are probably conservative.

Readiness Levels of Infrastructure & Web Services in Bhutan

	Indicators	Levels of Readiness in Bhutan (Feb 2007)			
		L1 none/little	L2 small	L3 some	L4 adequate
1.	Internet subscribers (% pop)	<0.05	<1.0	<10.0	>10.0

¹⁰ Fuji, K. *Research on ITC Infrastructure*, Nippon Koei Co. Ltd, Feb 2007

¹¹ Information and Communication Development, *Global Trends and Issues*, World Bank, 2006.

	Indicators	Levels of Readiness in Bhutan (Feb 2007)			
		L1 none/little	L2 small	L3 some	L4 adequate
2.	Internet users (% pop)	<1.0	1-3.0	4-10.0	>10.0
3.	Number of ISP providers /million people	<1	<2	<3	>3
4.	PC penetration (%pop)	<1.0	<3.0	<10.0	>10.0
5.	Modem transfer speeds generally available	e-mail only	9.6-14.4 Kbps	14.4-28.8 Kbps	>28.8Kbps +
6.	Availability of data network	Little or no network	A few agencies with LAN	Networks in major centres	Networks link many centres
7.	Availability of public internet centres	None	Few in large locations	Few in most locations	Some in most centres
8.	Comparative (regional)cost of internet access	Very high	High	Marginally above	Comparable
9.	Telephone fixed line penetration (% pop)	<2%	<8%	<40%	>40%
10.	Mobile phone penetration (% pop)	<0.5%	<5%	<14%	>14%
11.	Coverage of telephone service (%pop)	<10%	10-30%	31-50%	>50%
12.	Quality of service (faults /100 lines)	>100	50-100	10-50	<10
13.	Service and support to install service/fix problems	2 years/ 6 months	6 months/ 1 month	1 month/ 1 week	Few days/ <48 hrs
14.	Availability of hardware	All components imported	Many components imported	Some components imported	Few components imported
15.	Availability of software providers	0	1-9	10-50	50+

The above profile applies to whole country where 80% of people live in rural areas. The profile for major cities and towns would be at a higher level on many issues.

Standards

Some initial progress has been made in this area in setting some standards and allocating responsibility to the MoIC. The development of national standards is complex and difficult, but is essential if the long term effectiveness and efficiency of e-services, including e-GP, are to be sustained.

- The government has made some progress in setting management and technical standards that include:

- government administrative codes for data bases
 - cabling
 - keyboard standards
 - system inter operability
 - software development guidelines.
- The MoIC has responsibility for developing standards.
 - Currently there is some standardisation of procurement documents, construction materials specifications but no national coding for items.
 - The SASEC Report¹² on harmonisation of regional ITC platforms across Bhutan, Nepal, India and Bangladesh, recommends that standards be developed on a regional basis. India has been assigned responsibility.

Private Sector Integration

Few private sector respondents (4) were involved in this assessment. Public sector respondents commented that little or no real consultation had taken place with the private sector on procurement matters. The exception to this was the consultation with industry sector organisations on the development of the ACC.

- Private sector respondents were concerned that:
 - the Government did not appear to have a comprehensive policy and approach to procurement reform and was not communicating it effectively
 - training for both government buyers and suppliers needs to be made available to lift overall competence levels
 - the proposed systems may not be secure
 - small remote business may not be able to access the systems?
 - there is a need for an independent complaints process
- Information on the new procurement regulations, guidelines, documents and procurement opportunities are available to suppliers in soft and hard copy from Ministries.
- There is little information currently available on the attitudes of the private sector to making the transition to e-GP. The government does not appear to have a formal approach to discussing procurement issues with the private sector. The private sector has a number of issues to be resolved regarding the process including what are the government's intentions and the need for an independent complaints process.
- The government has a potentially serious problem if it intends to continue with procurement reform and the introduction of e-GP. The involvement and support of significant stakeholders in the private sector is critical to procurement reform and the transition to e-GP in particular. The key to the

¹² SASEC ITC Development Master Plan (Draft) ADB, May 2006

relationship is to build trust and confidence with the private sector by effective consultation, awareness raising of government intentions and addressing the concerns of suppliers.

Systems

- Ministries each have websites where procurement opportunities are advertised but documents have to be largely collected by hand.
- An e-tendering system is being developed by a private system developer for the Ministry of Labour and Human Resources (MoLHS). The developer claims it has the following functionality.

No	System Functionality Available	
1.	Single registration of suppliers	Y
2.	Registration of buyers	Y
3.	On line Help Desk facility to support use of the system	N
4.	Access to procurement policies, regulations and guidelines	Y
5.	Access to procurement market research information for buyers & suppliers	Y
6.	Users can revisit site without loss of data	Y
7.	General advertisement or procurement information and opportunities	Y
8.	Provision of targeted information to suppliers (e.g. opportunities)	N
9.	Advertisement of bid documents	Y
10.	Template documents for the use of supplies are available online	N
11.	Template documents for the use of buyers are available online	Y
12.	Master bidding documents or requests for quotations are stored securely in the system	Y
13.	Downloading of procurement specifications and process requirements, bid documents, or auction specifications or requests for quotations	Y
14.	Requests for quotations sent to suppliers on line	N
15.	Provision of addendums & changes available to suppliers	Y
16.	Receipt and answer of questions (buyers or suppliers)	Y
17.	Uploading proposals/responses or e-bids	Y
18.	Acknowledgement of receipt of proposal/request or e-bid	Y
19.	Secure storage of proposals or bids in a Tender Box or other secure arrangement	Y
20.	Caters for restricted tendering or quotation processes	Y
21.	Invalid bids, quotations are recognised and the relevant suppliers notified	Y
22.	Evaluation of bids online	N
23.	Notification of successful bids or quotations	Y

24.	Payment for purchases and contract payments can be made online	N
25.	All online communications are logged, date and time stamped and can be made available for audit or resolution of disputes.	Y
26.	Online training is available for suppliers	Y
27.	Online procurement demonstrations are available online for education and training purposes	P

This functionality, if confirmed, would give this system almost the full functionality found in e-Tendering systems worldwide.

ANNEX 3. SAMPLE! Draft E-Legislation: Law On E-Transactions, E-Signatures & Data Messages

(Draft dated March 2007)

Preamble...

This Law provides for e-transactions, e-signatures and data messages.

CHAPTER I

GENERAL PROVISION

Article 1- Scope

1. This Law makes provisions for e-transactions, e-signatures and data messages in the operations of State bodies; civil organisations and individuals and businesses.
2. The provisions of this Law shall not apply to certification of land ownership, house ownership and other immovable properties, or documents as determined by regulation under this Law.

Article 2. Scope of Application

1. This Law shall apply bodies, organizations, individuals electing to transact or record through electronic means.
2. If any person commits any crime under the purview of this Act outside Bhutan which would have been punishable under this Act, this Act shall be enforceable in such a manner that he has committed the crime inside Bhutan.
3. If any person commits any crime in Bhutan under the purview of this act with the help of any computer, computer system or computer network outside Bhutan, the provisions of the Act shall be applicable in such a manner as if the entire process of the crime had taken place inside Bhutan.
4. If any person commits any crime outside Bhutan from inside Bhutan under the purview of this Act the provisions of the Act shall be applicable in such a manner as if the entire process of the crime had taken place inside Bhutan.

Article 3. Application of International Treaties and other Legal Documents

In case where provisions of other laws contradict to provisions of this Law, this Law shall apply.

Article 4. Definitions

In this Law, the following definitions apply:

1. Automated message system means a computer program or an electronic or other automated means used to initiate an action or respond to data messages or performances in whole or in part, without review or intervention by a natural person each time an action is initiated or a response is generated by the system;
2. Certification of an e-signature is the process of applying agreed or regulated standards for the association of an identity or entity with an e-signature and forms a certified e-signature.
3. Database is a set of data, being ordered, established to access, exploit, manage and update through electronic means.
4. Data is figure, symbol, writing, number, image, sound or other similar formats.

5. Data message is information generated, sent, received or stored by electronic, magnetic, optical or similar means, including, but not limited to, electronic data interchange, electronic mail, telegram, telex or telecopy;
6. Electronic document or e-document is a data message that is created and/or stored in electronic form
7. E-signature is the electronic sound, symbol, or process associated with a contract or other record and adopted by the signatory with the intent to sign the record.
8. Electronic signing program is an electronic program established to independently operate or operate through equipment, information systems or other computer programs in order to create an e-signature for the person who signs data messages.
9. Entity is an agency, organisation or individual, or an agent, software or hardware under the control of an agency, organisation or individual in the government, business or in the community.
10. An e-transaction is a transaction that uses data messages implemented by electronic means
11. An automatic e-transaction is an e-transaction that is automatically implemented in part or in whole through information system which has already been established.
12. An information processing system is an electronic system used for creating, sending, receiving, saving, displaying or implementing other processing with respect to data messages.
13. An intermediary is a body, an organization or individual representing other bodies, organizations and individuals to send and receive or store a data message or provide other services relating to such a data message.
14. An electronic means is a means that operates based on electric, electronic, digital, magnetic, wireless, optical, electro-magnetic technologies or similar technologies.

Article 5. General Principles

1. To allow for the voluntarily selection of electronic means to carry out transactions, affix e-signatures and create data messages
2. To allow for the voluntary selection of the types of technology used to carry out e-transactions, affix e-signatures and create data messages
3. To ensure integrity and security in e-transactions and data messages.

Article 6. Policies on Development and Application of E-transactions

Under this Law the government shall

1. Give priority to the development of technology infrastructure and train human resources to facilitate the use of e-transactions, e-signatures and data messages
2. Encourage agencies, organizations, individuals to invest in and apply e-transactions, e-signatures and data messages in accordance with provisions stipulated in Article 1 of this Law.
3. Support the applications of e-transactions, e-signatures and data messages in public services.

Article 7. State Management

Under this Law the government shall

1. Promulgate and implement legal documents on e-transactions, e-signatures and data messages

2. Promote the development and adoption of e-transaction, e-signature and data message standards for State entities
3. Manage or regulate service providing State entities relating to e-transactions, e-signatures and data messages

Article 8. State responsibilities

The Ministry of ----- shall be responsible before the Government in taking the lead, coordinating with related Ministries, branches on implementation of the State administration under this Law.

CHAPTER II

DATA MESSAGES

Section 1

Validity of Data Messages

Article 9. Legal recognition of data messages

A data message, communication or a contract shall not be denied validity or enforceability on the sole ground that it is in the form of an electronic communication.

Article 10. Form Requirements for Data Messages

Nothing in this Law requires a data message, a communication or a contract to be made or evidenced in any particular form.

Article 11. Data Message Written Form

Where the law requires that a communication or a contract should be in writing, or provides consequences for the absence of writing, that requirement is met by an electronic communication, a data message or a e-document if the information contained therein is accessible so as to be usable for subsequent reference.

Article 12. Data Message Having Validity as Original Copy

Where the law requires that a data message, an e-document, communication or a contract should be made available or retained in its original form, or provides consequences for the absence of an original, that requirement is met in relation to a data message, an e-document, an electronic communication if:

- (a) There exists a reliable assurance as to the integrity of the information it contains from the time when it was first generated in its final form, as a data message, an electronic communication or otherwise; and
- (b) Where it is required that the information it contains be made available, that information is capable of being displayed to the person to whom it is to be made available.

For the purposes of paragraph (a):

- i.) The criteria for assessing integrity shall be whether the information has remained complete and unaltered, apart from the addition of any endorsement and any change that arises in the normal course of communication, storage and display; and
- ii.) The standard of reliability required shall be assessed in the light of the purpose for which the information was generated and in the light of all the relevant circumstances.

Article 13. Data Message as Evidence

1. A data message cannot be denied [its] validity as evidence for the sole reason that it is in an electronic format.
2. The validity as evidence of a data message shall be determined based on the reliability of the manner in which the data message was generated, stored or communicated; the manner used to ensure the integrity of the data message; the manner in which its originator was identified, and on other relevant factors, in the light of the purpose for which the information was generated and in the light of all the relevant circumstances.

Article 14. Storage of Data Message

1. In cases where the law require records, files or information to be stored, such records, files or information can be stored in the form of data messages when the following conditions are satisfied:
 - a) The information in the data message is accessible for reference when needed;
 - b) The data message is retained in the format in which it was generated, sent or received, or in a format which can be demonstrated to represent accurately the contents of the data message;
 - c) Such information is retained in a way to enable the identification of the origin and destination of a data message and the date and time when it was sent or received.
2. Contents and time limit of storage of data message shall be ensured in accordance with the law on record keeping.

Section 2

Dispatch and Receipt of Data Messages

Article 15. Originator of a Data Message

1. The originator of an electronic communication means a party by whom, or on whose behalf, the data message, e-document or electronic communication has been sent or generated prior to storage, if any, but it does not include a party acting as an intermediary with respect to that electronic communication, data message or e-doc;
2. In the case where parties participating in transactions do not agree otherwise, the determination of the originator of a data message shall be as follows:
 - d) A data message is considered as that of the originator if such data message is sent by the originator or is sent by an information system established to automatically operate which is designated and authorized by the originator;
 - e) The recipient may consider a data message as being that of the originator if [the recipient] has applied the identifying method, which is approved by the originator and [such method] shows that such data message is of the originator.
3. The provisions of items (a) and (b) of Clause 2 of this Article shall not apply from the time when the recipient knows that there is a technical error in the transmission of the data message or [the recipient] incorrectly used the verifying methods approved by the originator.

Article 16. Time and Place of Dispatch of Data Messages

Unless otherwise agreed by the parties of the transaction, the time and place of dispatch of a data message is as follows.

1. The time of dispatch of a data message, e-doc or an electronic communication is the time when it leaves an information system under the control of the originator or of the party who sent it on behalf of the originator or, if the electronic communication has not left an information system under the control of the originator or of the party who sent it on behalf of the originator, the time when the electronic communication is received.
2. Place of dispatch of a data message is the place of business of the originator if the originator is an organization or the regular residence of the originator if the originator is an individual. If the originator has more than one place of business, the place of business is that which has the closest relationship to the transaction.

Article 17. Receipt of Data Messages

1. The recipient of a data message is the person who is designated to receive the data message from the originator of the data message but does not include any intermediary transmitting the data message.
2. Unless otherwise agreed by the parties to the transaction, the receipt of a data messages is provided as follows:
 - a) The recipient of a data message is deemed to have received the data message when the data message enters his/her information system or an information system accessible to the recipient.
 - b) The recipient is entitled to consider each data message as an independent data message unless such data message is a copy of another data message and the recipient knows or must have known such data message is a copy.
 - f) Where the originator has required or agreed with the recipient before or during the dispatch of a data message that the recipient must send an acknowledgement when receiving the data message, the recipient must comply with such request or agreement.
 - g) In case the originator has not stated that the recipient must send an acknowledgement and the acknowledgement has not yet received the acknowledgement, the originator may give notice to the recipient stating that no acknowledgement has been received and specifying a reasonable time by which the acknowledgement must be received. If the acknowledgement is not received within the time specified, the originator may treat the data message as though it had never been sent.

Article 18. Time and Place of Receipt of Data Messages

Unless otherwise agreed by the parties to the transaction, the time and place of receipt of a data message are provided as follows.

1. If the recipient has designated an information system for the purpose of receiving data messages, receipt occurs at the time when the data message enters the designated information system. If the recipient has not designated an information system, the receipt occurs when the data message enters any information system accessible to the recipient.
2. A data message is deemed to be received at the place of business of the recipient if the recipient is an organization or the regular residence of the recipient if the recipient is an individual. If the recipient has more than one place of business, the place of business is that which has the closest relationship to the transaction.

Article 19. Automatic Dispatch and Receipt of Data Messages

If the originator or the recipient has designated one or several information systems for the purpose of automatic dispatch or receipt of data messages, the provisions of Articles 15,16, 17, and 18 of this Law shall apply.

CHAPTER III

E-SIGNATURES AND CERTIFICATION OF E-SIGNATURES

Section 1

E-signatures

Article 20. E-signature

1. Where the law requires that a data message, e-document, communication or contract should be signed by a party, or provides consequences for the absence of a signature, that requirement is met if:

(a) A method is used to identify the party and to indicate that party's intention in respect of the information contained in the electronic communication; and

(b) The method used is either:

i.) As reliable as appropriate for the purpose for which the electronic communication was generated or communicated, in the light of all the circumstances, including any relevant agreement; or

ii.) Proven in fact to have fulfilled the functions described in subparagraph (a) above, by itself or together with further evidence or

iii.) As agreed between parties

Article 21. Secure E-signatures

A secure e-signature is an e-signature which also is verified by a security verifying process agreed by transacting parties and satisfies the following conditions:

1. Secure e-signature creation data is reasonably associated only to the signatory in the context that such data is used;
2. Secure e-signature creation processes are under the control only of the signatory at the time of signing;
3. All changes to the e-signature after the time of signing are detectable.
4. All changes to the contents of the data message after the time of signing are detectable.

Article 22. Principles of using e-signatures

Unless otherwise provided by law, the parties to the transaction have rights to freely enter into agreement:

- a.) To use or not to use e-signatures to sign data messages in the process of transactions.
- b.) To use or not to use certified e-signatures
- c.) To select an e-signature certification procedure in case there is an agreement to use certified e-signatures.
- d.) To select an e-signature certification process as mutually agreed.

E-signatures of government bodies may be certified by e-signature certification processes or standards stipulated by government bodies.

Article 23. Validity of E-signatures

Where the law requires a written document to have a signature, such requirement with respects to a data message is taken to have met this requirement if the e-signature used to sign such a data message satisfies the following conditions:

- a) The method creating the e-signature permits the identification of that person and indicates that person's approval of the contents of the data message;
- b) Such method is sufficiently reliable and appropriate for the purpose for which the data message was generated and communicated.

Article 24. Responsibility of the Signatory of an E-signature

1. A signatory of an e-signature is the agency, organisation or individual or the legal representative that controls the electronic signing process and uses such processes to certify his/her intention with respect to the signed data message.
2. A signatory of an e-signature shall have the following responsibilities:
 - a) Have reasonable means to avoid unauthorized use of its e-signature creation data;
 - b) Without undue delay, using appropriate methods to notify any persons who rely on the e-signature when the signatory discovers that the e-signature may not be under the signatory's control;
 - c) Where an e-signature certification process is used, must apply necessary methods to ensure the accuracy and integrity of information included in the certification
3. A signatory shall bear all consequences of its failure to satisfy the requirements of set forth in Clause 2 of this Article.

Article 25: Responsibilities of the Party Accepting E-signatures

1. A party accepting e-signatures is the party who acts based on the reliance of e-signatures of senders.
2. A party accepting e-signatures shall have the responsibility for satisfying themselves that the e-signature is sufficiently reliable and appropriate for the purpose for which the data message was generated and communicated.
3. The party accepting e-signature shall take all responsibilities for its failure to comply with the provisions stipulated in Clause 2 of this Article.

Article 26. Recognition of Foreign E-signatures and Certifications

1. The government may recognize the validity of foreign e-certifications and e-signatures if such e-signatures or e-certifications have a reliable level equivalent to the reliability of e-signatures and e-certifications in accordance with the provisions of this Law. For the government the determination of the reliability of foreign e-signatures and e-certifications may be based on regional or international standards or bilateral or multilateral agreements, which are recognized and other relevant factors.
2. Government and private parties have the right to accept foreign certifications for contracts or other transactions or make other mutual agreements between themselves for the recognition of e-signatures.
3. The government may provide for regulations on foreign e-signatures and certifications.

Section 2

E-signature Certification

Article 27. Application of E-Certification

1. Certification of an e-signature may be provided by technological means, management systems and protocols or by certification service providing entities
2. The standards adopted for e-signature certification shall be reasonably reliable for the purposes of which such an e-signature is applied.
3. The reliability for the purposes of use of certified e-signatures is assessed basing on one or more following criteria:
 - d) the importance and value of information contained in the data messages;
 - e) the agreement of related parties;
 - f) the technology used by related parties;
 - g) the nature of the commercial activities conducted;
 - h) the frequency of the commercial activities conducted;
 - i) the types and scope of commercial relationship;
 - j) the fact that normal changes should not adversely affect the content of information contained in the data messages;
 - k) the compliance of commercial customs and practices;
 - l) ability of communication systems;
 - m) other related factors.

CHAPTER IV

ENTERING INTO AND EXECUTION OF E-CONTRACTS

Article 28. E-contracts

E-contracts are contracts established in the form of data messages in accordance with the provisions of this Law.

Article 29. Recognition of Validity of E-contracts

A contract shall not be denied validity or enforceability on the sole ground that it is in the form of an electronic communication.

Article 30. Principles of Entering into, Execution of E-contracts

1. Parties have rights to freely agree on use electronic means in the process of entering into, and execution of contracts.
2. The entering into, or execution of an e-contract shall comply with the provisions of this Law and laws on contracts.
3. When entering into, or executing e-contracts, the parties shall have the right to agree on technical requirements, certification, and conditions ensuring the integrity and confidentiality related to such e-contracts.

Article 31. Entering into E-contracts

1. Entering into e-contracts refers to the use of data messages in order to execute one or all steps in the process of entering into contracts.

2. During the process of entering into contracts, unless otherwise agreed by the parties, an offer to entering into contracts and acceptance of the offer to entering into contracts may be carried out through data messages.

Article 32. Receipt, Dispatch, Time, location of dispatch, receipt of data messages in entering into and execution of e-contracts

The receipt, dispatch, time, location of dispatch, receipt of data messages in entering into and execution of e-contracts shall be taken as in accordance with Articles 16,17, 18 and 19 of this Law.

Article 33. Validity of a Notice in E-contracts

In the process of entering into, or execution of an e-contract, a notice in the form of a data message shall be legally valid as a notice in other traditional forms.

Article 34. Use of Automated Message Systems for Contract Formation

A contract formed by the interaction of an automated message system and a natural person, or by the interaction of automated message systems, shall not be denied validity or enforceability on the sole ground that no natural person reviewed or intervened in each of the individual actions carried out by the automated message systems or the resulting contract.

CHAPTER V

E-TRANSACTIONS IN STATE AGENCIES

Article 35. Types of E-transactions in State Agencies

1. E-transactions within an agency;
2. E-transactions among different State agencies;
3. E-transactions between State agencies with other agencies, organizations, businesses and individuals.

Article 36. Principles for Conducting E-transactions in State agencies

1. E-transactions between State bodies must be in accordance with the provisions of this Law and other provisions of related laws.
2. A State body within its tasks and powers has rights to initiate the carrying out of a part or all of the transactions in its internal body or with other State bodies or external entities by electronic means.
3. Agencies, organizations, individuals have rights to select transactional means with State bodies where such State bodies agree to accept transactions in traditional forms as well as transactions in electronic means, unless the law provides otherwise.
4. State bodies may determine a reasonable process to implement the use of electronic means in the transaction types stipulated in Article 35.
5. When conducting e-transaction, State agencies shall determine the following:
 - a) formats, forms of data messages;
 - b) in case e-transactions require e-signatures, descriptions of types of e-signatures and e-certification (if any);
 - c) procedures to ensure appropriate integrity, security and confidentiality of e-transactions;

6. A State agency can provide public services in electronic form based on regulations of such an agency. Such regulations shall not be contrary to provisions of this Law and related laws.
7. State agencies can undertake processes for acquisitions or disposals of goods, works, services or contracts by electronic means.
8. When undertaking processes under Clause 7 agencies may seek assurance of the reliability of the associated e-signatures basing on one or more of the following criteria:
 - i. a reasonable assessment of the risks of the e-transaction
 - ii. the agreement of related parties;
 - iii. the technology used by related parties;
 - iv. the nature of the commercial activities conducted;
 - v. the types and scope of commercial relationship;
 - vi. the fact that normal changes should not adversely affect the content of information contained in the data messages;
 - vii. the compliance of commercial customs and practices;
 - viii. ability of communication systems;
 - ix. other related factors.
9. The government may establish management principles, standards and regulations for the conduct of its processes under Clause 8.

Article 37. Security, Confidentiality and Storage of Electronic Information in State Agencies

State agencies have responsibilities to:

1. Conduct periodic reviews and ensuring security of their electronic data systems in conducting e-transactions.
2. Ensure confidentiality of information related to e-transactions and data messages; and not to use the information for other purposes in contrary to the provisions on the use of such information; and not to disclose the information to a third party in accordance with law on confidentiality.
3. Ensure the integrity of data messages in e-transactions; ensuring safety in operating their computer network;
4. Create databases of corresponding transactions, ensuring information security and having standby systems to recover information in case of failures of the electronic information system.
5. Ensure security, confidentiality and storage of information in accordance with the provisions of this Law and other provisions of related laws.

Article 38. Responsibilities of State Agencies in Case of Errors of E-information System

In case an e-information system of a State agency does not ensure the safety of data messages, such agency shall be responsible for informing users immediately of the circumstance and taking all necessary steps to rectify the issue.

Article 39. Responsibilities of Agencies, Organizations and Individuals in E-transactions with State Agencies

Agencies, organizations and individuals in their e-transactions with State agencies shall comply with the provisions of this Law, the regulations on e-transactions as issued.

CHAPTER VI

CONFIDENTIALITY, SECURITY AND SAFETY IN E-TRANSACTIONS

Article 40. Ensuring Security and Safety in E-transactions and Electronic Data

1. Entities have a right to select measures to ensure security and safety in accordance with the law when conducting e-transactions.
2. Entities conducting e-transactions in such a manner to cause technical errors or damage to the information systems or that affects the integrity of the data of other entities shall be liable to pay compensation.
3. Entities are prohibited from taking actions that prevent or cause damage to the assurance of security and safety in e-transactions or data messages or that affects the integrity of the data

Article 41. Information Confidentiality in E-transactions

Entities shall not use, provide or disclose part or all of the information related to the private and personal affairs or information of another entity which is accessible by them in e-transactions without prior agreement of the other entity unless the law provides otherwise.

CHAPTER VII

IMPLEMENTING PROVISIONS

Article 42. Effectiveness

This Law shall take effect on (date).

Article 43. Implementing Regulations

The government shall provide for detail regulations and implementation guidelines of this Law.