REPUBLIC OF THE MALDIVES

ELECTRONIC GOVERNMENT PROCUREMENT

READINESS ASSESSMENT & ROADMAP

MAY 2007

Procurement Services Unit
South Asia Region

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Currency Unit = (MRf)
US$1 = MRf 12.75

FISCAL YEAR
July 16 to July 15

ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tr>
<td>ACB</td>
<td>Anti Corruption Board</td>
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<tr>
<td>AGO</td>
<td>Attorney General’s Office</td>
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<td>CPU</td>
<td>Central Procurement Unit</td>
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<td>GoTM</td>
<td>Government of the Maldives</td>
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<tr>
<td>MACI</td>
<td>Maldives Association of Construction Industry</td>
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<tr>
<td>MCST</td>
<td>Ministry of Communications, Science and Technology</td>
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<td>MoCPI</td>
<td>Ministry of Construction and Public Infrastructure</td>
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<td>MoE</td>
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<td>MoFT</td>
<td>Ministry of Finance and Treasury</td>
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<td>NCIT</td>
<td>National Centre for Information Technology</td>
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<td>SAO</td>
<td>State Audit Office</td>
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<td>SLA</td>
<td>Service Level Agreement</td>
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<td>SME</td>
<td>Small and Medium-Sized Enterprises</td>
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<td>TEB</td>
<td>Tender Evaluation Board</td>
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<td>TES</td>
<td>Tender Evaluation Section, MoFT</td>
</tr>
<tr>
<td>UNCITRAL</td>
<td>United Nations Commission on International Trade Law</td>
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<tr>
<td>UNSPSC</td>
<td>Universal Standard Products &amp; Services Classification</td>
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<td>WB</td>
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Vice President : Praful C. Patel
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PREFACE

Date and Basis of Report

This report details the findings, conclusions and recommendations of a World Bank hired consultant that visited Male, Republic of the Maldives, during February 20 - 28, 2007, in order to prepare an electronic Government Procurement (e-GP) Readiness Assessment and Roadmap. It was prepared by the World Bank for The Maldives’s Ministry of Finance under the funding of Japan 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 readiness assessment and roadmap for implementation are the first two components of the E-GP Assessment and Implementation Project, which is part of a wider ongoing program for procurement capacity building supported by the World Bank (WB) and the Government of The Maldives (GoTM). It is also a continuation of the GoTM’s program of public procurement reform.

Acknowledgements

Mr. Abdulla Jihad, Minister of State for Finance and Treasury, Mr Mohamed Ahmed, Assistant Executive Director MoFT, and some 17 senior executives, managers and specialists from eight public and private sector organizations who made their time and expertise available for the assessment and discussion meetings.

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Special thanks is also given to Mr. Saamee Ageel, Head of the Tender Evaluation Section, MoFT, and his staff members Mr Haisham Ali and Mr Abdulla Miad, for their support of, and input to, the assessment.
EXECUTIVE SUMMARY

Readiness Assessment

The assessment focuses on the degree of readiness of Government of The Maldives’s (GoTM’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). The e-GP Assessment was discussed individually with informed (stakeholders) respondents in the public and private sectors, who provided advice or comment on the degree of readiness of nine key components related to e-GP: government leadership, human resource planning, procurement planning and management, procurement policy, procurement legislation and regulation, Internet and electronic infrastructure, standards, private sector integration, and current e-GP systems and initiatives.

The assessment found

- adequate evidence that Internet and electronic infrastructure are in place and supported.
- little evidence that government leadership, planning and management, procurement regulation, standards, private sector integration, or e-GP systems are in place and being supported;
- no evidence that human resource planning, procurement legislation, or procurement policy were in place.

Respondents said that there is general support for the transition to e-GP. The only barriers seen were obtaining the required funding and the GoTM providing sufficient resources to fund its implementation. The key issues for the GoTM will be building trust with suppliers and ensuring the implementation is supported with appropriate training.

The e-GP Readiness Assessment Report made the following recommendations in regard to the implementation of e-GP in the future.

1. Develop a vision and objectives for procurement modernization to be made public as part of a process to develop an implementation plan for e-GP.
2. In a proposed implementation plan for e-GP, address the issues of the organizational structure and resources required for the MoFT to manage the changes proposed and support the public procurement process.
3. Initiate 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.
4. 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.
5. Identify a small group of people with procurement experience, and support them with a high-level procurement expertise person, to develop a core resource to support the planned changes in public procurement.
6. 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, and the input of the public and private sector respondents to a draft implementation plan.
This e-GP plan will need to complement the developing plans for ITC but not be delayed by those plans.

7. Review the procurement organization structure and functions within the Ministry of Finance and Treasury to ensure it is sufficiently resourced to meet the overall scope of the procurement issues to be addressed.

8. Review the current procurement processes in relation to their efficiency, flexibility, transparency, and other issues raised in this report.

9. As part of the implementation plan for e-GP, develop a policy statement and a strategy for its implementation.

10. Conduct a quick review of the existing procurement legislation, its regulations, procurement manual, and procurement process to ensure they will provide appropriate support for e-GP in the future.

11. Review the overall regulatory and management functions to sustain the good performance of public procurement to ensure an integrated approach is achieved.

12. Provide full support to the Ministry of Communications, Science and Technology to coordinate the development and implementation of procurement market and of technical system and management standards to support e-GP and other proposed e-services.

13. Develop a government strategy for achieving the more formal participation and involvement of the private sector to support the implementation of the many changes (including e-GP) that are likely to impact the government procurement environment.

14. Provided that the required procurement resources, technical support and training can be made available, the GoTM proceed to pilot an e-Tendering system to support the transition to e-GP.

These recommendations and a review of all the issues involved were then used to establish the Roadmap.

Roadmap

There is currently no significant e-Government Procurement website operational in the Maldives but there are no technical obstacles to the introduction of such a system. The level of readiness for e-GP in Maldives is quite low with the most significant problem being the lack of an appropriate lead agency to drive and sponsor this procurement reform. The establishment of a lead agency in the form of a Central Procurement Unit (CPU) is recommended, probably based around the existing Tender Evaluation Section (TES) in the Ministry of Finance and Treasury (MoFT). The preferred solution is for the CPU to be created and appropriately resourced as soon as possible. The prospective CPU will need to appreciate that e-GP is the preferred means of delivering good governance and efficiency from the outset, and steps should be put in place to ensure that the CPU is resourced accordingly.

The existing e-GP software development is just part of what is required; a full program and options are set out in this report, including a strong recommendation for following an incremental or phased approach to e-GP implementation in line with lessons learned in other jurisdictions.

The Roadmap sets out the features for a comprehensive e-GP service principally around e-Tendering, with some additional focus on workflow and contract management. Lessons from
experience in other countries are listed and a phased incremental approach to e-GP is recommended and defined, together with the resources that could be used to accomplish this. The report also identifies the next steps to be taken.

**Next Steps**

1. Establish the CPU or an equivalent central procurement lead agency with roles as outline in this report.
2. Ensure high-level political support for the program as a whole and its methodology.
3. Disseminate final Implementation Plan and hold meetings and roundtables to ensure familiarity by all actors.
4. Working from the schedule of features presented in the roadmap from this report, identify e-GP features that the CPU believes that it could readily implement.
5. Review existing system for implementation and amendment if necessary.
6. Develop a schedule for the phased developments of these features. The schedule should start with e-tendering, workflow management and contract management.
7. Identify the resource requirements for these phases and seek any required support.
8. Specify expertise required and where possible acquire these through internal retraining as specified in this roadmap.
9. Engage the technical specialist to assess CPU technical requirements.
10. From the schedule that is decided upon for e-GP, develop an implementation team to activate the program.
11. Assign the implementation team formal terms of reference and accountabilities for the program.
12. Engage in training as outlined in this roadmap.
13. Initiate e-signature and e-documentation legislation (see draft in Annex 4).
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 (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: selection of suppliers for works, goods and services through a bidding process;
- e-Purchasing: the purchasing of high-volume, low-value goods such as stationery, furniture and tools on the basis of a price quote;
- e-Contract Management: the development and management contracts to assist managers to provide good quality documentation, and to manage more effectively the quality of tendering and purchasing outcomes, their timelines and costs.

E-tendering through a central website is the most conspicuous part of e-GP but on its own is superficial. A procurement website is just a website. It has some good governance spin-offs in terms of transparency and supplier efficiency but does not deliver the most significant reforms of the management or governance of procurement unless it is integrated into the management, workflow and reporting systems of government, specified in part 4 of this report (Roadmap Specifications). This requires an e-tendering system, Electronic Document Construction and other recording and reporting capabilities if the true potential of e-GP is to be realized. It is considered here that the vision for e-GP in The Maldives should encompass all of these elements.

A more complete description of e-GP is provided in Annex 1.

1.2 Benefits

E-GP has the potential to greatly enhance the governance of a significant proportion of government expenditure each year. E-GP can increase the efficiency of the Government of The Maldives’s (GoTM) procurement administration as well as reduce the cost of government supply. Experience with e-GP in other countries shows that the resulting savings can amount to 15 percent or even more. In the case of The Maldives where the public sector is comparatively small these savings would be relatively modest but nevertheless significant in the context of the national economy. Typically the value of these savings will be on the order of one percent of GDP for every 5 percent savings in public procurement.
The experience of many countries is that traditional public procurement frameworks need to be able to improve their performance in terms of governance, efficiency, and value for money. However, it is clear that traditional procurement systems often have difficulty achieving these outcomes even when they are well designed and properly applied.

Reasons for this include traditional administrative processes that:

- do not provide the market with full information concerning total public-sector demand;
- do not provide government with full information on the market,
- often lack the transparency and accountability standards required for good governance, and
- are procedurally inefficient.

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

Traditional procedures also often limit the scope for competition and require strict oversight procedures that make the procurement process less efficient. When this occurs, delivery times are longer and processing costs are higher, both for the Government and for 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.

New technology has the capacity to substantially improve the governance and efficiency of public procurement and modernize the administration of the State. This technology has the capacity to drive procurement reform in 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, without other changes to the procurement organization, processes and supporting expertise. In the case of Maldives where procurement lacks high-level professional status, there is a risk that e-GP would be regarded as a software programme.

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 The Maldives.

1.3 The E-GP Assessment and Implementation Project

The GoTM assessed its telecommunications environment in 2001 from a policy, infrastructure, resources and implementation perspective.\(^1\) The Maldives IT Project 2001 set out implementation strategies for establishing a fibreoptic network to the 20 atolls, e-Portals for government services, community portals, Internet kiosks, broadband for the capital city Male, and the formation of a National ITC policy.\(^2\) Most of these strategies are

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\(^1\) Maldives Telecommunications Policy, GoM, Aug 2001

\(^2\) Maldives IT Project, ADB, 2001
in progress and major contracts were let in 2006 for the development of the e-Government Service Platform and the development of online applications. E-Procurement is not listed in the first set of services to be developed.

The 2000 Science and Technology Master Plan outlined the IT requirements to network the government ministries and the need to better co-ordinate the development of IT. It led to the setting up of the National Centre for Information Technology with the role of:

- providing IT policy and planning
- coordinating and reviewing projects
- development and management of standards and guidelines
- conducting technical reviews
- facilitating the development of the government network.

A high-level IT Strategic Plan is also currently being developed.

There is potentially a significant role for e-GP in The Maldives and the e-GP Assessment and Implementation Project is part of ongoing work funded by the World Bank (WB) and the GoTM to continue building procurement capacity in The Maldives’s public sector. E-GP offers potential to accelerate the capacity-building process and the normalization of procurement activity in The Maldives, along with advantages to the management of public procurement and to wider administration of the state, while promoting e-literacy in the public and private sectors.

The readiness assessment and roadmap in this report are the first two components of the e-GP Assessment and Implementation Project. The third and last component is to convene stakeholders to a workshop, planned for 2007, where they will review and discuss the assessment and the roadmap, agree how they should be finalized, and draft an implementation plan for the project. The final report and implementation plan will then be delivered to GoTM.

Although the conceptual framework that guides the project would normally require an agreed vision and goals for the procurement change process prior to definition of a roadmap (see Figure 1), this readiness review was undertaken even though the vision and goals have not been formally established in policy in The Maldives. 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.

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3 Science and Technology Master Plan, MoCST, 2000
2. READINESS ASSESSMENT

2.1 Summary of Methodology

Readiness indicators can provide signposts for choosing the best path for the implementation of e-GP. In The Maldives, the information for assessing readiness was provided through individual discussion with informed respondents in the public and private sectors (stakeholders). 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. They were also required to demonstrate evidence for each comment made. Lastly, a readiness level, using the scale shown in Table 1 was assigned to each component based on the aggregate responses received. 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

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>No evidence that the component is in place and no evidence it is supported.</td>
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<tr>
<td>2</td>
<td>Little evidence that the component is in place and little or no evidence it is supported.</td>
</tr>
<tr>
<td>3</td>
<td>Some evidence that the component is in place and some evidence it is supported.</td>
</tr>
<tr>
<td>4</td>
<td>Adequate evidence that the component is in place and adequate evidence it is supported.</td>
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</table>

A range of respondents from government as well as from the business sector were approached who are informed stakeholders in the government procurement environment. Seven public and private sector organizations involved in a range of functions that relate to public procurement provided advice or comment on the degree of readiness of nine key factors related to e-GP:
the Tender Evaluation Section (TES) and other parts of the Ministry of Finance and Treasury (MoFT),
the Attorney General’s Office,
the State Audit Office,
the Ministry of Construction and Public Infrastructure,
the Ministry of Education,
the National Centre for Information Technology, and
the Maldives Association of Construction Industry

2.2 Summary of Component Assessments

Despite the weaknesses observed, the implementation of at least the first phase of e-GP in the Maldives is entirely achievable within a reasonable timeframe and could help drive not only procurement reform but also wider e-government initiatives. 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-GP in Maldives

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<tr>
<th>No.</th>
<th>Component</th>
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<tr>
<td>1</td>
<td>Government Leadership</td>
<td>2</td>
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<tr>
<td>2</td>
<td>Human Resource Planning</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Planning &amp; Management</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Policy</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Legislation &amp; Regulation</td>
<td>1-2</td>
</tr>
<tr>
<td>6</td>
<td>Infrastructure &amp; Web Services</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Technological Capability/Standards</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Private Sector Integration</td>
<td>2</td>
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<tr>
<td>9</td>
<td>Systems</td>
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2.3 Observed Strengths and Weaknesses

There are several factors that are favourable for the implementation of e-GP in The Maldives at this time:

- There is growing realization of the need for the strengthening of procurement in The Maldives.
- There is some central procurement authority for policy and operations (MoFT and TES) that could be resourced to take the lead in this area.
- There are no significant pre-existing investments in e-GP systems in other government agencies.
- There is some support with few obstacles for procurement modernization from the business sector and the community.
- Infrastructure connectivity is good and quite adequate to support e-government.

There are clearly also major issues for e-GP and procurement reform in The Maldives to confront – in particular:

- There are procedures in place for procurement but it is considered to be a mundane administrative function and there is little in the way of vision or awareness of the possible benefits for technology in this area.
• There is insufficient technical capability to support most of this program from the Maldives business sector.
• There is a low level of experience of e-government development or capacity in the public sector.
• E-procurement legislation and regulations do not exist.
• The central procurement agencies appear to fragment the limited expertise available and undermine the potential for leadership and skills transfer.
• Policy development for public procurement is weak.
• All government ministries and departments are connected to the Internet and have their own websites, but there is no unifying architecture.
• No formal processes or training activities exist for private suppliers to participate in public sector procurement.

Overall, the most significant factors confronting any implementation of e-GP in The Maldives relate to the procurement and technical capabilities of the civil service and the absence of a vision or supporting policies in this area. A change management strategy to assist procurement modernisation has yet to be developed. Procurement is perceived as a mechanical activity and there is a danger that e-Procurement would be perceived as a software program.

The range of people with expertise in strategic procurement and implementation available to the Government is limited and is unlikely to be sufficient to support the implementation of current and any future planned reforms in procurement.

2.4 Key Conclusions

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

Government Leadership

The MoFT is clearly identified as the lead agency for public procurement. Its Tender Evaluation Section (TES) manages the bidding and evaluation process for public tenders above the threshold of MRF500, 000. Overall, the GoTM is providing resources to support the procurement process but has not developed a vision for public procurement as yet. It has developed a number of plans regarding the supporting ITC and e-Government environments.

Human Resource Planning

Some limited procurement training has been conducted previously. The positions and career structure of procurement managers and staff have not been reviewed recently and procurement is seen as a largely administrative function in other jobs. There was almost unanimous agreement from respondents that a wider range of procurement education and training needed to be made available to procurement specialists, public sector procurement managers and staff, technical staff, suppliers, and future employees (students) on a more formal basis. The training and education programs should have a comprehensive range of operational and strategic content and be readily available.

Planning and Management
A number of policies, implementation strategies and guidelines in relation to ICT development are in place that provide some context in which to develop a specific implementation plan for e-GP. There has been little recent planning applied to public procurement and the development of an e-GP implementation Plan will represent a timely opportunity to address a range of issues that need to be addressed.

Some external assistance may be required to raise the level of expertise and widen the role of the current TES (or other entity chosen) so it can quickly support the proposed e-GP implementation plan. The planning and management of e-GP is very dependent on these resources being put in place, particularly in terms of setting up more formal mechanisms for management and monitoring of public procurement trends and performance.

Respondents saw a number of issues with the current procurement processes. A review of the current procurement process and its guidelines needs to be conducted to provide a consistent, public basis for the procurement process at each level of cost. Such a review would also assist in focussing both the public and private sectors on the Government’s approach to procurement reform, and could also address any issues related to supporting the process with e-systems.

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

**Policy**

There is a fairly well-defined procurement process in place but there is a lack of policy to give it direction.

**Legislation and Regulation**

The existing procurement legislation, its regulations, and the existing documentation should be reviewed to ensure that it addresses existing concerns with the process and its eventual support by e-systems. Specific procurement legislation based on the UNCITRAL model procurement law could be considered. There is no existing legislation on e-transactions and the supporting commercial legislation is not fully developed.

The roles of the MoFT in public procurement, and of the existing review committees and the TEB in controlling and monitoring public procurement, need to be identified, and matched with the role of external regulators such as the State Audit Office (SAO) and Anti Corruption Board (ACB). Formal documentation is needed to show how these parties should 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 by providing comprehensive information for monitoring procurement activities. The establishment of a separate procurement regulatory authority could be considered at a later date.

Effective and 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 current telecommunications and Internet infrastructure in the Maldives can easily support viable e-procurement systems.

**Standards**

Some initial progress has been made in the area of standards. 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. Given that the Maldives is developing its ITC framework now, it is particularly important that standards set for the new public accounts system be structured so that it is interoperable with the planned e-Government service applications and future e-procurement systems. The procurement information on such future databases needs to be accessible to all stakeholders as it is important for future government decision-making, market analysis, and monitoring trends and issues. A February 2007 international survey of e-procurement systems in 15 countries by the WB, Asian Development Bank, Inter-American Development Bank documents the importance of this data in managing e-GP in the future.

**Private Sector Integration**

The private sector respondents were generally supportive of the transition to e-GP. However, the Government does not appear to have a formal approach to discussing procurement issues with the private sector and there are a number of issues to resolve. 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 has a potentially serious problem if it intends to continue with procurement reform and the introduction of e-GP. The support of government by the industry sectors and major supplier groups is essential for success. The key to the 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**

Government ministries are all connected to the Internet. The Maldives has the infrastructure and web services to conduct a pilot e-Tendering system, provided some of the key supporting components, (resources, standards and training) are put in place.

**Respondent’s Views on Priorities for Change**

There is general support for the transition to e-GP. The only barriers seen were obtaining the required funding and the GoM providing sufficient resources to fund its implementation. The key issues for the GOM will be building trust with suppliers and ensuring the implementation is supported with appropriate training.

3. **ROADMAP FRAMEWORK AND IMPLEMENTATION**

The roadmap presented here seeks to build understanding as well as an implementation program. For example, it is important to understand that e-GP implementation is not likely to proceed on a distributed basis without a lead agency. 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 new 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 The Maldives, foster 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 E-GP Objectives for The Maldives

A clear statement of the objectives of an e-GP program is an essential condition to developing this implementation roadmap. The management of public procurement is measured, in most countries, in terms of:

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

These objectives are also proposed here for e-GP reform, plus a fourth that is capacity building, and all of these objectives would be relevant to The Maldives (see Figure 2).

While GoTM may have tentatively and implicitly accepted the objectives of efficiency and governance for public administration, it may not as yet have recognized the potential for e-GP for achieving these and other benefits. There are aspects of e-GP that can be particularly beneficial for e-government and the wider promotion of economic productivity. Thus for example, well-designed e-GP is significant in driving the take-up of online technologies into both the public and private sectors, and the technological enablement of the private sector has been shown to be a powerful contributor to national economic productivity.

Also for the Maldives public procurement requires development into a more professional stream and e-GP drives this by doing away with the more mundane aspects and allowing procurement officials to be able to address more significant and strategic issues including the production of important management information that is unavailable in the paper world.

For The Maldives the four key objectives in Figure 2 would seem to be highly appropriate. The e-GP systems are appropriate for capacity building and oversight and equally for management of procurement. This means that e-GP can be deployed to accelerate capacity building, management modernization, business productivity and procurement reform.

It is recommended that the The Maldives e-GP initiative formally adopt the objectives in Figure 2 as the goals for e-GP. The four objectives are often interrelated and mutually reinforcing. These objectives guide the development of the implementation roadmap and
shape the specifications that follow. The issues are primarily about design, standards, and management rather than resources.

3.2 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 themselves, such as reverse auctions, business profiling and the possibility of framework contracts.

E-GP provides the scope to address much of this modernization by providing much stronger information management to deliver transparency with streamlined processes. To allow this to occur the procurement management rules and processes need to be designed within a modern technological context. This usually requires deep reform of these processes but in the case of The Maldives where these management systems are still under development or evolving, then it may be that streamlined processes can be introduced at the outset. This possibility is contingent on the presence of a management technological capability and capacity.

Therefore it is recommended that the capacity-building activities in The Maldives public sector undertake a review of procurement rules and management processes to identify those that can be streamlined into a modern electronic environment, rather than starting with traditional rules for the non-electronic environment. Examples include the rules for the selection of companies to tender or to provide quotes, pre-qualification procedures, procedures and rules for handing over tendering documentation, rules for tender 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 legislation but without defining a meaningful electronic counterpart. Other issues include online authorisation and control of processes such as contract and document variations; control of collusive practices; and electronic records management and audit.

Similarly it is recommended that the development of new rules and processes ahead of devolution are able to ensure consistency across the public sector so that a single e-GP framework can operate. A single framework is an essential characteristic of successful E-GP. E-GP can be customised to the management requirements reflecting procurement accountability in each agency. The consistency of these processes including reporting standards needs ultimately to be one of the roles of the central procurement agency.

There also needs to be a drafting of the regulations subordinate to the procurement law that ensures compatibility with electronic processes. The principal area of concern is whether to require the application of digital signatures to tendering documents for them to be valid; some countries have not required this. It is recommended that, in the case of smaller value purchases, 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. Use of electronic signatures would be more consistent with business practice, is less complicated and less expensive, and is common in other countries. For larger valued purchases with international tenderers and higher risks, correspondingly more stringent authentication may be preferred and digital certificates provide one answer.
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 defined to include not only management practices in the electronic environment but also to cover circumstances of

- inconsistency between electronic and hardcopy documentation,
- malfunction of government facilities,
- electronic tender opening protocols,
- electronic tender security,
- electronic contract development for template and document consistency, and
- small and medium enterprise (SME) engagement.

Policy should be designed around accountability principles but also around e-GP technology considerations (see e-Contract Management section below).

It is **recommended** that the central procurement unit gain a full understanding of the issues that surround the use of digital signatures, including a careful consultation with the private sector, before any attempt is made to implement these as part of the electronic tender submission process, and that consideration also be given to business solutions including electronic signatures for authentication. It is **recommended** that an international e-GP legal consultant be engaged to assist with the drafting of the regulations.

### 3.2.1 E-Signature Law

Downloading of electronic documents and uploading of electronic tenders from suppliers may require these e-documents and the electronic signatures attached to them to have legal status. These two simple requirements define the legislative requirements for e-procurement. There have been various evolutions of this legislation in other jurisdictions in parallel to the evolution of thought from UNCITRAL, which has now moved to a truly technologically neutral position on this issue. Draft legislation reflecting this most recent understanding is presented in Annex 3. An international consultant should be engaged to assist in drafting the regulations under this legislation.

### 3.3 Roadmap Implementation and Capacity

#### 3.3.1 Leadership

The single most important factor for e-GP implementation is leadership. E-GP is most unlikely to be implemented successfully as an entirely devolved initiative or one that is facilitated as a second-level reform after traditional capacity building. Very little of e-GP implementation can take place via the acquisition of a software package. E-GP is the combination of skills, processes, rules, legislation, software and hardware. Just as in other administrative fields, the skill level requirements with e-GP are higher than for traditional procurement partly because the routine management processes are computerized. Just as in other parts of administration, computerization requires new standardizations and protocols and these cannot emerge or be implemented in a devolved environment. Leadership is central and if it does not exist, it needs to be created.

Currently in the Maldives procurement policy comes under the MoFT and operational procurement under the Tender Evaluation Section (TES) within the MoFT. The Tender Evaluation Section (TES) within the MoFT is responsible for developing the bidding
documents, conducting the bidding and evaluation process, and providing the evaluation report to the Tender Evaluation Board (TEB) and handling complaints. There is scope for some conflict of interest within the TES. The host ministry works with the TES and provides specifications, drawings and other information as required. The TES has 8 staff and also supports the functioning of the TEB. The TEB was established in 1990 and reviews all contracts over 500,000 Mrf (USD 39,000). Its 10 members are drawn from the public and private sectors and it is responsible for the final decision to award each contract.

To create a vision, set objectives and drive their implementation requires a central lead agency. New management protocols and the application of e-GP need to be driven centrally and will require procurement capacity building and also the development of procurement policy and regulation. It is appropriate that this central function remain in the MoFT and could be an enhanced TES. It is recommended that a Central Procurement Unit (CPU) be created to enhance the role of the MoFT to drive a modernization of procurement including the application of e-GP.

The CPU would be the lead agency to take charge of this e-GP strategy. It is further recommended that there should not be an implementation initiative for e-GP from outside this lead procurement agency (or similar). The technology department is not the appropriate choice for this e-GP role, which is primarily about procurement rather than technology. The CPU would be responsible for e-GP specifically to ensure that it has policy authority across this area and to ensure that there is no separation between procurement and e-GP. This agency can only be successful if it has the capabilities, mandate and seniority, as well as the skills to perform these duties.

The CPU’s authority should include a capacity to:

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

It is of basic importance that the CPU appreciate the potential of e-GP at the outset and recruit individuals into its structure who can understand and become champions of e-GP; without such staff at inception the CPU would then need to undertake an internal reform process of its own at a later date.

The roles of the CPU should be developed from the local context rather than from a textbook. It is futile having it define, regulate and monitor competitive tendering and purchasing policies or technology-based reform where the expertise in government does not exist to drive these or where there is insufficient industry competition to respond with integrity. Similarly for many jurisdictions including The Maldives, procurement expertise will be so scarce that it is not practical to split the roles of the regulator from some roles of procurement management. Such a split would be desirable in textbook management but can at best be aspired to after extensive professional development in central government entities. And while combining regulatory and operational roles is not best practice under normal circumstances, in the case of a jurisdiction with thin capacity this is an appropriate starting point and has also been found in some developed jurisdictions. Some jurisdictions make no attempt to split these roles (for example: UK’s OGC). Some examples of such roles in other jurisdictions are listed in Table 3.
Table 3. Centralist Activities and Responsibilities in 9 Countries

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3.3.2 Strategy

The CPU needs to define an e-GP strategy. In doing this, it should not perceive that the e-GP agenda can be attended to once it has addressed other procurement reform issues, but rather that e-GP represents the single most powerful instrument for procurement strengthening and reform. It is therefore recommended that the CPU adopt e-GP as a priority strategy in its new role. It is recommended that the components of Figure 3 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 CPU 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. It cannot be a software acquisition strategy if it is to drive significant change.
3.3.3 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. 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. This will only impact corruption if non-government institutions (such as the media) and the public are interested in using this newly available information to demand accountability through the political processes of the country.

3.3.4 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 to match the resources, development and the business model. Such a risk-managed approach is to be recommended over a one-time changeover approach that would carry high risk of incompatibility with user skills, needs, policies and resources. The complexity and cost as well as the legislative requirements and integration issues of the various sub-components mean that the recommended path of this phased implementation should be structured along the lines shown in Table 4, although this should not be regarded as prescriptive and variations around this may be equally suitable. The phased nature of this strategy is not required to match the development of the technology (which already exists) but rather the capacity of management and procurement practitioners to adjust.

Table 4. E-GP Implementation Phases

<table>
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<tr>
<th>Phase 1</th>
<th>Online Information Service</th>
<th>E-Tendering, E-Management</th>
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<td>e-Tender Advertising</td>
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<td>Phase 3</td>
<td>Catalogue Purchasing</td>
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The sequence of tasks in this optimum process design

- facilitates institutional changes and the modernization of the civil service;
- promotes a learning process towards e-GP
- starts from the simplest functions and progresses to the most complex along a controlled development path
- makes for faster, less expensive, institutionally sound introduction of e-GP
The order of the e-GP implementation phases recommended for The Maldives as shown in the table is consistent with experience in many other countries but advances the development of the management systems that in many other countries are pre-existing to some degree. This is an unusual order of events because it seeks to enable the technological capability of agencies with procurement training to give substance to web services that are otherwise of minimal significance. Of particular significance is the recommendation that the first developments be around e-tendering. There is little prospect of introducing e-purchasing in the initial stages of e-GP in The Maldives and no prospect of e-reverse auctions until a more competitive domestic supplier base has developed.

Because the central website will ultimately permit access to full tendering 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 e-tendering documents and permit them to be downloaded on demand, it is necessary to verify that the final and legally valid versions of these documents are available, that they include all the relevant information (including graphs and blueprints), and that the clarifications issued during the process are attached. Pre-requisites include simplification and standardization of tendering documents across government departments, establishment of a complaints function by the CPU for e-procurement procedures, and Internet access to tendering documents and access via office and fax.

**Recommendation:** The CPU needs to establish a timetable for the deployment of e-GP phases that takes into account the managerial, policy, training, and business issues. This timetable will be published for use by government suppliers and government agencies.

It is recommended that any e-GP systems development or acquisition must be compliant with an e-government enterprise architecture that also needs to be defined concurrently for the technological enablement of the civil service. This enterprise architecture will define many of the non-functional requirements of the system; others are listed in the checklist of Annex 1.

### 3.3.5 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. Failure to address this issue led to a lack of confidence in adopting e-GP and extended the time to implement it.

Given the shortage of procurement expertise in The Maldives, it is recommended that the CPU and capacity-building facility combine its procurement activities with a human resource up-skilling and orientation program for e-GP, for its own staff and any other trainees. The CPU itself needs to start by recruiting individuals into its structure who can understand and drive e-GP, and then train to become a champion of this modernization, with its staff migrating to the agencies over time. It is recommended that all members of CPU undertake an executive orientation workshop and course of a 2-3 days on e-GP to aid the development of common goals.

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It is appropriate that e-GP training lead this capacity-building because e-GP can considerably simplify the training requirements and the associated rules. If traditional training is undertaken first, it will obfuscate the understanding of e-GP and may also create some resistance to its introduction. This roadmap can be used as part of the content for this training as well as delivering against actual operational requirements. The capacity building should include

- an orientation and awareness program and workshop / laboratory for e-GP of 2-3 days for all procurement officers and trainees,
- access to policy, management and technical advice through a Support Service, and
- an awareness program for dissemination of e-GP objectives and characteristics to all stakeholders including executives and policy officers

The capacity-building process will recognize that for professional procurement officers, these new approaches offer new opportunities and up-skilling.

### 3.4 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 CPU would best be served by assembling an internal implementation team to manage the resources and the implementation of e-GP.

#### 3.4.1 Implementation team

It is recommended that the CPU create an implementation team that includes:

- an e-GP strategist with overall understanding of the vision and direction of the program (procurement consultant);
- a technical specialist in online technologies who is capable of overseeing the technical integrity of an external service provider and any internal developments (technical consultant);
- a business manager who will manage the contractual relationship between the CPU and the service provider if the service is provided by a third party and will monitor performance (existing internal resources).

The Terms of Reference for the key specialist consultants are provided in Annex 4. These three might not represent a net increase in the CPU staffing levels; rather the initial resourcing of the agency should be designed around technological enablement in the first instance. All team members should join the rest of the agency for the mandatory executive orientation workshop and 5-day e-GP course.

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 6 months and almost all can be developed concurrently as 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. Pilot testing is not necessarily required as there is now considerable experience with these developments.

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, Azerbaijan, and Australia.

3.5 Outsourcing Service Delivery and Support

While maintaining control of its procurement activities the CPU should be focussed on its objectives and on monitoring results and outcomes. The CPU need not become a software developer to achieve its desired outcomes. Private sector inputs of management, hardware, software, and communications are an option, as are the development and support services of technology firms. However the CPU should have 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. Just because a service provider claims that their system is up to specifications including security does not mean that it is.

**Recommendation:** The CPU 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 guide how additional developments should be undertaken, for example, ongoing maintenance. In some countries a small fee is charged for online tender submissions directly by the service provider so that the service viability is never subjected to government budgets; fees are not the preferred option because they discourage competition but if fees are to be applied this is the recommended approach. Charges for downloading of documents are not advisable as these will discourage competition and transparency. It is recommended that the business model consider a third party service provider.

The CPU will require additional expertise to assist in manage risks, which can be significant. If this is the preferred model it is recommended that the CPU use this report to help it understand the issues and construct a service level agreement (SLA). The CPU will need the services of a technical specialist and a procurement specialist on the implementation team to help define and manage its risks with the service provider (TOR in Annex 4).

**Recommendation:** The CPU 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. Any software development for The Maldives by a private developer should require that the software also be held in escrow on behalf of the government in case the service provider is unable to deliver in the future. Software should preferably be based on open standards and be easily portable between providers and platforms.

Also there is the issue of perceived and actual security of online tender 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, and because there is likely to be actual risk around this part of the service internally or in the service provided, it is recommended that the CPU establish a third-party service provider in an alternative location with robust governance standards (Canada, UK, Scotland, New Zealand) specifically for a virtual tender box service. The remote location would have no effect on the service itself, would be invisible to users, and should be funded without resort to the budget sector.
3.6 Private Sector Activation

All markets, including those relevant to e-GP, are comprised of a buyer (demand) side and a seller (supply) side. The participation of the private sector cannot be taken for granted, so it is important that e-GP provide real value to the private sector. 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 CPU.

The e-GP strategy also needs to ensure that the local IT industry understands the program. The Maldives IT service industry may be capable of meeting some of these requirements, but may require a lead from the Government about the Government’s determination to carry this program through and that it has the capacity to do so.

**Recommendation:** The CPU, 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 business seminars, e-mail, advertising, and through the business associations. This strategy will address:

- existing suppliers, potential suppliers
- business association involvement, including any IT industry association
- business selection and listing policies
- push-out services
- cost recovery
- kiosk services, 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.

3.7 Schedule and Costs

An indicative timeframe of activities to implement e-Tendering is set out below.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Expected output</th>
<th>Start Month</th>
<th>Duration</th>
<th>Related issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Engage ICT consultant.</td>
<td>Assess infrastructure and procurement reporting status of lead agencies.</td>
<td>1</td>
<td>Two months</td>
<td>Required to prepare the BPR.</td>
</tr>
<tr>
<td>2. Select consultant for e-tendering system planning and review.</td>
<td>Review existing system, security and future development plans.</td>
<td>2</td>
<td>Two months</td>
<td>Donor funding required.</td>
</tr>
<tr>
<td>3. Initiate e-tendering.</td>
<td>Operationalize e-tendering phases with lead agencies.</td>
<td>3</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td>4. Select national consultant for training.</td>
<td>Develop online training module; train the trainer.</td>
<td>3</td>
<td>One month</td>
<td></td>
</tr>
<tr>
<td>5. Select procurement consultant to align agency</td>
<td>Work with ministries and CPU to align the data, systems, templates, and</td>
<td>3</td>
<td>Six months</td>
<td>Requires single whole-of-government</td>
</tr>
</tbody>
</table>
### Activity | Expected output | Start Month | Duration | Related issue
---|---|---|---|---
management systems. | reporting across government. | | | strategy. |
6. Conduct training for procurement entities. | Train procurement entities in e-GP through local training institute. | 4 | Once a month ongoing | Requires coordination with e-government. Paces rollout of e-GP. |
7. Conduct IT infrastructure scoping for lead agencies. | Procure and install IT infrastructure for e-GP in lead agencies. | 4 | One month. | |
8. Conduct awareness activities among stakeholders. | Hold workshops, seminars for stakeholders, customized training program for tenderers. | 4 | Ongoing | |
9. Implement universal extension of e-tendering and e-contract management. | Launch e-Tendering and e-contract management in all entities handling public procurement. | 8 | Ongoing | Depends on the outcome of lead agency experience and IT infrastructure feasibility study. |
10. Extend single portal operations. | Include capability for secure tender submission and additional management capabilities. | 12 | Three months | Address security issues and policies and sign off on them. |
11. Assess system impact. | Monitor, review, amend system. | 20 | Three months | |
12. Conduct IT infrastructure feasibility study. | Assess IT infrastructure to implement country-wide e-Procurement. | 20 | Three months | |

Indicative costs for e-Tendering implementation as per this activities timeframe are given below, assuming outsourced service provider. The cost of this program is sensitive to a range of factors and could be substantially reduced.

### 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 – 2 months. | One consultant to review, monitor and guide the implementation of system. | $50,000 |
3. Annual maintenance, support, helpdesk for e-GP system. | Yearly maintenance fee based on software & installation cost of the system. | $112,500 |
4. IT Infrastructure | Some hardware, LAN, WAN and Internet to procurement entity – may duplicate other developments – possibly $0. | $0 - $300,000 |
5. Consultant – Training | Develop the training module and train the trainer, (1 month) | $4,000 |
6. Training – Procurement | Provide detailed e-Tendering training to | $3,500 |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Assumptions</th>
<th>Estimated cost (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>entity through training institutes</td>
<td>procurement entities. Considering one training session per month for 10 people = 3 month program.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Awareness activities among stakeholders. To include businesses, media. Major suppliers to be invited to interactive presentations, literature to be prepared.</td>
<td>Workshops, seminars for all stakeholders and customized training program for tenderers including broad publicity &amp; e-learning.</td>
</tr>
<tr>
<td>8</td>
<td>Feasibility study for introduction of e-Contract Management</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Personal development / scholarships</td>
<td>Three scholarships @ US$10,000</td>
</tr>
<tr>
<td>10</td>
<td>Contingency</td>
<td>Considering 10% on total value</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>

### 3.8 Next Steps

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

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

- Establish the CPU or an equivalent central procurement lead agency with roles as outline in this report.
- Ensure high-level political support for the program as a whole and its methodology.
- Disseminate final Implementation Plan and hold meetings and roundtables to ensure familiarity by all actors.
- Working from the schedule of features presented in the roadmap from this report, identify e-GP features that the CPU believes that it could readily implement.
- Review existing system for implementation and amendment if necessary.
- Develop a schedule for the phased developments of these features. The schedule should start with e-tendering, workflow management and contract management.
- 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.
• Engage the technical specialist to assess CPU technical requirements.
• 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.
• Engage in training as outlined in this roadmap.
• Initiate e-signature and e-documentation legislation (see draft in Annex 4).

4. ROADMAP SPECIFICATIONS

This chapter 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 and are designed to encourage international compatibility as well as good governance, efficiency, and economic development.

The development of an e-tendering site is just a beginning and is insufficient to provide the momentum for e-GP without the policies, operating rules, templates, leadership, resources, support and training to operate it successfully and integrate it into management. This chapter provides information on the operating rules, templates and many of the non-functional requirements for an e-tendering system and other systems that are required for a full transformation, including e-Contract Management, E-Contract Development and the PMIS. Further details on the templates and many of the non-functional requirements are provided in Annex 1.

Much of the data required to support this functionality will be generated by a comprehensive PMIS, and linking the PMIS system automatically with the e-tendering portal would fulfill most of the functional requirements. For this reason the implementation of the PMIS in The Maldives is recommended as a priority for capacity building and the reform of procurement.

4.1 E-Tendering Specifications

The development of the e-tendering service requires the posting of all tendering information on a central Internet site and the streamlining of traditional systems of contract development and contract management. The recommended approach for The Maldives is a central procurement website (Portal) to be enhanced over time to reflect the capabilities described here.

Recommendation: The functional capabilities that make up a comprehensive e-tendering service suitable for public procurement in The Maldives are 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 tender opportunities
• downloading of tender documents and technical drawings
• awarded contract information
• intelligent search facilities by locality, business type and value if applicable
• early tender advice on tenders currently under preparation in public agencies
• electronic submission (lodgement) of tenders by suppliers
• customized email notification of new tenders and amendments to suppliers
• an online tracking capacity for suppliers in relation to their tender 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

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.

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 rules and capabilities which make up the technical and policy requirements of an e-tendering service suitable for public procurement in The Maldives need to be specified as described in 4.1.1—4.1.11 below. Many of these rules are management protocols rather than technical design elements and need to be specified and supported independently of the system itself. The CPU needs to be in a position to monitor and regulate their application.

**Recommendation:** The operational rules and capabilities that make up the technical and policy requirements of an e-tendering service suitable for public procurement in The Maldives will be specified as described in this section. Many of these rules are management protocols rather than technical design elements and need to be specified and supported independently of the system itself. These rules are not especially difficult to implement even in ill-equipped administrations. The CPU needs to be in a position to monitor and regulate their application.

4.1.1 **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 tenderers / 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 tenderers/ 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, reflected in the system.
- The system performs reliably and securely in time-sensitive, commercial application.

4.1.2 Advertising

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

- All tenders are posted on the central website 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 tendering 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 tender advertisements and results disclosures are not restricted except in special security circumstances.

4.1.3 Correspondence, amendments, and clarifications

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

- All clarifications and amendments of the tendering documents, as well as any pre-tender conference minutes, are posted simultaneously onto a tender tracking page of the tender advertising website. Tenderers 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 ensure that only authorized changes can be made.
- In case of any amendments to the Tendering Document/RFP by the Contracting Authority, the system does not replace the Tendering 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 Tendering Document/RFP.
- The system tracks receipt by tenderers/consultants when distributing pre-tender amendments and clarifications online.
- Online conferencing and chat facilities do not function after the tender submission deadline.

4.1.4 Tendering documents

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

- The use of standard tendering documents/RFPs is required. There must be no difference between electronic and print versions of the tendering documents/RFPs.
– The tendering documents use the contract procurement language as the catalogue standard defining its requirements.

– The system ensures the integrity of tendering documents in electronic format, and their online publication. Amendments are similarly secure and stored with the tendering document.

### 4.1.5 Submission of tenders/proposals

The rules for online tender submissions are designed to strengthen governance around the tender management process. The development of the security system for online tender submission requires developers experienced in this particular task and a clear understanding of the management protocols by the operator. These issues can be discussed in full.

– There are security arrangements to ensure confidentiality and integrity of tenders/proposals in electronic format.

– Tenders/proposals submitted online are virus-scanned by the system before being uploaded and accepted into the online tender box, and where this causes a tender to be rejected, the tenderer/consultant is notified immediately by the system.

– Online submissions are received into an electronic tender box and maintained to high standards of security for long-term record-keeping and audit. At no time are tenders/proposals in unencrypted format. Copies taken and decrypted for tender 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.

– Tenderers/consultants are allowed to submit modifications to tenders/proposals or withdraw previously submitted tenders/proposals electronically up to, but not after, the time of the tender 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 tenders/proposals in electronic format the submission or modification of which is completed at the time of the tender submission deadline. Receipt of electronic submissions, including the date and time, must be acknowledged immediately, and are also be sent electronically.

– The date and time for the receipt of tenders/proposals is the same whether submitted electronically or on paper.

### 4.1.6 Public tender opening

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

– Electronic and or print tenders if submitted are opened in a public opening at a location and time (deadline) designated in the tendering documents.

– Tenderers/consultants who choose to do so may attend the tender opening and are invited to sign a record of attendance. Information read out at the tender opening (prices, offered discounts, and pertinent information) is simultaneously posted on a website. A record of the tender opening must be kept in print copy and signed by individuals authorized to
initiate the opening. The tender/proposal opening minutes are freely available by means of a website download.

- Tenders/proposals in electronic format are protected against access by unauthorized persons until the publication of the contract award.
- The CPU ensures that, for RFPs, financial proposals in electronic format shall only be accessed and opened after the evaluation of the technical proposals.

4.1.7 Tender evaluation and contract award

Automated evaluation processes impose severe constraints on the evaluation parameters unless the tender has been subjected to a two- or three-stage process. Automated evaluation may be inconsistent with the current management roles and expectations of the CPU and needs to be considered carefully before it is activated. This function is recommended provided that tendering documents can be suitably structured, which will depend on the skill level of the procurement officials. The online publication of contract awards is important and is designed to strengthen governance, competition and confidence.

- The system may use pre-approved automated evaluation processes so long as the evaluation (i) aligns with the criteria established in the tendering documents, (ii) is consistent with the principles of economy, efficiency, equal opportunity, and transparency, and (iii) results in contract award to the lowest-evaluated, responsive tenderer/consultant.
- Contract awards are published online consistent with tender advertising.
- The system shows the tenders that have been entered, together with the identification of successful and unsuccessful tenderers.

4.1.8 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.
- The contracting agency or the CPU indicates in the Tendering 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 CPU does not accept any responsibility for failures or breakdowns other than in those systems strictly within their 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.

4.1.9 Authentication

The CPU should carefully evaluate whether digital Certification/Signatures are to be required as a condition of tendering, or whether management systems can be used instead. Digital certification is not recommended as the preferred option, but if adopted the following rules will apply:

- The certification process certifies tenderers for a reasonable period of time (at least one year) and tenderers are not required to request a certification for each tendering process.
- The certification process is kept open permanently, allowing tenderers to submit the request for certification at any time, in order to allow them to register in advance for future tendering processes.
- The certification process allows international tenderers 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 tenderer, or (ii) submission of online or offline documentation for certifying the authenticity of the tenderer’s representative, accepting such documentation as can be obtained under commonly used procedures in the country of the tenderer (for example, no notarization in consulate or embassy is required).
- The certification process does not require a tenderer to submit mandatory information from a location outside the tenderer’s own country.
- Consideration and consultation is required to address the practice by some countries of not requiring tenderers to pre-qualify. An accreditation application must be filled out only by the winning tenderer, who is given a reasonable time period (stipulated beforehand in the tendering documents) to do so. In the event of noncompliance, a penalty is applied and the contract is awarded to the second tenderer on the list.

4.1.10 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.

4.1.11 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 tenders. The submission by all
government agencies of plans detailing scheduled tenders should be mandatory.

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
CPU including:

- online 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 CPU needs to identify supplementary information services to be
provided by the system and develop a service to deliver these through the central site.

### 4.2 Workflow Management

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. It is **recommended** that the CPU adopt the following specifications as the
foundation for workflow management.

#### 4.2.1 E-Tendering system

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

The central role of this system is to allow tenders 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 tender process.

#### 4.2.1.1 Electronic Tender Document Construction

ETS should provide the authorized official with an Electronic Tender Document
Construction (ETDC) facility based on the use of standard tendering 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).
As well as automating posting of tendering documents onto the central site and guiding the management of the process, ETDC also provides the means by which tenderers can track their tender via the central portal.

The ETS should provide a library of standard tendering documents with contractual templates for different categories of procurement. The tendering document templates should use the contract procurement language as the catalogue standard when defining requirements and should be listed online. The final document should be in a format accessible to common packages such as Microsoft Word and Mac, so that general users as well as suppliers can download tendering documents.

### 4.2.1.2 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.

### 4.2.1.3 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 tendering approval limits.

### 4.2.2 Document Classification

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

- EOI - Expression of Interest
- RFQ - Request for Quotation
- RFP - Request for Proposal
- RFT - Request for tender
- FC - Framework Agreement

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

### 4.2.3 Document addendum process

The ETS must maintain information about the content and timing of addenda to tenders. In case of any amendments to the tendering document/RFP, the ETS system does not replace the tendering document/RFP by a new one, but rather provides such amendment by means of an additional document in line with the same distribution mechanism as for the tendering document/RFP.
4.2.3.1 Enquiries about tender addenda

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

4.2.3.2 Add a tender addendum

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

4.2.3.3 Change or delete tender addendum

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

4.2.4 Manage workflow actions

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

When the tender method is selected, a pre-tender 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 tendering approval limits.

4.2.4.1 Tender evaluation

The ETS should be able to undertake automated evaluation processes where these have been defined (this will generally not be the case) in the standardized tendering documents and in doing so ETS should be able to identify the winning tender and post it immediately onto the portal.

4.2.5 Register contract award

Line items in the tender may be awarded to different tender submissions (there may be more than one tender submission per tenderer). A flag may be set according to the tendering 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

4.2.6 Electronic tender lodgement

ETS should be able to securely and confidentially receive tender submissions electronically. Tenders submitted electronically must be stored securely and confidentially.
4.2.6.1 Supplier access

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

- To execute online lodgement a supplier shall access the portal where a tender lodgement icon will appear.
- Activating the tender lodgement icon will display a list of current tenders for which online lodgement is available.
- The tenderer can click the ID of the tender they want to lodge against. If the tender 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 tender they have selected so that the tenderer can verify they have selected the correct tender. They can then click the icon for lodging tender submission. Multiple files can be lodged, including those that accommodate the two-envelope system. Multiple tenders will be lodged separately.
- The tenderer 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 tender 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 tender is received in full before closing time will it be accepted. A receipt message will be sent to tenderer acknowledging receipt and time of receipt.
- Submissions that are corrupted during transmission are rejected. This policy should be clearly communicated to potential tenderers.

4.2.6.2 Authentication

The electronic tender lodgement system should be able to manage the authentication process if digital authentication is a policy requirement. This function will form part of the tender lodgement system to be implemented separately.

4.2.6.3 Tender box opening

The authorized agency official along with two or three witnesses will log on to the tender 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 tender response is downloaded it is the responsibility of the agency officer to ensure its security.

4.2.6.4 Late tenders and tender closure

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

4.2.6.5 Multiple suppliers (framework agreements)

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

4.3 E-Contract Management

Government agencies typically manage numerous contract relationships simultaneously, each with various deadlines, expiry times, conditions and performance criteria. For construction contracts the problems are even more difficult and complex. Tenders 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. It is recommended that the development of a contract management system as specified here be undertaken concurrently with the development of the portal and capacity building. The development of this function would assist in the establishment of standard procedures as well as with capacity building.

4.3.1 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 CPU, with the participation of the relevant 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. This development will require effective leadership and authority from the CPU. This function illustrates why e-GP needs to be effectively integrated into management systems rather than consisting simply as a stand-alone web procurement portal.

### 4.3.2 Development of a PMIS

It is most common for countries to commence with the development of the electronic Internet procurement portal and build e-functionality around this portal. A complementary course of action for The Maldives would be to concurrently undertake management development and to mandate a Procurement Management Information System (PMIS). The development of a PMIS by the CPU would also apply by mandate to any other agency and would provide a valuable opportunity to integrate management systems with online technology.

E-GP implementation in The Maldives can be strengthened by integrating with management information systems at an early stage, and this would also help drive e-government generally. A consolidated template can be developed for any agency that accommodates specialist requirements with the scope for other optional data fields but also establishes a common core of data. As agencies move online their old paper-based processes are discontinued. 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 PMIS that will deliver all of the objectives for e-tendering including management integration with technology.

It is **recommended** that the CPU, with the participation of a technical specialist, map PMIS development. The PMIS should be designed to integrate with any other 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.

#### 4.3.1.1 Procedural rules

Procedural rules include the rules for the selection of companies to provide quotes, pre-qualification procedures, procedures and rules for handing over tendering documentation, rules for tender 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 (i) authorization and control of processes such as contract and document variations; (ii) electronic records management and audit; and (iii) standardization of contract terms and conditions.

The PMIS provides the basis for determining the data collection and standard reporting requirements for the e-GP system. PMIS also assists in the determination of any supplementary information that may be required for ad hoc reports from the system.
**4.3.1.2 Management and information systems**

The PMIS encompasses contract development, the tendering process, contract management, and reporting, including the subsystems listed in Figure 4 and their functional and non-functional requirements. The data management requirements of the system need also to identify and differentiate between framework contracts, agency-specific tenders for goods and services, construction consultancies, construction works, and supplier performance.

**Figure 4. E-GP Information Sub-Systems**

| e-PMIS → | • E-Tendering System (ETS)  
|          |   – E-Tender Document Construction (ETDC)  
|          |   – Tender Workflow and Data Management  
|          |   – Tender Advertising and Award  
|          |   – Contract Management Information and Registers  
| e-PMIS → | • Contract Management System  
| Portal → | • Works Management System  
|          | • Government Procurement Portal (GPP)  
|          |   – Procurement legislation, regulations & policies  
|          |   – Tender Advertising & Procurement Plans  
|          |   – Tenders Awarded, Archived Tender Information  
|          |   – Tender Search Capabilities by Industry and Location  
|          |   – Tender Process Tracking  
|          |   – Documents Download  
|          |   – Drawings Download  
| Registries→ | • Supplier Registry and Tender Registration  
| ETL → | • Tender Lodgement System (BLS)  

**4.3.2 Data field requirements**

The consolidation of the PMIS will lay the foundations for e-tendering, 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 customized for each agency but should have a central core that includes:

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

4.3.3 Supplier and government trainer

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

4.3.4 Reporting

Tender committee decisions and meeting minutes should be recorded in the ETS because they form part of the action sequence in the relevant tender method as well as part of the audit trail. Agenda item numbers should be allocated and reports generated for tenders and procurement plans that the relevant tender committee will consider. ETS should identify the difference between a tender and procurement plan submission to a tender 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, tender reference number; tender description; successful tender; date accepted; tender amount, officials ID at each stage)
- produce standard reports in ETS system as specified by the CPU that can readily be extended over time;
- produce standard notices in ETS:
  o notices to advertise the tender
  o notice of tender submissions, accommodating
    ▪ the two-envelope system (prices not released)
    ▪ the modified qualifications based criteria selection (prices not released)
    ▪ the standard system
    ▪ building works tenders;
  o successful / unsuccessful notices to tenderers;
  o for building works:
    ▪ notices for tenderer under consideration or not under consideration
    ▪ contract award notices
  o decline of all tenders notices;
  o addenda templates and notices;
  o notices of invitation.

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

4.3.5 E-Purchasing and Reverse Auctions

Many procurement transactions involve direct purchasing rather than contract tendering. Where e-tendering is used for contracts, e-purchasing is used for direct procurement of low-value goods and services based on the use of online price quotes from a list of sources of supply. This level of purchasing is expected to account for about 10-15 percent of the value of government procurement but the bulk of the volume of transactions.
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 and e-contract management are established and operational, a process which may take 18-24 months in The Maldives. Introduction of e-purchasing will also require additional training in the CPU on issues such as catalogues.

The CPU will need to make a judgement as to whether the cost and complexity of an e-purchasing system can be justified or alternatively whether sufficient benefit could be gained from the greater use of government purchasing cards. It is likely that there will be greater claims on the government budget than for e-procurement and so details on e-purchasing are presented in Annex 5.

### 4.4 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 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 that can be delivered through Internet cafés. 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 are already occurring to improve public sector connectivity and Internet access for the private sector and the general community as a building block for e-GP and e-government more generally. E-GP implementation should address connectivity issues at various levels, some of which require coordination rather than additional resources.

**Recommendation** The CPU, in consultation with any e-GP service provider 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 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 areas. While it cannot be expected that national infrastructure will be upgraded specifically for e-GP, this application is a valuable driver for making infrastructure upgrades more viable.
ANNEX 1: INTRODUCTION TO E-GP

One of the most significant modernization initiatives for many government reform agendas is e-Government Procurement (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. Some governments that do not have good procurement policies and procedures may administer elements of this only informally. E-GP requires that these become more rigorously defined and documented. Often governments believe that e-GP relates only to a webpage advertising of tender opportunities; Figure 3 indicates the real scope and why it is a management reform exercise.

Public Procurement Processes

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), which also specifies the reporting capability. This PMIS will greatly strengthen the management of procurement across the public sector. There is also a need for Procurement Workflow specification and integration with other components of the g-GP such as the portal service.

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 tendering and purchasing, with reverse auctions a variation to purchasing. The same distinction also forms the foundation for phased e-GP implementation and leads into broader management system integration. In The Maldives e-tendering would form an appropriate starting point for this reform.

**Electronic Tendering**

The e-tendering stage is about the acquisition of high-value, low-volume goods, works, and services by seeking tenders (proposals) via a public process, followed by the evaluation of tenders 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 tendering documents
- Secure electronic tender submission by suppliers
- Customization options for procurement officials in government agencies

These are simple and easily understood steps that can be implemented at low cost and phased in as required. The technically most difficult element of this service is sometimes regarded as the security demands of online tender submission/lodgment.

E-Tendering usually does not include tender evaluation, unless the tendering documents are arranged so that evaluation is based on a simple scoring of objective measures such as price. For jurisdictions with weak governance, this is preferred but requires strong contracting skills for major acquisitions.

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.

**Price Quotes and 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-tendering 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.

E-purchasing typically accounts for no more than 15 percent of the value of public procurement but more than 80 percent of the transactions. It is useful for addressing petty corruption and strengthens audit, record-keeping and reporting for a large turnover of activity. However without considerable technology penetration into the backend management systems it cannot effectively be implemented. Therefore in The Maldives procurement management systems area better starting point for e-GP.

Some attempts in other jurisdictions have been made to introduce e-purchasing by way of the financial management information system but this has not been the preferred path even in jurisdictions with strong management and is not recommended especially where governance is one of the key objectives. This approach also requires good technological capability in management.
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 just the actual application of the technology. A schematic representation of a mature e-GP system is shown in the diagram below.

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 to assist in the operation of the process.

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 a particular need for strong support from:

- 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, a fair and competitive market, and more streamlined and consistent processes.

Many of these components should be in place in supporting the traditional approach to government procurement and are equally important for the implementation of e-GP.

**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 the legislature, 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 behavior 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 Integration**

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 tenderers 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. The readiness issue is the extent to which e-procurement systems are being developed so as to be compatible with a longer term e-GP strategy.

**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 tendering documents.
8) Access to the system for registered buyers and suppliers is free or low cost.
9) Electronic download of tendering 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 tendering 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.

International Lessons

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.

Yet 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. Although some or all of these requirements are often the subject of a service level agreement (SLA), determining the non-functional requirements is a task for which the Government should seek technical advice independent of any service provider, through a risk analysis to assist in the development of any service level agreement (SLA), 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 behavior 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.

Accessibility refers to usability scenarios for those with physical limitations.

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 The Maldives, 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.

<table>
<thead>
<tr>
<th>STRATEGIC FOUNDATIONS</th>
<th>e-GP COMPONENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institutional Capacity</strong> (the capacity for Government to set directions and lead and resource the changes required).</td>
<td>1. <strong>Government Leadership</strong> (vision, sponsorship, resources, stakeholder support and implementation support).</td>
</tr>
<tr>
<td><strong>Governance</strong> (putting the rules, management support, performance monitoring and evaluation to support e-GP in place).</td>
<td>2. <strong>Human Resource Management</strong> (education, skills development, expertise and career development).</td>
</tr>
<tr>
<td></td>
<td>3. <strong>Planning and Management</strong> (strategic planning and re-engineering of management protocols and processes).</td>
</tr>
<tr>
<td></td>
<td>4. <strong>Policy</strong> (setting intent and guidelines that can be consistently applied).</td>
</tr>
<tr>
<td></td>
<td>5. <strong>Legislation and Regulation</strong> (supporting rules and the external and internal monitoring of the efficiency, performance and compliance in relation to the total approach to e-GP).</td>
</tr>
</tbody>
</table>
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).

6. **Infrastructure and Web Services** (ensuring reasonable access to, and quality of e-services and their sustainable development and maintenance).

7. **Standards** (development of management, procurement and technical standards to ensure consistency of the approach to e-GP and interoperability across the systems involved).

Private Sector Development  
(ensuring the private sector is enabled to both participate and be involved in e-GP)

8. **Private Sector Integration** (suppliers are enabled and have incentives to participate in e-GP).

Application of Technology  
(appropriate, integrated, sustainable and modifiable technology is phased in to provide tendering, contract management and purchasing services).

9. **Systems** (the planning, selection, development, implementation and support of e-procurement systems to provide tendering, contract management and purchasing services).

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**

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 modernisation and change can occur in a sustainable way. Government leadership is evidenced by the degree to which a national vision and objectives for procurement has been articulated and a lead agency(s) is in place with responsibility for procurement policy and guidelines. An integrated implementation strategy for procurement reform and change, procurement career development and education, and the provision of procurement advice to agencies is also in place. The table below identifies the subcomponents involved.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The degree to which</strong></td>
<td>**Score</td>
</tr>
<tr>
<td>a) The government has set a vision and objectives for procurement. Comments:</td>
<td></td>
</tr>
<tr>
<td>b) The government has declared a need for procurement reform. Comments:</td>
<td></td>
</tr>
<tr>
<td>c) A government lead agency is available to provide leadership for procurement management, policy and reform. Comments:</td>
<td></td>
</tr>
</tbody>
</table>
d) The government lead agency has adequate resources to provide its leadership role (for example, an implementation group).

Comments:

<p>| | | |</p>
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</table>

e) The government lead agency has the authority to manage and reform procurement.

Comments:

<p>| | | |</p>
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<th></th>
<th></th>
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</thead>
</table>

f) An effective agency (Regulator) with clear, enforceable power to regulate the conduct, management and policies of procurement is in place.

Comments:

<p>| | | |</p>
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</table>

Findings

**Government Leadership**

Overall, the GoM is providing resources to support the procurement process but has not developed a vision for public procurement as yet. It has developed a number of plans regarding the supporting ITC and e-Government environments. The Ministry of Finance and Treasury (MoFT) is identified as the ideal lead agency for public procurement.

- A publicly available vision and objectives for public procurement is not available as yet. The Ministry of Finance and Treasury (MoFT) is clearly identified as the lead agency for public procurement. The MoFT provides guidance on major procurement planning, reviews of projects and support for the bidding process through its Tender Evaluation Section (TES).

- TES staff are under pressure at this time because the Maldives is experiencing a phase of expanding construction, particularly port development on some 60 islands. The MoFT is not seen to have sufficient additional resources at present to implement the reforms planned and to support any e-GP Implementation Strategy that may eventuate from this project.

- No formal process to systematically involve the private sector is in place but the level of consultation has increased recently. The Ministry of Construction and Public Infrastructure (MoCPI) has planned a program of ‘Effective Procurement Methods’ to assist buyers and suppliers.

**Human Resource Management**

Overall, there are significant gaps in the level of human resource management to support current and future reforms in procurement. 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. There is currently no agency or function responsible for human resource management issues in relation to procurement.

- The Public Service Training Institute is responsible for training public sector officers but respondents were not aware of training specific to procurement being conducted recently.

- The levels of IT literacy for both government officers and business people were generally seen as moderate.
There are no available comprehensive training courses for procurement managers and staff on strategic procurement.

The current range of people with expertise on strategic procurement and ICT development available to the government is limited. It is unlikely to be sufficient in the short term to support the implementation of current and any future planned reforms in procurement. There are plans within the Maldives ITS strategies to address this issue.

The career structure and skills of government procurement managers and staff have not been reviewed recently. TES staff were positive about their career choice.

No formalised program for procurement training and development is available to suppliers.

A change management strategy to assist procurement modernisation has yet to be developed.

An international survey of 15 countries that have successfully implemented e-GP,\(^5\) showed that the most important lesson they learned was the need to provide formal and comprehensive training to government managers and staff and suppliers. Failure to address this issue led to a lack of confidence in adopting e-GP and extended the time to implement it.

Limited procurement training has been conducted and procurement is seen as an administrative function without its own career structure.

There was almost unanimous agreement from respondents that a wider range of procurement education and training needed to be made available to procurement specialists, public sector procurement managers and staff, technical staff, suppliers, and future employees (students) on a more formal basis. The training and education programs should have a comprehensive range of operational and strategic content and be readily available.

A career structure for 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.

**Planning and Management**

Overall, some effective planning to develop the ITC infrastructure has taken place. This will assist the development of e-GP. Procurement modernisation may not be achieved unless a strategic implementation plan and matching resources to consolidate, manage and monitor the outcomes expected are put in place.

- A number of policies, implementation strategies and guidelines in relation to ICT development are in place. This will provide some context in which to now develop a specific implementation plan for e-GP.

• There has been little recent planning applied to public procurement and the development of an e-GP implementation Plan will represent a timely opportunity to address a range of issues that need to be addressed.

• Currently an e-Government Procurement Plan is not in place. This project will address that issue.

• Procurement planning is carried out by each ministry with input from the Planning, Environment and Regional ministries.

• The Tender Evaluation Board (TEB) was established in 1990 and reviews all contracts over 500,000 Mrf (USD 39,000). Its 10 members are drawn from the public and private sectors and it is responsible for the final decision to award each contract.

• The MoFT is currently seen as under resourced to take up an extended role of leading the planned and proposed changes to public procurement.

• The Tender Evaluation Section (TES) within the MoFT is responsible for developing the bidding documents, conducting the bidding and evaluation process, and providing the evaluation report to the TEB and handling complaints. There is scope for some conflict of interest within the TES. The host ministry works with the TES and provides specifications, drawings and other information as required. The TES has 8 staff and also supports the functioning of the TEB.

• The current procurement regulations for procurement under 500,000 Mrf are provided by the Auditor General and are readily available. There are currently no guidelines for procurement above 500,000 but the process is centralised through the TES and TEB, and standard documentation based on Multilateral Development Bank bidding documents are used.

• A number of respondents from both the public and private sectors identified issues with the current procurement processes including:
  – the process takes far too long
  – there are no comprehensive guidelines and regulations for the process
  – the process needs to be more flexible to deal with the different types of procurement (eg repetitive tenders for port construction)
  – the need for a register of construction contractors based on capability
  – the need to be able to combine related activities into one contract to reduce the time for projects to be completed
  – the conditions of payment to prime contractors rather than sub-contractors needs to be standardised to ensure payment and overall responsibility for delivering the outcomes are kept together
  – levels of guarantees and insurances required from suppliers are too high
  – the process needs to be more transparent

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6 Tender Evaluation Board, Bidding Documents, MoFT, GoM
the need to clarify registration procedures for bidders

- Catalogues and item codes have yet to be established and common or framework contracts to leverage government buying power are not used.
- The public currently have access to advertisement of opportunities and information on contract award. This information is available on agency websites and is published in newspapers.
- Little formal monitoring of contract performance and the achievement of outcomes was seen to occur.
- External compliance audits of agencies is carried out by the State Audit Office
- Some external assistance may be required to raise the the level of procurement expertise to support the proposed e-GP implementation plan. 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.
- Respondents saw a number of issues with the current procurement processes. A review of the current procurement process and its guidelines needs to be conducted to provide a consistent, public basis to the procurement process at each level of cost. It could also address any issues related to supporting the process with e-systems. This will assist in focussing both the public and private sectors on the government’s approach to procurement reform.
- The process for external, 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.

Policy

A comprehensive statement of policy on public procurement, how it will be communicated and implemented, monitored, and evaluated, has not yet been established. There is a fairly well-defined procurement process in place but there is a lack of policy to give it direction.

Legislation and Regulation

The existing procurement legislation, its regulations, and the existing documentation needs to be reviewed to ensure it addresses existing concerns with the process and its eventual support by e-systems. Specific procurement legislation based on the UNCITRAL Model Procurement Law could be considered.

- The application of English Common Law to commerce is a relatively recent change in the Maldives. The current legislation to support public procurement is within the financial legislation.
- There is no existing legislation on e transactions and the supporting commercial legislation is not fully developed.
- New procurement regulations are planned to be developed under the Tender Evaluation Board.
- The GoM has plans\(^7\) to extensively overhaul its judicial and governance approach and some of this change will support e-procurement.
- Currently there appears to be little formal management control and monitoring of how government agencies discharge their public procurement responsibilities.
- Some external regulatory activities are carried out partly by the State Audit Office and the TEB.
- There is currently some procurement data held electronically by the TES relating to tender progress and prices to assist the management of public procurement. This information is not widely available.
- The SAO is under the President’s Office and is reports to the President. It has a 3 year audit cycle to cover all government agencies and instrumentalities. It has powers to access agency information but not wholly independent authority to conduct investigations. It is involved mainly in issues of compliance and quality management. It is seen by the agencies who responded as having insufficient resources and expertise to carry out its full role effectively. New legislation is planned to give the SAO more independence.
- Government agencies have devolved responsibility for procurement under 500,000 Mrf.
- Currently an independent appeal process for suppliers has not been established. Suppliers have to seek redress either from the procuring entities themselves or in the courts.

**Infrastructure and Web Services**

The current telecommunications and internet infrastructure in The Maldives can easily support viable e-procurement systems.

- ITC infrastructure in the Maldives is developing quickly. There are a number of major projects related to government and community network development, providing an e-Government Services platform and applications and strengthening the public accounting system\(^8\). The project to strengthen public accounts, which is currently in progress, will plan and acquire a new public accounts system and provide for the training and support services to implement and maintain it.
- The infrastructure and web services of the Maldives 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 PCs are readily available to government officers.

\(^7\) Roadmap for Reform, President’s Office, March 2006

\(^8\) Strengthening the Public Accounts System, ADB, 2001.
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

ITC expertise requirements were assessed in 2004 but are yet to be fully addressed.

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 recent research by the authors of this report, other international reports, and views from respondents. The figures should be treated with caution but are probably conservative. The profile below applies to whole country where 73 percent of people live on islands outside the capital city Male.

### Readiness Levels of Infrastructure & Web Services in the Maldives (Jan 2006)

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Levels of Readiness in The Maldives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L1 none/little</td>
</tr>
<tr>
<td>1. Internet subscribers (% pop)</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>2. Internet users (% pop)</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>3. Number of ISP providers /million people</td>
<td>&lt;1</td>
</tr>
<tr>
<td>4. PC penetration (%pop)</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>5. Modem transfer speeds generally available</td>
<td>e-mail only</td>
</tr>
<tr>
<td>6. Availability of data network</td>
<td>Little or no network</td>
</tr>
<tr>
<td>7. Availability of public internet centres</td>
<td>None</td>
</tr>
<tr>
<td>8. Comparative (regional)cost of internet access</td>
<td>Very high</td>
</tr>
<tr>
<td>9. Telephone fixed line penetration (% pop)</td>
<td>&lt;2%</td>
</tr>
<tr>
<td>10. Mobile phone penetration (% pop)</td>
<td>&lt;0.5%</td>
</tr>
<tr>
<td>11. Coverage of telephone service (%pop)</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>12. Quality of service (faults /100 lines)</td>
<td>&gt;100</td>
</tr>
<tr>
<td>13. Service and support to install service/fix problems</td>
<td>2 years/6 months</td>
</tr>
</tbody>
</table>

9 Fuji, K. Research on ITC Infrastructure, Nippon Koei Co. Ltd, Feb 2007
14. Availability of hardware

<table>
<thead>
<tr>
<th></th>
<th>All components imported</th>
<th>Many components imported</th>
<th>Some components imported</th>
<th>Few components imported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of software providers</td>
<td>0</td>
<td>1-9</td>
<td>10-50</td>
<td>50+</td>
</tr>
</tbody>
</table>

15. Standards

Some initial progress has been made in the area of standards. 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. Given that the Maldives is developing its ITC framework now, it is particularly important that standards set for the new public accounts system are structured so this system is interoperable with the planned e-Government service applications and future e-procurement systems.

- The National Centre for Information Technology (NCIT) and the Ministry of Communications, Science and Technology appear to be responsible for setting technical standards.
- Standards for the telecommunications network and servers have been set. (any others?)
- The NCIT was working to centralise all government services through two standardised key portals. The databases for these portals would be decentralised and the responsibility of agencies. GOTM would have access to data from all agencies.

Private Sector Integration

The private sector respondents were generally supportive of the transition to e-GP. The government does not appear to have a formal approach to discussing procurement issues with the private sector. There are a number of issues to resolve.

The government has a potentially serious problem if it intends to continue with procurement reform and the introduction of e-GP. The support of government by the industry sectors and major supplier groups is essential for success. The key to the 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.

- The government has some current projects for the development and assistance to SMEs12 covering financing, market access and land tenure.
- Private sector respondents were generally in favour of a transition to e-GP and saw the benefits as:
  - a more efficient and transparent procurement process
  - better access to market prices and trends,
- The costs to participate in public procurement were seen as reasonable.
- There were concerns in relation to:
  - being able to limit supplier cost escalations when the procurement process took far longer than was planned

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12 Preparing the Small and Medium-Sized Enterprise Development Project, ADB, 2005
the Maldives procurement environment needs to be understood in that it is isolated and there are few contractors available for each project

being able to hedge against currency shifts

having an effective set of categories for the registration of contractors and suppliers

providing an independent complaints process (the TEB was seen as having a potential conflict of interest).

- Information on procurement documents and procurement opportunities are available to suppliers.
- Recently some government agencies had conducted meetings with contractors and suppliers on specific issues (e.g. an independent complaints process).

**Existing E-GP Developments**

The Maldives has the infrastructure and web services to conduct a pilot e-Tendering system provided some of the key supporting components, (resources, standards and training) are put in place. The ministries are all on the web. Ministries have websites where procurement opportunities are advertised but documents have to be largely collected by hand.
ANNEX 3. DRAFT E-LEGISLATION

(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 The Maldives which would have been punishable under this Act, this Act shall be enforceable in such a manner that he has committed the crime inside The Maldives.

3. If any person commits any crime in The Maldives under the purview of this act with the help of any computer, computer system or computer network outside The Maldives, the provisions of the Act shall be applicable in such a manner as if the entire process of the crime had taken place inside The Maldives.

4. If any person commits any crime outside The Maldives from inside The Maldives 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 The Maldives.

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 an 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:

   a) 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;
   b) 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.

c) 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.

d) 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:
   
   a) the importance and value of information contained in the data messages;
   b) the agreement of related parties;
   c) the technology used by related parties;
   d) the nature of the commercial activities conducted;
   e) the frequency of the commercial activities conducted;
   f) the types and scope of commercial relationship;
   g) the fact that normal changes should not adversely affect the content of information contained in the data messages;
   h) the compliance of commercial customs and practices;
   i) ability of communication systems;
   j) 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.
ANNEX 4. SPECIALIST TORS

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 tendering, reporting and management templates and monitoring frameworks. This work should include national consultants to encourage local skills development.

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 will deliver or advise on the following:

- analysis of detailed requirements of the GoTM’s e-Procurement strategy;
- evaluation of current PMIS applications and infrastructure;
- review of system architecture within the context of GoTM’s e-Government strategy;
- TOR for the engagement of a developer for additional e-GP systems;
- assistance in the evaluation of the tenders 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 development, test and production environments;
- project management of any 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.

The procurement consultant will 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 will guide the development of a common government-wide Procurement Management and Information System (PMIS) that incorporates works, goods and services, providing major assistance in the alignment of requirements from each ministry within a single framework. Activities will include:

- analysis of detailed requirements of the GoTM e-procurement strategy;
- reengineering requirements for the development of 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;
- design and implementation of change management strategy;
- assistance in the development of ongoing system management strategy (including risk and security) and service level agreements.
ANNEX 5. 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. This level of purchasing is expected to account for about 10-15 percent of the value of government procurement but the bulk of the volume of transactions.

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

- many-to-many functionality (many buyers to many sellers)
- 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.

**Recommendation:** The operational capabilities which make up an e-purchasing service suitable for public procurement in The Maldives 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 will 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.

**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. The PPMO needs to fully appreciate the use of these tools and develop associated policies to neutralize the inevitable tensions that arise from collusive tendencies and monopoly practices.

**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/](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 that for them to ensure that their presence on a central catalogue is up to date.

**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 PPMO needs to be in a position to understand which of these scenarios applies and to establish policies for price determination.

**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.

**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.

**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.

**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.

**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.

**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. The statistics furnished by the system will also be used to monitor practices, evaluate performance, and formulate policies on supply-side incentives for the private sector that can be tailored to market conditions in Nepal.

**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 The Maldives until e-tendering is operating successfully but even in this case it seem unlikely that e-reverse auctions could operate satisfactorily in the Maldives because this function requires competitive markets without which collusive behaviour is a high risk. For these reasons the operational specifications for e-reverse auctions are not listed here.

Reverse auctions should not be undertaken unless it is clear that the market is truly competitive and free from perceptions or practices of collusion. These conditions make this option inappropriate for much of government procurement in Maldives at the present time.