E-GP Functional Specifications

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1 INTRODUCTION

Authorities in developed and newly developing countries alike have been seeking to reform and strengthen the governance and management frameworks around their systems of public procurement. Their objectives have been to enhance effective management, reduce the risk of corruption, promote economic activity, and strengthen policy and strategic development. Increasingly an important part of these reforms has become the systematic application of technology to the processes of public procurement, including in the advertising of business opportunities, management of information and workflows, document delivery, purchase orders and transactions. This systematic application of technology to government procurement, or e-Government Procurement (e-GP), can lead to a substantial automation of the procurement process but requires significant reforms and process improvements in the management of procurement. These reforms have seen the introduction of new procurement laws and regulations, the introduction of new training for public procurement officers, changes in management procedures including standardization and simplification, and enhanced competition for government procurement opportunities.

Once the value of e-GP is recognized by a public authority, issues of implementation arise and it is here that the seeds of success or failure are often sown. There are many possible stumbling blocks - the lessons of which have been discussed elsewhere.

However one key issue deserves further attention namely defining the functional specifications of the e-GP system that is to be acquired or built - this is the subject of this paper. This paper seeks to give guidance on what functions and qualities they could seek from their e-GP system, or if they are engaging a third party provider then this may also give guidance on what capabilities they might require in their service level agreement.

2 OBJECTIVES AND PRINCIPLES

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

- Governance:
  - transparency,
  - accountability,
  - non-discrimination, and
  - fairness and equity as measured by public and international confidence

- Efficiency of processes:
  - effectiveness of outcomes,
  - security of process and
  - public value for money

- Business and economic development:
  - transactional efficiency,
Countries that have embarked on e-GP strategies have usually defined their objectives in terms of enhancing some or all of these elements. One of the common errors made by governments in implementing e-GP is to forget these objectives when faced with vendor products that purport, often mistakenly, to understand the requirements of government procurement but rather expect government to modify its processes and expectations to match their software.

Thus, for example, a system can be efficient and satisfy the second of the above but may not be transparent to civil oversight or accountable and it may also be a burden rather than a benefit to businesses. Similarly a system may be ‘efficient’ in the sense that it might be user-friendly to accounting staff, but it may also be user-unfriendly and inefficient to lower level procurement staff in the field and thus lose much of its potential. Again, increased efficiency of transactions can be generated from an e-procurement framework built around closed standards and proprietary software, but such a framework may have restricted interoperability and may not be consistent with greater competition or transparency. Many other issues arise: Is the system to be used by a select few procurement professionals or is it to be accessible to managers generally? Is it to be accessible by all businesses and civil oversight organisations including the media or is it to be restricted in some way? Is the system scalable at low cost or readily portable to other platforms? Thus the real meanings of these objectives need to be fully appreciated before a system can be selected. Some vendor products will find these and other challenges difficult to deliver without additional costs and development.

The ADB, IDB and the World Bank (MDBs) also have some minimum business standards and qualities that must be met if e-GP systems are to be applied to the loans, grants or credits that they provide. These can form a standard for the functions and qualities of the e-tendering system that will be developed. Those standards and qualities are consistent with the above objectives.

The core objectives and principles – however defined - form the basis of the operational specifications of the e-GP system.

3 STRUCTURE OF PUBLIC PROCUREMENT

There is often a lack of appreciation of what government procurement actually represents. All public procurement processes involve the same basic stages and also a structure that distinguishes between large and small transactions and other management tasks. These basic stages and structure are not made redundant by technology – they are fundamental to public sector governance standards. Vendors who suggest that their system changes all this are really signaling that their system does not match up to public sector requirements.
These basic stages of the procurement process help form the e-GP scope and structure. Without the end-to-end integration of these much of the transparency and efficiency objectives are compromised.

- **Planning**: Determination of the needs to be met and identification of the works, goods or services that has to be obtained in order to do so. This stage includes establishment of the business case, the procurement plan and the development of the bidding documents, and usually concludes with a precise specification of the goods or services that are required, preferably in terms of performance. This stage also gives consideration to the structure of the business sector that will supply this contract to determine the optimum way to proceed – this consideration will include the degree of competition or monopoly and risks of collusion.

- **Formation**: The search for the best bid or price quotes, as the case may be, and includes evaluation of offers, negotiation and due diligence. This stage concludes with the signing of the contract, in the case of a tendering process, or with the issuance of the purchase order or the delivery of the service, in the case of a price quote.

- **Management**: The transition to the contracted arrangements, contract management and operations, performance review and conclusion. During this stage, the supplier delivers the goods or services and the executing agency makes the corresponding payments. It concludes with the final acceptance of the good or service concerned and may also include consideration of contract renewal.

- **Guarantee**: Provision of after-sale services in respect of the good or service acquired over the time period stipulated in the contract or purchase order. This stage is completed when the guarantee expires.

Further, once the preparatory process has been completed, a procurement operation may be one of two types: suppliers may be selected through a **tendering or bidding process**, or direct **purchasing** on the basis of a price quote or framework contract.

The principal structure of government procurement selection is defined by the distinction between **bidding** and **purchasing**. (including e-Reverse Auctions). It is this distinction as follows that forms the cornerstone for e-GP specification:

- Government procurement via electronic bidding processes (e-bidding: the acquisition of high value, low volume goods, works and services by seeking bids (proposals) via a public process followed by the evaluation of bids and award of contracts. Many countries find that this form of acquisition typically accounts for more than 85% of government procurement expenditure. E-bidding is relatively low cost to implement and maintain, and provides significant value to businesses, enhances transparency and strengthens management. Functionality can be increased incrementally and includes:
- All bidding opportunities and award outcomes on a single internet site;
- Online registration for businesses;
- Online search tools;
- Open access via the internet to all original bidding documents;
- Electronic bid submission by suppliers;
- Customization options for agencies;
- Real-time bidding.

The technically most demanding element of this service is sometimes regarded as the security demands of online bid lodgment, although potentially all elements have strong security requirements.

- Government procurement based on the use of on-line price quotes (e-purchasing): 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 requires integration of workflows and transactions, as well as management of a wide variety of purchases and information flows for many buyers and many sellers. In other words there needs to be full integration of back-office and front-office systems as well as end-to-end supply chain management. It is through this systems integration that valuable management information becomes available and process savings are made. Some of the basic capabilities include:
  - Online registration of businesses and agencies;
  - Connecting many buyers to many suppliers including field officers (many-to-many capability)
  - Customisation options for agencies such as agency badging,
  - Purchasing policies available online;
  - Buyer authorization management;
  - Online quotations and information flows including supplier bid submissions;
  - E-Purchasing transactions;
  - Financial management integration;
  - Data warehousing;
  - Reverse auctions;
  - Online catalogues.

Both procurement procedures require electronic contract management (e-contract management) in order to facilitate contract performance and the technical and financial monitoring of processes and results.

4 SELECTING A SYSTEM

Despite considerable evidence and advice that e-GP is primarily a reform programme of many dimensions, the first step taken by many authorities is to seek out what are the available ‘systems’. In this process the original objectives are
often forgotten in the buzz of sales pitches. Options are for an agency to build its own system (this is the prevalent approach), purchase a system or engage a third party service provider. These options should each be fully explored.

Decisions about system selection should be based on the key principles and objectives underlying this reform. This means that system selection should not begin until the objectives are firmly established and understood, and the values or principles by which these objectives are to be achieved are also established. Further, any system selection should not begin until the scope of the exercise is defined (public procurement encompasses many activities) plus other considerations such as who are to be the users, and how will the performance and benefits of the system be measured, etc. Frequently these considerations seem self-evident yet just as frequently they are overlooked during the process. The most important role of the e-GP project manager is to ensure that all of these considerations are delivered through a value-for-money solution – the systems specification and selection processes cannot be separated from the fundamentals of objectives and principles. Specifications are defined in terms of Functional Requirements and 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.

5 FROM CONCEPT TO REALITY

It is not completely meaningful to consider an e-procurement system without also recognising the management systems that will need to migrate to and integrate with it for it to become fully operation and effective. Thus it is of great advantage to integrate the development of an e-procurement portal which carries e-Bidding information and processes with an e-Contract Development system that should be the basis for input into the portal. This is the approach that is presented here.

Translating the objectives and principles into functional specifications and standards is made considerably easier and often less expensive when it is understood that the structure and stages of public procurement as outlines above lend the task to phased implementation. All experience is that a ‘big bang’ approach to e-GP is expensive, disruptive and will more than likely result in failure. Instead, by specifying the task in terms of phases tends not only to map out a low risk path but also assists in the specification of the functions themselves.

It is advantageous for the online e-GP services and functions to 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. This represents a risk-managed approach and is to be recommended over a ‘Big Bang’ approach that would carry high risk of incompatibility with user needs, policies and resources. The complexity and cost as well as the legislative requirements, integration issues and expertise and understanding of the various sub-components mean that the most prudent and recommended path of this phased implementation will be structured along the lines shown in Figure 2. Guidance about these issues can be found in other e-GP publications available on [www.mdb-egp.org](http://www.mdb-egp.org) including:
This order of the e-GP implementation phases is consistent with experiences from many other countries with a number of different approaches and models, and is the recommended approach by the MDBs. Based on these experiences, the preferred approach is identified which maximizes the potential for successful outcomes.

Within these phases there are incremental steps which can also be implemented in stages or simultaneously, depending on the level of readiness of the service provider systems.

This is an optimum process design because it:

- Facilitates institutional changes and the modernization of the civil service; and
- Starts from the simplest functions and progresses to the most complex along a controlled development path.

This makes for a faster, less expensive, and institutionally sound introduction of e-GP.
Since the central website will permit access to full bidding documentation the institutional challenges involved in the provision of access are substantial, particularly with regard to the need to streamline and standardize procedures and encourage businesses to make use of the information. The management and policy reform process involved in support of e-GP will have a major bearing on the timeframes for the implementation of e-bidding.

Consistent with the foregoing phased approach functional requirements can be specified as follows.

6 SYSTEM COMPONENTS

The development of the e-bidding service requires: posting all bidding information on a single internet site and developing and activating the feed mechanisms that support that site.

If a third party service provider is engaged it is also important that the functional and operational requirements are clearly and contractually specified. These must be specified in a way that integrates the central site and online transactions with work processes.

An e-Bidding system encompasses a range of sub-systems and also interfaces with other related systems

- E-Bidding System (EBS)
  - Bid Registration
  - E-Bidding Document Construction (EBDC)
  - Contract Procurement Language (CPL)
  - Contract Development Templates
  - Workflow and Data Management
  - Bid Opportunity Advertising and Award
- Bid Lodgement System (BLS)
- Contract Management Registers (registers of contracts, consultants, suppliers, performance reports etc as compiled in the Procurement Management Information System as described below)
- Contract Management System (this may include special management systems for civil works which are more complex and thereby give rise to a Works Management System)
- Government Procurement Portal (GPP)

These have both functional and non-functional requirements. There are also the data management requirements of the system arising from:

- Framework contracts;
- Agency specific bid opportunities for goods and services;
- Direct purchases of goods and services;
- Construction consultancies;
- Construction works;
• Supplier performance;
• Etc.

These systems and their data requirements need to be defined and specified for the government. This is the focus of this paper. In what follows, related requirements as stipulated by the MDBs are also shown in italics.

7 Pre-Requisites

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

Pre-requisites include:

• Review of the existing manual bidding process to assess the implications of making it largely an online process
• Simplification and standardization of bidding documents between government departments;
• Standardised bidding processes between departments;
• Establishment of a Complaints Function by the Lead Agency for e-procurement procedures;
• Internet access to bidding documents and access via office and fax.

The use of Standard Bidding Documents/RFPs is required. These should be available online. There shall be no difference between electronic and print versions of the Bidding Documents/RFPs. (MDB)

Bids need to be able to be managed and tracked on the basis of a properly defined workflow preferably in line with a Quality Accredited process. Standardised, structured workflows should be used to manage the sign-off processes required for contract award.

8 E-BIDDING SYSTEM (EBS)

EBS must address the functionality required to initiate and register a Bid. EBS will then progress the Bid through the appropriate workflow processes, to the awarding of that Bid and the output of that information to other systems. EBS will select the Bid Method which will partly determine which process is used.

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

8.1 Electronic Bidding Document Construction (EBDC)

EBS should provide the authorised official with an EBDC facility.
On entry to the EBDC the system should provide a hierarchical path to the type and category of procurement for which the document is to be created. Selections can, for example, include:

- **Goods**
  - Information Technology
  - Equipment and materials
  - General commodities

- **Services**
  - Management Consultancy
  - Works Consultancy
  - Information Technology
  - Cleaning
  - Security
  - General

- **Works**
  - Major Works
  - Minor Works
  - Turnkey Operations

As well as automating the posting of bidding documents onto the central site and guiding the management of the process, this also provides the means by which bidders can track the bid via the GPP. EBDC must be based on the use of standard bidding documents.

The EBS should provide a library of standard bidding documents with contractual templates for different categories of procurement.

*The Bidding Documents will use the Contract Procurement Language (CPL) as the catalogue standard defining its requirements. This CPL should be available to buyers and suppliers online.* (MDB) This requirement for the CPL is to address the issue that has been evident in some counties where there has been uncertainty amongst suppliers about the precise meanings of the contract specification terms.

The final document must be in a format accessible to common packages such as Microsoft Word, Mac and open source. This is to enable general users to download Bidding documents.

*The e-GP system shall be interoperable through open standards with ICT products in common use. The system shall be an Internet based approach accessible by users through readily available and commonly used browser software.* (MDB).

*Downloaded documents shall be readable through open standards with a range of commonly used office software. If specialized software is
necessary, this shall also be downloadable (e.g. software 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, shall require only open standard interfaces with commonly used office software, or the submission software shall be available online from the Contracting Authority’s system as required.

(MDB)

8.2 Related Registers

EBS should automatically link to related databases (e.g. Client Register\(^1\), Contract Register, Government Officer Register, and Supplier Register). This will provide part of the feed for a data warehouse for future analysis, decision making and audit. Scope should be provided for secure and authorised deletion of bogus and obsolete records.

8.3 Maintain Reference Information

It should be possible to maintain the following reference code items:

- Bid Type (national or international)
- Bid Category (e.g. civil works)
- Bid Method (e.g. two stage)
- Bid Status (e.g. pre-tender notification)
- Directorate and agency
- Branch
- Closing Details
- Pre-qualification Requirements
- Estimated Value

Each item must have a code and a description. It must be possible to enquire, add, change or delete reference code entry. The following rules should apply:

- It should not be possible to change a reference code.
- It should not be possible to delete a reference code item if the reference code is being used.

EBS should be able to add, change or delete date information in the system.

Date information is used to validate milestone dates for Bid initiation and award. The following information should be maintained:

- Date
- Date Type (e.g. Public Holiday)
- Date extensions
- Identification of officials entering or changing entry data.

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\(^1\) Client Registry applies where one agency or organisation undertakes these processes on behalf of others – these others are then clients.
8.4 Maintain Buyer Access Permission

Buyers should have 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 accesses may require passwords of more than one individual.

It should be possible to enquire on, add, change or delete access to system functions and data for an individual buyer. The following access levels should be implemented:

- Read data
- Write data
- Delete data
- Execute processes (for example, run a report, or produce import or export)
- Defined data fields – e.g. Only Bids which that buyer has raised, all from a single office, all in directorate, etc. The issues of released / unreleased prices are especially sensitive and complicated

The security system will also be used to store an individual buyer’s bidding approval limits.

Access, entries or deletions by individuals with specific access levels may need to be automatically copied to others with higher access classifications or authority.

8.5 Document Classification

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

- EOI - Expression of Interest
- RFQ - Request for Quotation
- RFP - Request for Proposal
- RFT - Request for Bid (Tender)²
- FC - Framework Contract (not always applicable)

If the Bid is a Government Framework Contract the system should record that as such.

8.6 Complex Data Fields

EBS should be able to accommodate complex detail data, such as multiple lines of Bid items, and multiple facilities or clients. This is to give scope

² Some governments use the term ‘Bid’ where others use ‘Tender’
for Bids that may be awarded to multiple suppliers on a line item basis. The line items must be defined at levels at which the Bid may be awarded.

8.7 Update Bidding Information

It should be possible to maintain information about existing and new bid opportunities. New information is added during the Bid Initiation process. Information about a Bid should be able to change during a Bidding process and Bid notice to accommodate, for example, explanatory material, responses to questions raised by suppliers or amendments to closing times.

8.8 Valid Closing Time

The system should be linked to a precise international time clock. An alert should automatically be displayed if the closing date is a weekend, a public holiday, or other. When a closing date is entered EBS should display the day of the week.

The bidding period shall be measured from the date of publication (or date of notification or the date documents are available whichever is the latest) on the required site as required in the regulations. A secure log of these entries shall be available for audit as required. (MDB)

Default Dates

Unless overwritten the appropriate date field entries should default to the current date and time.

8.9 Document Addendum Process

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

8.9.1 Enquiries about Bid Addenda

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

8.9.2 Add a Bidding Document Addendum

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

**8.9.3 Change or Delete Bid Addendum**

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

**8.9.4 Notification**

*All clarifications and amendments of the bidding documents, as well as any pre-bid conference minutes, shall be posted simultaneously onto a bid tracking page of the GPP. Bidders who have already expressed an interest should be directly informed online by the system of any amendments. The system shall track receipt by bidders/consultants when distributing pre-bid amendments and clarifications online. (MDB)*

**8.10 Manage Workflow Actions**

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

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

**8.10.1 Maintain Bid Workflow Information**

EBS must maintain information showing the current progress of the Bid through the action sequence. The following minimum information about Bid action should be included and recorded for audit and reporting:

- Bid reference number
- Current action number
- Role (who performs the action, accountable officer)
- Action description
- Milestone indicator (yes or no)
- Expected date (for milestone actions)
8.10.2 **Enquire on Bid Action**

Users (buyers, suppliers, and the public) should be able to view the sequence of actions that the Bid will be following and the details recorded about each action for a specific Bid reference number. Bidders and other registered users should also be able to view some of this information through the GPP and track the progress of their own bid. Tracking of specific bids should only be accessible to the bidders themselves until award is declared to avoid coercion and other anti-competitive activity.

8.10.3 **Edit Bid Action**

If EBS is not available, or if actions have been performed outside EBS the user should be able to directly update the actions to indicate date performed and user. A mandatory comment field should be provided.

8.10.4 **Record Bid Workflow Actions**

Each Bid method should have a standardised quality-assured workflow template of actions to complete the Bidding process. This should be generally available for viewing through the GPP.

As the Bid progresses through the predetermined workflow, the actual date and each action is recorded and the user(s) performing it should be recorded. The expected dates for each milestone action will be generated according to the Bid method selected. The accountable officer should be able to modify these milestones at any stage (except retrospectively). Changes will be tracked by officer ID for audit and analysis. Changes should not be allowed by the system that brings forward a bid closing date.

Users must be able to enquire as to the progress of a Bid. A management report must be able to be run that highlights Bids that have been held up in the process. The action may be:

- Noted
- Approved
- Deferred
- Endorsed
- Signed off

It should be possible to maintain information about Bid method actions. Actions are used to direct and record the progress of a Bid from Bid initiation through to Bid award, based on the Bid method chosen.

During the workflow, certain pricing details of the Bid submission may need to be hidden, depending on the role of the user and the method of Bid evaluation (e.g. a two-envelope system). For the
two envelope system financial proposals in electronic format shall only be accessible after the evaluation of the technical proposals. (MDB).

8.10.5 Bid Evaluation

The EBS should be able to undertake automated evaluation processes where these have been defined in the standardized bidding documents and in doing so EBS should be able to identify the winning bid and post it immediately onto the GPP. It should be noted that, depending on the nature of the contract, automated bid evaluation can be very complex to develop.

The system may use pre-approved automated evaluation processes so long as the evaluation aligns with the criteria established in the bidding documents; is consistent with the principles of economy, efficiency, equal opportunity, and transparency; and results in contract award to the lowest-evaluated, responsive bidder/consultant. (MDB)

8.11 Non Conforming Bids

A status flag (and comment field) is required to mark a non-conforming Bid submission.

EBS should be able to accommodate alternative Bid submissions from each Bidder. These should each be recorded as separate Bid submissions, but against the same Bidder (and Bid).

8.12 Register Contract Award

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

The award status may be one of

- Declined all offers
- Shortlist
- Panel award
- Contract award

8.13 Tracking

<table>
<thead>
<tr>
<th>Government Procurement Portal Information Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bid Details Section</strong></td>
</tr>
<tr>
<td>Bid Type (i.e. choice of Bid, PBN, EOI or Framework Contract)</td>
</tr>
<tr>
<td>Bid number</td>
</tr>
<tr>
<td>Closing Date</td>
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<td>Title</td>
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<tr>
<td>Scope</td>
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<td>Region</td>
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<tr>
<td>Bid submission options</td>
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<tr>
<td>BLS</td>
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<tr>
<td><strong>Briefing/Site Visit Details</strong></td>
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<tr>
<td>Description</td>
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<tr>
<td><strong>Bid Enquiries</strong></td>
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<tr>
<td><strong>Contractual Enquiries</strong></td>
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<tr>
<td><strong>Technical Enquiries</strong></td>
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<tr>
<td><strong>Bid Enquiry Responses Broadcast</strong></td>
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<tr>
<td><strong>Attachments</strong></td>
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<tr>
<td>Bid document (PDF)</td>
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<tr>
<td>Attachment Comments</td>
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<tr>
<td><strong>Bid Response Details</strong></td>
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<tr>
<td>Bidders</td>
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<tr>
<td>Bid Prices</td>
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<tr>
<td><strong>Award/Shortlist Details</strong></td>
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<tr>
<td>Date</td>
</tr>
<tr>
<td>Supplier(s)</td>
</tr>
<tr>
<td>Commencement Date</td>
</tr>
<tr>
<td>Completion Date (excluding and including possible extensions)</td>
</tr>
<tr>
<td>Number of submissions received</td>
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</tbody>
</table>
Amendments and correspondence by any official will be tracked and recorded by the system for audit. Systems shall ensure that only authorized changes can be made. Officials shall not be able to amend the tracking record. (MDB)

E-GP systems and information security shall ensure that secure records are kept of every process, procedure, transmission, receipt, and transaction in terms of the content, executing individual and authorisations, and time and date. These records shall be kept for at least five years after the closing date of the contract and be made available for audit as required. (MDB)

8.14 Cancel Bid

EBS should allow a Bid to be withdrawn prior to closing. If no potential Bidder information or Bid submission information has been entered it should be possible to cancel an existing Bid. The Bid Number should not be re-allocated.

8.15 Government Procurement Portal (GPP)

The key elements of EBS should interface automatically with the GPP.

The content and functional capabilities of the GPP that make up an e-bidding service suitable for public procurement are specified as the following:

- Online access to all government procurement policies, legislation and regulation;
- A ‘single window’ access approach to government bid opportunities;
- A Supplier Registry, supported by management systems to keep it updated;
- Open Bidding opportunities and supporting documentation (see Box);
- Downloading of bid documents and technical drawings;
- Secure uploading of bid documents and technical drawings from any agency;
- A capacity for suppliers to use the site to request hardcopy;
- Intelligent search facilities by locality, business type and value if applicable;
- Pre Bid Notification (PBN) for bids currently under preparation in public agencies;
• Electronic lodgement of bids by suppliers;
• Customised email notifications of new bids, information and amendments to suppliers;
• An online tracking capacity for suppliers in relation to their bid processing;
• Awarded contract information;
• Archived contracts with public research capabilities;
• A secure management information system that enables audit trails, access logs as well as comprehensive management information.

For a limited number of contracts that involve state security, parts of the documentation and reporting procedures may be modified.

The provision of information on a single internet site about the bidding processes will generate the dynamics involved in the use of this internet site by government agencies and suppliers.

Civil works contracting are amongst the more demanding contracting performed by government so this work will form a suitable and ready-made basis for whole-of-government e-bidding and eventually e-contract development and e-contract management.

8.15.1 Bid Search and Enquiries

It should be possible for potential bidders or the public generally to search for a Bid using a variety of search criteria. It must be possible to select from the list of matches to display the Bid details. A message should be displayed if no matches are found. It should also be possible to enquire about a specific Bid in terms of any of its details and its progress through the workflow process if it has closed. It should be possible for registered suppliers to receive automatic notifications of relevant bid opportunities by email or SMS.

8.15.2 System Access

System access shall be open, equal and unrestricted to all prospective bidders / consultants and members of the public. Those who want to submit information or receive online alerts or notifications of amendments or clarifications shall be offered an online registration facility. Registration shall be free of charge.

(MDB)

8.15.3 Single Sign-On
The principle of single sign-on shall apply. Single registration shall allow bidders/consultants the multiple use of the same electronic system for different projects from different parts of the government. (MDB)

8.15.4 Record Potential Bidders

EBS needs to register all potential Bidders – i.e. those who have requested a copy of the Bid. These should be stored in a database that can be updated from the Government Procurement Portal when potential Bidders download a copy of the Bid off the Internet. This may involve the application of a Supplier Registration Number. All additional information, including responses to individual enquiries and clarifications, and amendments that arise before bid closure, should be automatically notified to all potential bidders.

8.15.5 Advertising

EBS should record the date and where the advertisement is to be published. This information should be automatically posted to the GPP. The advertising date should be recorded in EBS to provide a follow-up report to ensure the advertising deadline is met.

All advertisements must automatically be posted to the Government Procurement Portal that has free and unrestricted access. (MDB)

Other pre-Bid information that may be included:

- Briefing Sessions; or Site Visits;
- Where hardcopy documents are available from.

EBS should be able to automatically produce a formatted advertising notice for GPP and post it onto the GPP.

8.15.6 Direct Notification

EBS should be able to automatically import a list of bid-suppliers from the Government Supplier Register with the option of automatically providing them with email notification in addition to the advertising. This will require a supplier classification system.

8.15.7 Pre Bid Notification (PBN)

Once an agency has given a commitment to go to Bid, the Contract Manager has a responsibility, with the exception of invited Bids, to raise a PBN.
EBS should automatically allocate a PBN system reference number and using that number, publish a PBN on the Government Procurement Portal. A non-compliance with this step should automatically trigger a window requiring an explanation, before any further steps will be accepted, as to why there have been no notifications prior to the formal commencement of the bidding process.

8.15.8 **Advertise Contract Award**

Contract awards should be published online consistent with bid advertising. EBS should display the Bid reference number, description, the successful Bidder(s), the date accepted and the Bid total amount and any other information deemed appropriate to strengthen transparency.

*The system shall show the bids that have been entered, together with the identification of successful and unsuccessful bidders.* (MDB)

*The bid advertisements and results disclosures shall not be restricted except in special security circumstances.* (MDB)

8.15.9 **Supplier and Government Trainer**

A function should also be included on the GPP that allows users to learn how to use the system without creating real transactions.

8.15.10 **Technical Failure**

*Contracting Authorities shall indicate in the Bidding Documents / RFPs procedures to be followed in the case of any failure, malfunction, or breakdown of the electronic system used during the procurement process. Contracting Authorities shall not accept any responsibility for failures or breakdowns other than in those systems strictly within their own control.* (MDB)

8.16 **Electronic Bid Lodgement**

EBS should be able to securely and confidentially receive Bid submissions electronically. Bids submitted electronically must be stored securely and confidentially. Security methodologies are to be addressed under Non-Functional Requirements.

8.16.1 **Online Notification**

An electronic acknowledgement should be generated to the Bidder at the time of receipt. EBS should record that a Bid submission has been received.

8.16.2 **Bid Creation**
A new bid opportunity is created by an agency which wishes to have the respondents able to lodge their responses online.

- The bidding documents are made available online through the GPP.

- The option is activated to allow online lodgement.

- A record is automatically sent to the Bid Lodgement System (BLS). This record will contain the Bid document information, the Agency Details and a unique Bid identifier.

- The responsible official will be required to nominate a Bid box for the Bid if there are multiple boxes for that agency. Bid boxes must be set up via the BLS prior to the creation of Bids. The official will be presented with a cut down version of an Add Bid screen with the information auto-populated and unchangeable.

- The BLS will establish the online Bid, and Bid Box. The Agency record will be updated if the Agency already exists in the system. If the Agency does not exist in the system a new record will be created together with an online Bid Box with agency details. The Response Close function will also require that the closing time for the Bid Box be entered. The BLS will create a unique Bid identifier which will also be unique between agencies. The EBS and the BLS should synchronise data to ensure consistency as well as the creation of a Bid Box if required.

- The BLS will be required to manage the following codes:
  - Bid Identifier
  - Agency Identifier
  - Officers Identifiers
  - Agency Login
  - Agency Passwords
  - Public Key

- The creation of a new Bid box is to be managed by the BLS. This will require the following details.
  - Agency
  - Name
  - Email
  - Login
  - Passwords
  - Repeat Passwords
  - Public Key
The login and passwords (by more than one individual) will be required to open the bid box. Once the details are confirmed the bid box will created/updated.

8.16.3 Security of Lodgement

Security for bid lodgement is a particularly important issue that is addressed in some detail below.

8.16.4 Supplier Access

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

- To execute online lodgement a supplier shall access the GPP where a ‘Bid Lodgement’ icon will appear.

- Activating the ‘Bid Lodgement’ icon will display a list of Current Bids for which online lodgement is available.

- The bidder can click the ID of the Bid they want to lodge against. If the Bid opportunity has already closed the system will display a notice to that effect and the user will be unable to proceed further.

- They will then be shown specific details about the Bid they have selected so that the bidder can verify they have selected the correct Bid. They can then click the icon ‘Lodge Bid Submission’. Multiple files can be lodged, including those that accommodate the two envelope system. Multiple bids will be lodged separately.

- The bidder is then asked to confirm (where necessary modify) their Supplier Registration Details and click an icon ‘Confirm My 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 Conditions of Use.
• At the pressing of the _I Agree_ icon the BLS checks the closing time for this Bid and terminates with a message if closing time has passed.

• After checking on the conditions of use the system invites the user to attach their documents and click the _Lodge Response_ icon. Only if the bid is received in full before closing time will it be accepted. A receipt message will be sent to bidder acknowledging receipt and time of receipt.

• **Bidders/consultants shall be allowed to submit modifications to bids/proposals or withdraw previously submitted bids/proposals electronically up to, but not after, the time of the bid submission deadline. Receipt of modification or notice of withdrawal including the date and time must be acknowledged, and shall also be done electronically. (MDB).**

• Submissions that are corrupted during transmission shall be rejected. This policy should be clearly communicated to potential bidders.

• The system should also allow a bidder to prepare a draft bid and save it on the system without submitting it, come back later to complete the process.

8.16.5 **Authentication**

The Electronic Bid Lodgment system (EBL) should be able to manage the authentication process if digital authentication is a policy requirement.

_The certification process shall accept an electronic signature or a digital certification/signature issued by recognized certifying authorities within the country of the bidder, or the process shall accept submission of online or offline documentation for certifying the authenticity of the bidder representative, accepting such documentation that can be obtained under commonly used procedures in the country of the bidder (for example, no notarization in consulate or embassy shall be required). (MDB)_

Consideration and consultation will address the practice by some countries in which bidders are not required to pre-qualify. An accreditation application must be filled out only by the winning bidder, who is given a reasonable time period (stipulated beforehand in the bidding documents) to do so. In the event of noncompliance, a penalty is applied and the contract is awarded to the second bidder on the list. (MDB)

8.16.6 **Online Payments**
The MDBs discourage fees being applied to document downloads or submissions. The EBS should be able to securely receive online payments if these are imposed but this layer of complexity adds cost to the system and should be avoided if possible.

8.16.7 **Electronic Bid Box**

- Each Agency should have its own access.

- Each agency should have multiple bid boxes to cater for multiple officials with restricted bid-specific access.

- Each Bid is lodged in its own file, which is encrypted and cannot be opened until the closing date is passed.

- Closing dates may be extended, but may not be brought forward.

- An “E-mail All” facility should be available that enables a broadcast message to be sent to all bidders registered for electronic bid lodgement for that Bid. This facility is necessary for sending an Addendum or extending the closing date.

- There should be at least three levels of access security - Master User, Agency User and Bid Box User. Master User security is for the system administrator. Agency security provides the system administrator access for a specific agency and Bid Box security provides access to predefined bid documents.

- The bid box must not be able to be opened before the closing date. This includes Master Users with the highest level of security.

- The system needs to be able to validate whether a document has been tampered with.

- Any changes to a bid process that occur after a bid process has opened must only be possible by an authorised person and all changes tracked and recorded automatically. The system will need to ensure that any such changes do not affect the integrity and accessibility of bids that have already been lodged.

8.16.8 **Bid Box Opening**

- The authorised agency official along with at least two witnesses will log on to the BLS system and open the box
normally by individually inserting their 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 authorised agency official’s computer. Once a bid response is downloaded is it the responsibility of the Agency Officer to ensure its security.

- **Bids/proposals in electronic format shall be protected against access by unauthorized persons until the publication of the contract award. (MDB).**

- **Electronic (and or print bids if submitted) shall be opened in a public opening at a location and time (deadline) designated in the bidding documents. (MDB).**

- **Bidders/consultants who choose to do so may attend the bid opening, are invited to sign a record of attendance. Information read out at the bid opening (prices, offered discounts, and pertinent information) shall be simultaneously posted onto a web site. A record of the bid opening must (also) be kept in print copy and signed by individuals authorized to initiate the opening. Contracting Authorities shall make freely available the bid/proposal opening minutes by means of a website download. (MDB).**

### 8.16.9 Late Bids and Bid Closure

The system will automatically close at the designated Bid closing time such that late Bids cannot be received. Notification of non-acceptance will be return emailed to source. *The system shall accept only those bids/proposals in electronic format the submission or modification of which is completed at the time of the bid submission deadline. Receipt of electronic submissions, including the date and time, must be acknowledged immediately, and shall also be sent electronically. (MDB)*

*Online conferencing and chat facilities shall not function after the bid submission deadline. (MDB).*

The system shall not allow amendments that bring forward a bid closing date.

### 8.16.10 EBL Reporting

The central procurement agency should consult with line agencies about reporting options for bid lodgements. Examples of reports that may be useful include:
EBL administration

- number of bid boxes by agency;
- list of closed bid boxes for which the agency user has not downloaded bids. This is an important control to ensure that a bid response is not inadvertently omitted from the evaluation process;
- bid boxes opened but not accessed by agency users;
- total number of RFTs for which EBL is being used; and
- statistical information (number of hits, type of service provider using the service, etc).

Departmental user

- list of open bids;
- list of closed bids;
- list of closed bid boxes for which the agency user has not downloaded bids. This is an important control to ensure that a bid response is not inadvertently omitted from the evaluation process;
- name of person retrieving bid responses, time of retrieval, and name of witnesses present for each bid (this may assist in resolving queries at a later date);

8.16.11 Risk Management for EBL

The EBL system interfaces with the GPP and provides suppliers and potential suppliers to download requests for bids and submit their responses online. The EBL system consists of many components each of which could represent a risk to the system.

These risks can be defined in terms of:

- Application controls
- IT general controls
- Management controls

The EBL system requires special management policies and controls to ensure that there is no breach of procedures and that confidence is maintained. The significance of the management of this area cannot be too highly stressed.
The EBL system should be subjected to regular external audit to international standards.

Issues should include but not be limited to:

- Definition and strict segregation of duties between systems administration and security administration in relation to EBL;
- The activities of systems and security administrators to be logged and reviewed regularly by a third party;
- Operating system access by all users and administrators be strictly in accordance with their roles;
- Disaster recovery planning and controls including defining maximum permissible downtime;
- Password management and controls;
- Login and logout controls;
- Regular reviews of user profiles;
- Access logs that also record failed access attempts;
- Stringent controls over the key-pair and pass-phrase management processes;
- Backup and storage procedures for private keys - preferably not on a server which is under the control of a third party or to which a third party has access.
- Possible temptation of the individual charged with private key and pass-phrase management to attempt to gain access to bid submissions;
- Distribution of private keys and pass-phrases to nominated government agency users;
- Embarrassment and loss of confidence in the EBL should pass-phrases ever be compromised;
- Key revocation procedures, policies and management guidelines;
- Procedures for authorising program changes be clearly defined and strictly adhered to at all times;
• System documentation to fully describe and explain the system, its functionality, interrelationships and process flow;

• System capacity should be actively monitored;

• Retention policies and procedures in relation to storage and archiving of bid responses;

• Training manuals;

• Internet penetration testing including denial of service attacks;

• Certification of environmental controls at the EBL site.

If the EBL is provided by a third party then a comprehensive Service Level Agreement should be put in place that requires that this party be subject to regular external audit to international standards and that the government receive a copy of this audit and be able to require that its findings be fully addressed. The SLA should consider the need for the EBL to be on a separate server removed from the other e-GP systems. There may also be a role for a security-based SLA between the central procurement organisation that manages the e-GP systems and the government agencies that use it.

8.17 Contract Management

Government agencies typically manage numerous contract relationships simultaneously, each with various deadlines, expiry times, conditions and performance criteria, and often without any standardization between contracts for easy monitoring. There have been cases where important schedules, conditions and performance criteria have been overlooked. For construction contracts the problems are very much more difficult and complex. The e-contract management system can be designed to address these issues, strengthen transparency and efficiency for both government and businesses.

The EBS could have the capacity to manage contract variations, extensions and contract expiry dates for the purpose of, inter alia, recalling a contract.

8.17.1 Contract Variations

EBS should have the capacity to record and publish price variations to the awarded price per line item. A full audit trail of contract and price variations is essential

8.17.2 Contract Extension
EBS should manage the contract extension process. Many contracts are let for an initial period with the option to exercise extensions for further periods.

EBS should provide an early warning report of contracts that are due to complete their current term.

8.17.3 *Contract Recall (termination)*

EBS should manage the contract recall process. Many contracts are let for an initial period with the option to exercise extensions for further periods.

EBS should provide an early warning report of contracts that are due to terminate.

8.17.4 *Multiple Suppliers (Framework Contracts)*

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

8.18 Reporting

Bid Committees decisions and meeting minutes should be recorded in the EBS as these form part of the action sequence in the relevant Bid method as well as part of the audit trail. Agenda item numbers should be allocated and reports generated for Bids and Procurement Plans that the relevant Bid Committee will consider. These also forms part of the audit trail.

EBS should identify the difference between a Bid and Procurement Plan submission to the Bids Committee.

8.18.1 *Produce Ad Hoc Reports*

EBS should be able to produce ad hoc reports.

8.18.2 *Select Data*

It should be possible to select the items of information to appear on the report (for example: Bid Reference Number; Bid Description; Successful Bid; Date Accepted; Bid Amount, officials ID at each stage, etc).

8.18.3 *Define Selection Criteria*

It should be possible to define the selection criteria for the items of information appearing on the report (for example: Bid amount
greater than $100,000; date received, date range, accountable officers, etc)

8.18.4 Define Sort Criteria

It should be possible to define how ad hoc report information is sorted. Sorting includes the order in which information is reported, and the sort break points in the report.

8.18.5 Format Output

It should be possible to format the information appearing on the report (for example: change font sizes, column widths, and header and footer information).

8.18.6 Save and Print Output

It should be possible to save report output in an electronic format suitable for import into common format.

It should be possible to print preview and print the report to a network printer.

8.18.7 Produce Standard Reports

The EBS system should be able to produce the following standard reports.

- Bid Workflow Action Report – a report showing the action against a Bid.
- Bid Addendum Report.
- List of Bid Submissions (with prices; without prices).
- Bid submission ranking reports – ordered by value / alphabetical. These must include calculations (not EBS generated) for Government Procurement Agreement (GPA) and policy preferences.
- Officials accountable for each action and decisions and actions of each official;
- Report on application of policy preferences.
- Report on mechanism used for collection of Bid documents (i.e. posted, counter, courier, GPP).
- History of supplier's bidding activity (i.e Bid documents requested, submissions received and successful Bids).
• Contract Early Warning Extension Report.
• Contract Early Warning Termination Report.
• Other

8.18.8 Produce Standard Notices

EBS should generate the following notices:

• Notices to advertise the Bid

• Notice of Bid submissions, accommodating:-
  - The two envelope system (prices not released)
  - The modified Qualifications Based Criteria selection (prices not released)
  - The standard system
  - Building works Bids

• Successful / unsuccessful notices to Bidders

• For building works:-
  - Notices for Bidder under consideration or not under consideration
  - Contract award notices

• Decline of all Bids notices.

• Addenda Templates and Notices

• Notices of Invitation

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

8.18.9 Data management and Report Fields

Comprehensive data should be recorded and archived and be available for ad hoc and routine reports, audit and other research as required:

• Bid
  - Bid number
  - Bid type (eg. EOI, RFQ, RFP, RFT)
  - Bid method (determines workflow of Bid processing)
  - Previous Bid number
  - Facility(ies) (premises)
  - Region
  - Description (Bid name) / scope
- Client(s)
- Project Number(s) (links to the Project Registration System or the Works Management System)
- File Number
- Pre Bid Estimate
- Bid Account Code
- Bid Category (e.g., Cleaning & Gardening)
- Closing Date and Time (a default such as 5.00 p.m. may also be incorporated that would be consistent with any parallel paper-based system)
- Closing Location(s)
- Bids Registration Officer
- Directorate
- Branch
- Date Entered
- Entered by
- Bid Status
- Newspaper Advertisement
- Documentation by
- Telephone Number (fax and email)
- Comments
- Link to associated documents
- Date Accepted
- Successful Bidder
- Release Prices (Yes or No)
- Bid Amount (estimate)

• **Bid Details**
  - Bid reference number
  - Line number
  - Description

• **Bid Projects**
  - Bid reference number
  - Project number (relates to WMS job number or PRS project number)
  - Client
  - Facility

• **Bid Addendum**
  - Bid reference number
  - Addendum number (unique sequence with Bid number eg. Bid xxxx, Addendum 2)
  - Reason for addendum
  - Number of pages (including addendum notice)
  - Date issued
  - Addendum text
• Potential Bidders
  - Bid reference number
  - Supplier ID (from Register) or Potential Bidder ID (from EBS)
  - Addendum sent (flag)
  - Method of collection (post, courier, Internet)
  - Builder's category

• Bid Submissions (Manual)
  - Bid reference number
  - Supplier id (from Supplier Register)
  - Date received
  - Late Bid flag
  - Non-conforming Bid flag
  - Government Procurement Agreement (GPA) / Regional Preference Indicators
  - Detail records (by line number) – price

• Bid Workflow Actions
  - Bid reference number
  - Bid method
  - Action number
  - Milestone indicator
  - Expected date
  - Actual date
  - User id / role

• Bid Method
  - Bid method code and description
  - Procurement Range
  - Milestone indicator and days elapsed since last milestone
  - Officer Identities and Roles

• Suppliers (from Supplier Register)
  - Supplier Id
  - Supplier Name
  - Supplier Details (sufficient to identify)

• Government personnel (from Supplier Register)
  - Personnel ID
  - Name
  - Role
  - Bid approval limits (set in EBS)

• Government Offices (from Corporate Facilities Register)
  - Office name
  - Office location
9 E-PURCHASING

Government procurement based on the use of on-line price quotes is e-purchasing. This method is to be used for low-value goods and services, for which tenders are not required; instead, a list of sources of supply is used for such purchases. The operational capabilities which make up an e-purchasing service suitable for public procurement are specified to be consistent with those of the e-tendering system as applied to RFQs and RFIs and as established below. The same governance requirements as e-bidding should apply regarding authorizations and tracking. There are three stages involved: first, the eligible sources of supply in each locality are posted on the internet; second, an on-line purchasing mechanism will be created; and finally the range of customized information services will be expanded:

9.1 Functional Capabilities

The functional capabilities which make up an e-purchasing system suitable for public procurement specified as the following:

- Many-to-many functionality (Many buyers to many sellers)
- Decentralised buyers and sellers
- Search for suppliers by name, category, locality code, and contract
- Browse supplier catalogues
- 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 interface that allows financial flows from procurement to be reflected in the financial system – however procurement itself should not be run from the FMIS: the procurement system remains separate from the FMIS
- Reporting on all e-marketplace activity
- Payment gateway integration
- Supply chain workflow management, recording and reporting

9.2 Integration
The establishment of e-purchasing procedures should integrate with related systems in the major departments and facilitate substantial supplier connectivity. It is suggested that it be implemented only after the satisfactory take-up of e-tendering.

9.3 Business Rules

The e-purchasing system will operate as follows:

- When a specific good or services is to be purchased, the system automatically identifies the least cost supplier.
- The option of identifying the least cost supplier within a particular region may be specified if allowed by policy.
- The rules must also require that the reference price be listed. Where a regional-based quoted price exceeds the reference price then the system will automatically search more widely for a lower price.
- Any purchase that varies above the reference price will also be subject to business rules according to the required authorisations and a window will be required for the purchasing officer to provide justification.
- 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 official who accepts delivery (the government agency’s depot officer, for example) inputs acceptance into the system including attestation that the delivery is fully in accordance with the purchase order.
- A partial delivery will not trigger payment but will generate an online report in the system and alert the purchasing officer and higher authorities if required.
- The system then automatically processes the payment order for the supplier, update the accounts, address any tax issues, enter the items in the inventory, and record the information in the database for use in governmental and public oversight.
- Often for government there is no inventory and purchasing proceeds on a just-in-time basis.

9.4 Posting of eligible sources of supply on the Internet

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, preferably, competitive markets. These elements provide the basis for open registration of suppliers that meet the eligibility requirements.

9.4.1 Use and coding of catalogues

A universal standard catalogue coding system will be applied as the basis for the system to assess supplier-based 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 should be strongly preferred. This is an open standard and available without charge and should facilitate supplier engagement.

There are two models for catalogue deployment. The first is to create a large centralised 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 line items and requires 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 centralised catalogue provided that there are mature and competitive markets.

9.4.2 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 reference price; and (ii) historical cost information, which will provide an average price for use as the benchmark.

When e-GP begins to be implemented for on-line purchasing, the tendering system can be used to arrive at a reference price. This should be effective if the market is competitive – 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, 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.

9.4.3 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 within a
specified area. Suppliers must have an electronic catalogue according to the open standards stipulated for interoperability and classification (preferably UN-SPSC 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.

There should be scope to blacklist suppliers that have not performed satisfactorily. The system will not include blacklisted suppliers in purchase orders. The blacklisting procedure needs to be transparent and appeal-able.

9.4.4 **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 on-line. The system can be customized agency-by-agency: Each agency has its own authorization hierarchies and rules and this needs to be built in 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 on-line mechanism for issuing purchase orders as well as changing the approval, authorization, notification, etc, processes on a frequent basis at numerous points throughout the organization.

9.4.5 **Development of suppliers’ capacity to handle purchase orders on-line**

Suppliers also have to be able to receive and fill purchase orders on-line requiring connectivity and negotiated performance rules, for example for hospital supplies. This functionality may be downloaded from the central site for small suppliers to assist roll-out.

9.4.6 **On-line receipt, payment, and inventory management**

Government agencies will 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.

9.4.7 **On-line production of public information and reports**

The information generated during the preceding process must be automatically entered into databases 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. This information is vital for oversight by supervisory and auditing units, budgeting etcetera. These statistics furnished by the system must be recorded in a form to allow routine and ad hoc reports to monitor practices, evaluate performance, and formulate policies on supply-side incentives for the private sector that can be tailored to country-specific conditions.

10 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. Additional governance rules have been specified by the MDBs.

10.1 System Preparation

- The procurement must be able to publish online accurate specifications of items and services and the purchase matter and requirements must be suitable for simple bidding processes (e.g. in terms of price or quantifiable in figures/percentages).

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

- The system must be able verify whether all operational conditions are met for starting the auction (e.g., if all participants are connected and whether security conditions required for safeguarding anonymity are in place).

- The system should be able to facilitate real-time monitoring by the auctioneer of variables that may indicate market manipulation. Auctions should not be used where the relevant market structure exposes them to significant risk of improper practice such as predatory pricing (low-balling) or collusion. (MDB)

10.2 Bidding Specifications

The pre-auction published information shall include, inter alia:

- The features, the values for which will be the subject of electronic auction, provided that such features are quantifiable and can be expressed in figures or percentages;
- Any limits on the values which may be submitted, as they result from the specifications relating to the subject of the contract;

- The information which will be made available to bidders in the course of the electronic auction and, where appropriate, when it will be made available to them;

- The relevant information concerning the electronic auction process;

- The conditions under which the bidders will be able to bid and, in particular, the minimum differences which will, where appropriate, be required when bidding;

- The relevant information concerning the electronic equipment used and the arrangements and technical specifications for connection.

10.3 Advertising

- The development of notification of an e-auction shall be as for the EBS and will automatically posted on the GPP.

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

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

- Advertising shall include the award criteria in the Auction Notice, either in terms of the lowest price or other variables. If the award is based on multiple variables the award criteria and the relative weightings attached to them must be specified and advertised accurately and in detail either in the auction notice or in the tender specifications. If appropriate, the Contracting Authority will also state the mathematical formula and individual information on each variant.

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

- Contracting Authorities shall ensure the integrity of Master documents in electronic format, and their online publication.
Modifications must be similarly secure and stored with the Master. Contracting Authorities shall inform Bidders/Consultants where such Master documents can be accessed.

### 10.4 Operation

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

- Under no circumstances shall the identities of the bidders be able to be disclosed during any phase of the auction.

- If a bidder submits an invalid bid it will be notified online immediately with a message explaining why the bid is rejected.

- *When deciding to give out additional information, the contracting authority shall verify that this information does not distort competition and informs all bidders simultaneously.* (MDB)

- The system shall automatically close the auction in accordance with the option it has specified. Closure will be either (a) at the time and date as previously published, or (b) when a previously advertised time period has elapsed during which no new valid bids have been received. It shall immediately inform bidders about auction closure.

- *The Contracting Authority shall review whether there has been improper use of the auction.* (MDB)

### 10.5 Correspondence, Amendments, and Clarifications

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

- Modifications by any operator will be tracked and recorded for audit. Systems should ensure that only authorized changes can be made.

- In case of any modifications of or amendments to the Master Bidding Document by the buyer, the buyer shall not replace the Master document by a new one, but provide such modification or
amendment by means of an additional document in line with the same distribution mechanism as for the original document.

- **Contracting Authorities shall track receipt by Bidders when distributing pre-bid amendments and clarifications online.** (MDB)

- Where there are online pre-auction conferences and clarifications, including for example online conferencing and chat facilities, such facilities shall not function once an e-auction has begun

### 10.6 Access

- **Access will be open, equal and unrestricted to all prospective bidders.** Where a two stage process is used, such as within a Framework Agreement, this open access requirement will apply to the first stage with the conditions already set out in the e-tendering guidelines. (MDB)

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

- Where pre-qualification occurs an electronic invitation will be issued to admissible bidders simultaneously, informing them of the e-auction. Bidders must be contacted electronically at least 5 working days before start of the auction.

- **For those suppliers that want to submit information or receive online alerts or notifications of auctions shall be offered an online registration facility. Registration shall be free, unrestricted and the principle of single sign-on should apply.** (MDB)

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

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

### 10.7 Information Security Management, Authentication and Charges

- These specifications are similar to those for e-tendering as described previously.
11 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. Some or all of these are often the subject of a Service Level Agreement. Determining these requires the government to have technical advice independent of any service provider. Non-functional requirements can be described in terms of a number of qualities:

11.1 Manifest Qualities

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

- **Performance**: reflects user waiting times;

- **Reliability and Availability**: Reliability reflects the average time between system failures, while Availability reflects uptime vs. downtime, measurable in terms of partial or complete lack of availability. (Availability in most good systems usually is above 99%. *The system should perform reliably and securely in time-sensitive, commercial application consistent with the number of bidders participating.* (MDB))

- **Accessibility**: usability scenarios for those with physical limitations – see references to this under Access in the foregoing;

- **Usability**: ease of use of system.

11.2 Operational Qualities

These 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.

  - *The system shall perform securely in time-sensitive, commercial application.* (MDB).

  - *The system shall ensure the integrity of Bidding Documents in electronic format, and their online publication.*
Amendments shall be similarly secure and stored with the Bidding Document. (MDB)

- There shall be security arrangements to ensure confidentiality and integrity of bids/proposals in electronic format. (MDB)

- Bids/proposals submitted online shall be virus scanned by the system before being uploaded and accepted into the online bid box, and where this causes a bid to be rejected the bidder/consultant shall be notified immediately by the system. (MDB)

- Online submissions shall be received into an electronic bid box and maintained to high standards of security for long term record-keeping and audit. At no time shall bids/proposals be in unencrypted format. Copies taken and decrypted for bid evaluation purposes shall not affect the integrity of the original record. (MDB)

- 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 shall be available for audit as required. (MDB)

- For any e-GP processes engaged internally or through third parties, the system and its management shall 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. (MDB)

- **Manageability**: reflects the capacity to readily start, restart, and stop the system or its processes (as required), to monitor its performance against benchmarks and to take corrective action as required.

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

### 11.3 Development Qualities

Describe the positive aspects of the system relative to its developers.
• **Buildability** is a measure of confidence that the system can be built within the given time frame.

• **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 shall be interoperable through open standards with ICT products in common use. The system shall be an Internet based approach accessible by users through readily available and commonly used browser software. (MDB).

  - Downloaded documents shall be readable through open standards with a range of commonly used office software. If specialized software is necessary, this shall also be downloadable (e.g. software 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, shall require only open standard interfaces with commonly used office software, or the submission software shall be available online from the Contracting Authority’s system as required. (MDB)

• **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. It is difficult to hold anyone accountable for these.

• **Scalability**: the ratio between the capacities to support more users vs. 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 that 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 "tight integration" that reduces freedom of choice later.
These Non-Functional requirements should be subject to a risk analysis to assist the development of the service level agreement.

12 END NOTE

The foregoing sets out the basic design requirements for an effective e-GP. It should be clear that for this to be a successful transformation the organisation and authorisations supporting procurement from the relevant authorities needs to be seamlessly integrated with the technology. It is this reorganisation which is the reform and which enables the technology to deliver its promise. There are other issues that arise from this reform which have been spelt out elsewhere – see Toolkit in www.mbd-egp.org.