

E-PROCUREMENT TOOLKIT — ACCELERATING E-PROCUREMENT SOLUTIONS

E-PROCUREMENT PREPARATION

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List of Acronyms

Acronym	Meaning
CA	Contracting Authorities
COTS	Commercial Off-The-Shelf
CPB	Central Purchasing Body
CPV	Common Procurement Vocabulary
DPS	Dynamic Purchasing System
DR	Disaster Recovery
ECA	Europe and Central Asia
e-GP	Electronic Government Procurement
EO	Economic Operator
ERP	Enterprise Resource Planning
EU	European Union
FA	Framework Agreement
FMIS	Financial Management Information System
ICT	Information And Communications Technology
IPR	Intellectual Property Rights
ISCB	International Standards and Compliance Board
ISO	International Organization for Standardization
ITAB	International Trade Agreements Board
KPI	Key Performance Indicator
MDB	Multilateral Development Bank
NPMF	National Procurement Managers Forum
OCDS	Open Contracting Data Standard
PFM	Public Financial Management
PCPP	Permanent Commission for Public Procurement
PPP	Public-Private Partnership
PPRA	Public Procurement Regulatory Authority
SME	Small And Medium Enterprise
TCO	Total Cost of Ownership
UNCITRAL	United Nations Commission on International Trade Law
UNSPSC	United Nations Standards Products and Services Code
WB	World Bank
WTO	World Trade Organization

W3C	World Wide Web Consortium
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1 INTRODUCTION

1.1 WHAT IS E-GOVERNMENT PROCUREMENT?

Since the 1990s, governments have been facing increasing pressure to be more transparent and accountable in the manner in which taxpayer funds are being utilized. This has resulted in an evolution in the way that both public procurement is conducted and government structures are organized to manage the public procurement process. According to estimations across a variety of country profiles, public procurement expenditure accounts for between 10 and 25 percent of GDP. Thus, savings achieved through improved utilization of these funds could have a substantial positive impact on the economy as a whole.

Around the world, governments have been embracing information and communications technology (ICT) to improve the efficiency and effectiveness of the delivery of services to their citizens and to provide timely and accurate access to information. These initiatives cover the entire spectrum of government responsibilities and are generically termed e-Government initiatives (or e-Governance). One of the most successful applications of ICT is in the area of public procurement, known as Electronic Government Procurement (e-GP).

What is e-Government Procurement (e-GP)?

E-Government Procurement (e-GP) is defined as the collaborative use of information and communications technologies by government agencies, the bidding community, regulatory and oversight agencies, other supporting service providers, and civil society in conducting ethical procurement activities in the government procurement process cycle for the procurement of goods, works, and services and the management of contracts, thereby ensuring good governance and value for money in public procurement and contributing to the socioeconomic development of country (Shakya 2015, 141).¹

The application of ICT to procurement processes has resulted in new procurement platforms that are able to address key procurement objectives by exploiting technological capabilities that are not readily available in a paper-based procurement environment. These processes have resulted in enhanced governance in public procurement.

As a rule, the procurement process consists of a number of high-level phases:

- » Procurement planning
- » Publication of tender notices
- » Provision of tender documents (also referred to as Standard Bidding Documents)
- » Submission of bids
- » Evaluation of bids
- » Awarding of contract(s)
- » Complaint handling
- » Contract management
- » Asset disposal

These are supported by a number of complementary mechanisms, such as:

- » Online registration of organizations and users
- » Vendor management

¹ See Shakya, R. K. (2015). Good Governance in Public Procurement: An Evaluation of the Role of e-Procurement System. https://www.academia.edu/15810750/Good_governance_in_public_procurement_An_evaluation_of_the_role_of_an_e-procurement_system

- » Searching
- » Catalogue of common use items
- » Ordering
- » Invoicing
- » Payment

The objective is to implement all of these phases and mechanisms to operate by means of electronic automation in a way that incorporates all of the key principles of public procurement for good governance, resulting in “straight-through” e-GP. Many specialized e-Procurement software platforms have been developed that provide the required capabilities to Contracting Authorities (CAs) to enable them to do just this—to run their procurement processes electronically.

Full-fledged e-GP implementation involves much more than the simple application of technology to the procurement process, however, and frequently also requires changes in legislation, business practices, and procurement staff skills. It is a transformation initiative that affects the working practice of CAs, the Economic Operator (EO) community, and other oversight and supporting government agencies to the benefit of the general public. As with any other transformational program, the correct implementation of e-GP, resulting in the realization of all the envisioned benefits, requires substantial planning and sustained effort over time. Perhaps surprisingly, the lack of IT skills among government officials and the bidding community is no longer the biggest challenge to e-GP implementation; instead, it is the willingness of the users to adapt to the required work culture. An extended change management program, together with communication and social awareness, is therefore a key component of any e-GP implementation plan. And in addition to the design, acquisition, and application of technology, existing procurement legislation may also need to be amended to provide legitimacy to the procurement procedures and practices available with e-GP in order to enable, promote, and enforce its use. The implementation of e-GP clearly requires a significant level of commitment from all of its stakeholders.

1.2 HOW TO USE THIS TOOLKIT

This toolkit² has been developed to provide insight into the implementation of e-GP and to assist those governments embarking on the development of an e-GP implementation strategy. As each country is unique with regard to its readiness and socio-political challenges, the toolkit is not intended to be used as a boilerplate strategy that can simply be implemented wholesale. Instead, it provides available options and suggested steps that have been successfully employed by others when implementing e-GP in their own national or regional context. Before initiating any e-GP reform process, each country should thoroughly define its own e-GP implementation strategy in line with its own context and strategic priorities and ensure that the necessary level of political support is behind it.

The toolkit is arranged in separate chapters for each specific topic. The greatest benefit will be obtained by reviewing the entire toolkit, although individual chapters can be consulted for particular topics. A reader less familiar with e-GP is strongly encouraged to read through this document entirely before delving into any of the others in the toolkit that deal with the functionalities of each e-Procurement system module in greater detail.

Once an e-GP strategy has been formulated, the toolkit can also be used to generate the comprehensive business, functional, and technical requirements or Terms of Reference to be used for the selection of an e-Procurement system. By accessing the toolkit website, the reader is able to select the particular modules needed to implement a specific strategy. All dependent modules will automatically be included in the requirements by the toolkit to ensure that the solution has no functional gaps and at the same time that there are no superfluous requirements that lead to increased implementation costs and extended timelines.

² <http://eProcurementToolkit.org>.

BENEFITS OF E-GP

1.3 INTRODUCTION

There are many potential benefits to implementing e-GP (see Figure 1). These benefits are linked to three key focus areas:

- » Governance
- » Effectiveness of Government
- » Development of Markets

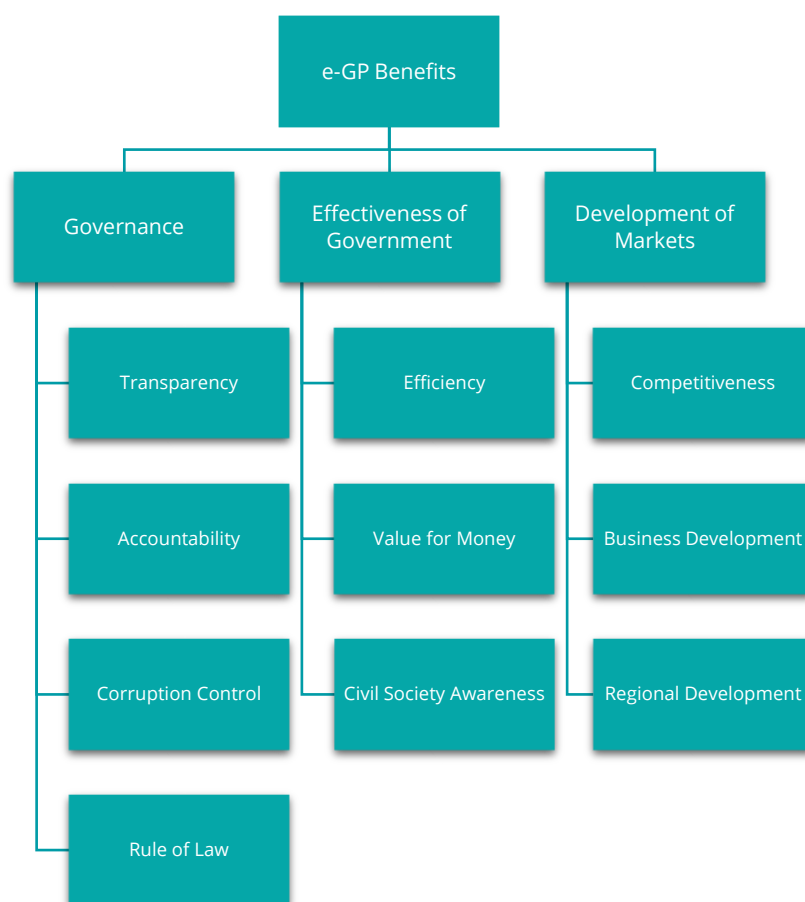


FIGURE 1: BENEFITS OF E-GP³

For any government considering e-GP, the primary concern should be the design of an implementation strategy that supports the objectives in all three categories.

Although e-GP can help to lower the cost of goods, works, and/or services, resulting in better value for taxpayers, e-GP implementation has its own associated set of costs that may not have existed previously. These include the initial investment in software as well as the ongoing operational costs of hardware, software licensing, and support staff, though experience from countries that have already implemented e-GP programs shows that these additional expenses can be recouped in a relatively short time. As noted above, the greatest challenge to be overcome is in the willingness of stakeholders to use e-GP, as adoption of the new system by CAs and EOs alike is critical to its success. These user communities will therefore require ongoing support and training. The e-Procurement system

³ Adapted from ADB, IDB, and World Bank (2004c).

itself also requires regular investment in order to continually improve its features and to keep abreast of technological advances, which will progressively enhance its operation and thus deliver new opportunities for further efficiencies in public procurement.

Although these benefits are mutually compatible, they will materialize only if they are part of the overall design of the e-GP implementation strategy. For instance, it is possible to implement a system that provides improved transparency, accountability, and efficiency by using closed standards; however, such a system would have limited interoperability⁴ as a result of the design decisions taken.

Due to different national strategies and priorities, some countries may target greater focus on improving governance and efficiency. Others may emphasize economic and business development, which is often sought by both developing as well as developed countries as part of their e-GP implementation strategy. The various benefits of e-GP are outlined below.

1.4 GOVERNANCE

Electronic procedures compel users to execute public procurement actions in line with legislation, while in parallel, enable any interested party to monitor public procurement proceedings and results. As the information is available online (generally in real time), it can be accessed by EOs, the general public, and other departments of the government itself (auditing bodies, oversight agencies, government officials) not directly involved in the procurement process.

1.4.1 TRANSPARENCY

The purpose of transparency is to consistently make relevant and complete information easily and readily available to interested parties, preferably at no cost. Transparency is substantially improved by making information on, for example, up-to-date policies, the bidding process, standardized documentation, submitted bids, evaluation progress, contract award details, and contract execution progress, accessible to the public. Initiatives, including data visualization with geo-tags using the Open Contracting Data Standard (OCDS), that focus on the openness of procurement data can promote transparency, which in turn makes stakeholders accountable as public procurement procedures can be constantly monitored by the general public. Transparency significantly enhances citizens' trust, and the increased level of trust attracts new bidders to participate in the public procurement process, thus encouraging competition.

Different benefits are experienced for different types of procurements. Transparency in the procurement of low-value goods or services is strengthened with the use of electronic systems through improved audit capacity, which is almost neglected in a paper-based procurement process. Similarly, when high-value goods, services, or works are being procured, transparency is strengthened through increased disclosure of information at different stages of the procurement and contract execution process. Of critical importance is that opportunities for fraud and other corrupt practices are greatly reduced with the improved transparency afforded through the implementation of e-GP (see below).

1.4.2 ACCOUNTABILITY

Accountability can be ensured when public procurement stakeholders take responsibility for their actions and decisions and the related outcomes. Such responsibility can be expected only when the roles of users within the procurement process are clearly defined and there is an explicit segregation of duties between them. Unauthorized spending is curbed, as the system's built-in controls enforce strict compliance with procurement policy, legislation, and administrative authority. For instance, government officials can perform certain actions in the system, such as approving a particular procurement activity, only if they are granted the necessary approving authority and access rights. Bids received after the specified due date and time are marked by the system as late or non-compliant (or,

⁴ Interoperability is defined as the ability of an ICT system to seamlessly transact with other ICT systems.

depending on the national policy, may not be accepted by an e-Procurement system at all). Users are accountable for their actions in the system, as all activities are electronically logged in and can be traced back to them. This also discourages the sharing of log-in credentials, further improving overall user accountability under an e-Procurement system.

As a result of the increased integrity of the information in the system, the performance of CAs, procurement officials, and other stakeholders can be monitored and evaluated through performance indicators built into the new structure. These indicators allow the success of e-GP implementation to be measured from different dimensions, revealing where adjustments may be required. For example, a standardized set of e-Procurement indicators provides information on the state of governance, the quality of procurement performance, and potential areas for improvement by synthesizing and making available a range of procurement data. EOs and the general public have access to these reports and to current and past information and future procurement plans, thus establishing high levels of trust in the entire electronic process.

Standardized indicators also make it easier to compare the implementation of e-GP across different countries, a task that has heretofore been very difficult to accomplish. More information on the e-Procurement indicators defined by the World Bank (WB), particularly for the Europe and Central Asia (ECA) region, can be found in a dedicated document available on the WB's e-Procurement Toolkit website.⁵

1.4.3 CORRUPTION CONTROL

Corruption in procurement relates to the award of a contract to an EO in a manner that is detrimental to the public interest. This is often accompanied by personal benefit to one or more CA officials and/or the award of the contract to a supplier who did not necessarily provide the best offer. The result is that public funds are not spent in the most economically effective manner. E-GP contributes to reducing this kind of corruption, first, by making information accessible for review. Second, it reduces or entirely eliminates the need for face-to-face contact between CAs and EOs, thereby reducing the opportunities for undue influence to be applied. Third, since all actions in the e-GP system are audited, it would require substantial and widespread collusion to engage in corrupt activity undetected. Nevertheless, no system can eliminate corruption entirely, and attention should be paid during the design and implementation of the e-Procurement system to ensure that loopholes do not emerge that could allow room for fraud and other abuse.

1.4.4 RULE OF LAW

Although this term has a more general applicability, in the procurement context it relates to the enforcement of any procurement legislation and supporting regulations to improve compliance by the involved parties. This ensures that procurement procedures are conducted in a manner that promotes fairness, equal treatment, consistency, and common understanding for all stakeholders. Undermining the rule of law with regard to procurement seriously damages the government's reputation; it also results in physical costs related to appeals and other court proceedings when violations are uncovered and challenged by EOs or other parties.

1.5 EFFECTIVENESS

Effectiveness measures the extent to which outcomes correlate to objectives. Through the introduction of e-GP, processes are standardized, streamlined, and integrated, and associated processing times and administrative costs are consequently reduced. Increased competition and reduced costs for EOs also lead to lower prices for the goods, works, and services procured by the government.

⁵ <http://eProcurementToolkit.org>.

The increased effectiveness of all procurement procedures promotes the more efficient use of public funds by making it possible to procure either more or better goods and services for the same level of investment or the same level of goods and services at lower cost.

1.5.1 EFFICIENCY

Although effectiveness focuses on the match between objectives and outcomes, efficiency measures the productivity of resources in achieving those outcomes. More specifically, with regard to procurement, it involves the selection of the most appropriate procurement method for the goods, works, or services required. As previously mentioned, the administrative costs associated with electronic processes are lower in comparison to paper-based systems. At the same time, individual procurement procedures are executed more quickly. These efficiency gains are especially important in light of the current economic pressures the world is facing. In speeding up the procurement procedures themselves, e-GP systems help to stimulate the local economy by increasing the rate at which public procurement budgets are spent.

Electronic procedures also contribute to improving economies of scale in procurement administration where Central Purchasing Bodies (CPBs) exist. Savings are created by centralizing the back-office function costs for public procurement. In most cases, switching from a paper-based system to e-GP offers an opportunity to review and optimize procedures. Electronic procedures do not necessarily have to mirror existing manual actions and can be optimized (through Business Process Reengineering) to take advantage of the benefits provided by the application of ICT. Moreover, it is much easier to integrate procurement procedures with other functions, such as inventory control, contract management, and audit and financial management, and there is less need to handle and store documents in paper format as this will be done digitally, which has a positive environmental impact.

Fewer transactions, lower maverick (or unauthorized) spending, and reduced procurement cycle times are all reported efficiency improvements provided by e-GP. The more that procurement actions are handled electronically, the fewer errors that are made through the performance of manual tasks, enabling staff within both the public and private sectors to focus on more productive and less mundane activities.

Procurement procedures clearly benefit from electronic workflows, standardized templates, and improved access, resulting in transactional efficiencies and reduced processing times for both EOs as well as the government. Information does not need to be keyed in multiple times when actions are integrated digitally, thus improving the rate at which documents flow from one department to another while simultaneously reducing the likelihood of transcription errors.

The application of e-Catalogues and online ordering, commonly used in Framework Agreements (FAs) and Dynamic Purchasing Systems (DPS), facilitates the collection and utilization of real-time purchasing data. Reports can be produced with up-to-date information, such as newly published tenders, the latest purchase orders, and completed payments, to allow CAs to develop their policies with regard to:

- » development of local industries by providing incentives to local suppliers
- » implementation and monitoring of open market and cross-border trade policies
- » annual budgeting effectiveness
- » an increase in the participation of EOs with a specific status, such as small and medium enterprises (SMEs), women-owned businesses, and so forth, and in their ability to introduce new technology areas into the country

Synergies between CAs for more efficiency are better established under e-GP, while there is greater potential for central coordination with regard to vendor management. For example, when the e-Procurement system is unified for all CAs and EOs, governments can quickly see when two CAs are buying certain items from the same EO for different prices. Similarly, when EOs are debarred, a centralized e-Procurement system allows for the quick and efficient application of the new status, resulting in the revocation of that EO's access credentials across the whole system and preventing the EO from participating in all further procurement procedures.

1.5.2 VALUE FOR MONEY

Because of the increased competition between EOs, e-GP has led to significant savings in the costs of goods, works, and services and/or an improvement in their quality. However, value for money is not determined by price alone. It also means the most effective, efficient, and economic use of resources, which requires an evaluation of the relevant costs and benefits along with an assessment of risks, non-price attributes, and/or life cycle costs as appropriate. Making selection decisions on the basis of Total Cost of Ownership (TCO) enables CAs to procure the correct quality and quantity at the appropriate price. By aggregating the procurement requirements of the common goods and services of multiple government agencies, the purchasing power of government is strengthened, resulting in the best value for money through economies of scale. Maverick buying is also restricted, as common items can be procured only from the EOs listed in the e-Procurement system. This is particularly true in the context of FAs.

The lower transaction costs for EOs can lead to reduced prices, further improving the positive impact of value for money on government spending. These cost savings can be attributed to a reduction in the costs typically associated with bid preparation or to lower transaction charges stemming from electronic invoicing and payment methods.

In addition, the ready availability of all the procurement data electronically in the form of real-time analytical reports enables CPBs to negotiate more competitive pricing. Although CPBs traditionally negotiate FAs on behalf of multiple CAs, they usually experience problems in tracking actual usage of these agreements. Information on which CAs are indeed ordering against these FAs and the volumes that are being processed arrive at the CPB well after the fact, if at all, making it difficult for the CPB to ensure the EOs' compliance with the agreed terms. The availability of data in the e-Procurement system empowers the CPBs to better aggregate demand and negotiate more effectively.

1.5.3 CIVIL SOCIETY AWARENESS

An e-Procurement system makes relevant information easily accessible to members of the general public as well as to appointed monitoring bodies to enable them to fulfill their monitoring responsibilities. Oversight of public procurement by civil society promotes accountability and transparency and exerts pressure on public officials to spend public funds in a responsible manner. The appropriate level of information to be made available to the public may be difficult to determine, but this can be facilitated by the development of a data classification and publication policy that balances the protection of personal information and national security with the public disclosure of procurement information.

1.6 DEVELOPMENT OF MARKETS

An e-Procurement system reduces barriers of entry to SMEs by increasing the availability of information and decreasing the costs of participation. It also improves competition and productivity while reducing the opportunities for fraudulent behavior. As a result, local and regional economies are enhanced through the application of economies of scale and location. Public expenditure is therefore more balanced, fair, and aligned with development goals. Moreover, less-developed countries can leverage this capability to improve their standing in regional and international programs.

1.6.1 COMPETITIVENESS

Through a centralized e-Procurement system, businesses are better equipped to locate tendering opportunities of interest and obtain access to their relevant documentation. It is much quicker to search for opportunities online than to physically scour numerous publications. Many e-Procurement systems allow EOs to register their interest in particular types of opportunities so that they can be notified immediately and automatically when a corresponding tender is published. Documentation of these specific tenders can be accessed immediately online.

The effort involved for EOs to locate specific tender opportunities in a centralized web portal is minimal due to the greater visibility of public tenders. In most cases, tender documents can be downloaded at no cost, which, among

other outcomes, can improve the competitiveness of SMEs by providing them with opportunities to sell to the government. Electronic bids can be submitted from any location as long as reliable Internet connectivity is available.

1.6.2 BUSINESS DEVELOPMENT

E-GP can be instrumental in promoting economic development by encouraging local businesses to take up online technologies. Although the initial focus may be on doing business with the government, the same technologies can be adopted for other trading activities in the economy. By virtue of the significant economic power of government as a purchaser, the standards applied during e-Procurement implementation have a high potential of being adopted more widely in the economy. For example, the Government of Denmark mandated that government procurement entities accept only electronic invoices from suppliers as per the OIOXML electronic invoice standard beginning February 1, 2005. Although the use of e-Invoicing was minimal in the private sector at the time and limited to large retail players, beginning in 2005, suppliers increasingly integrated their internal IT systems into the national e-Invoicing service “NemHandel” for business-to-business transactions as well.⁶

The catalytic effect of government can thus result in businesses becoming more efficient and competitive in e-commerce as a whole, allowing them to compete in other markets where they previously may have had limited success. E-GP provides equal opportunities for SMEs to participate in public procurement, hence promoting SME development with the additional benefit of reduced costs. In addition, governments can support the development of specific market sectors goals, such as women-owned businesses, rural development, and so on, through the preferential scoring of qualifying EOs and/or dedicated procurement procedures for such specialized policies.

1.6.3 REGIONAL DEVELOPMENT

In a paper-based environment, EOs may be discouraged from participating in certain tenders due to a lack of knowledge or because they are located far from CAs. These barriers are reduced by e-GP, resulting in greater participation by a larger pool of EOs. For example, because of the increased transparency and availability of information provided by an e-Procurement system, EOs from one region can participate in the bidding opportunities in another by completing all transactions online, except for the execution of the contract on site. This does not apply only to cross-border transactions, but also between regions within the borders of the country. Of course, this also makes it easier for foreign EOs to participate in public procurement activities, which in turn encourages local businesses to either improve or maintain their competitive position.

In addition, increased access to local, regional, and international business opportunities allows the e-Procurement system to act as a regional business development tool for both governments and EOs. Fewer distance barriers results in greater levels of participation, widening the pool of possible EOs for government and potentially enlarging markets.

⁶ See ADB (2013, 15).

2 STRATEGIC OBJECTIVES

2.1 INTRODUCTION

Implementing an e-GP program involves different challenges that are frequently misunderstood and/or underestimated. Apart from the establishment of ICT systems to support automation, changes are required in the behavior of executives and operational personnel, new skills need to be developed, regulations and legislation may need to be amended, and operational policies will have to be adjusted. Simply acquiring the technology (hardware and software) of an e-Procurement system will not produce change; strong leadership and consistent commitment are also required at multiple levels of government, supported by an effective change management program. E-GP should not be regarded as yet another add-on to the complex environment of public procurement management. Rather, it is a tool to reform public procurement in a holistic manner, incorporating appropriate adjustments to the policy and legal framework and the activation of buyers and EOs through training, awareness generation, technological infrastructure development, and the establishment of standards that lead to better operational and sustainable applications.

Five complementary and indispensable strategic foundations⁷ (see Figure 2) underpin the successful delivery of e-GP. These foundations need to be addressed separately and holistically, as imbalances can result when one is neglected or overemphasized in relation to the others.

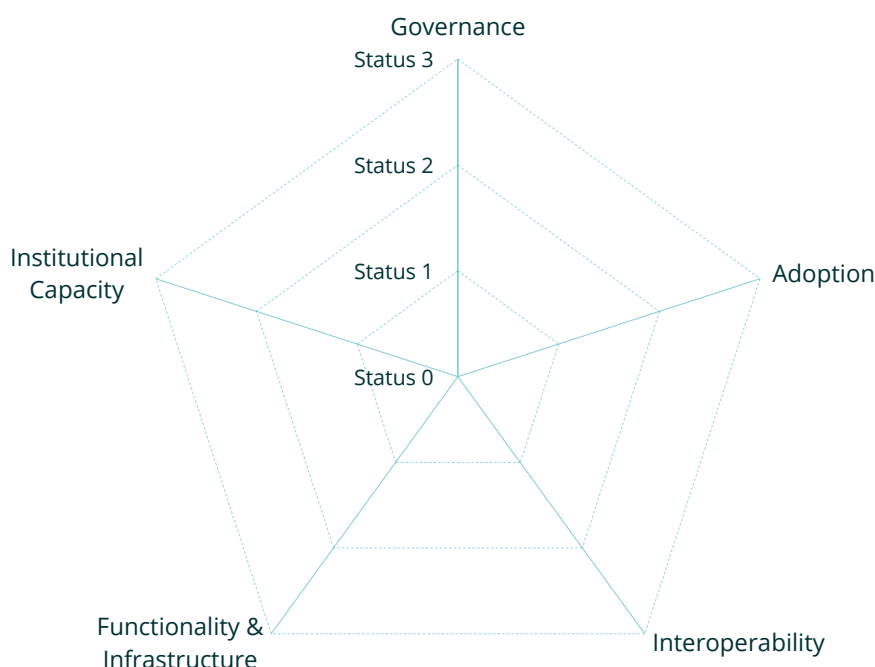


FIGURE 2: E-GP STRATEGIC FOUNDATIONS

⁷ Adapted from ADB, IDB, and World Bank (2004a).

	Status 0	Status 1	Status 2	Status 3
Governance	No or atomized activities	Atomized policies	Nationwide legislative package	Concrete national set of policies and regulations
Institutional Capacity	No e-Procurement experience	Dispersed knowledge with lack of coordinated leadership	Experience and atomized leadership	Specialized experience with institutionalized leadership
Functionality & Infrastructure	No functionality	Systems dispersion	Basic e-Procurement functionality	Advanced e-Procurement functionality
Interoperability	Stand-alone systems	Dispersed system integrations	Integrated centralized systems	Integrated, standardized, and centralized systems
Adoption	Low participation	Subset of central government CAs and EOs	All central government CAs and international EOs	Full public sector enrollment and full EO inclusion

TABLE 1: STAGES OF STRATEGIC OBJECTIVES

The above graph (see Figure 2) can immediately provide an indication of a country’s status with regard to e-GP by plotting the area to be covered and then connecting the status of each strategic objective. The larger the area covered, the more e-GP advanced a country is.

An example is available in the highlighted area of Figure 3, for which it is assumed that country X has reached:

- » Status 2 for Governance and Institutional Capacity;
- » Status 1 for Adoption and Functionality and Infrastructure;
- » Status 0 for Interoperability (that is, no progress has been made).

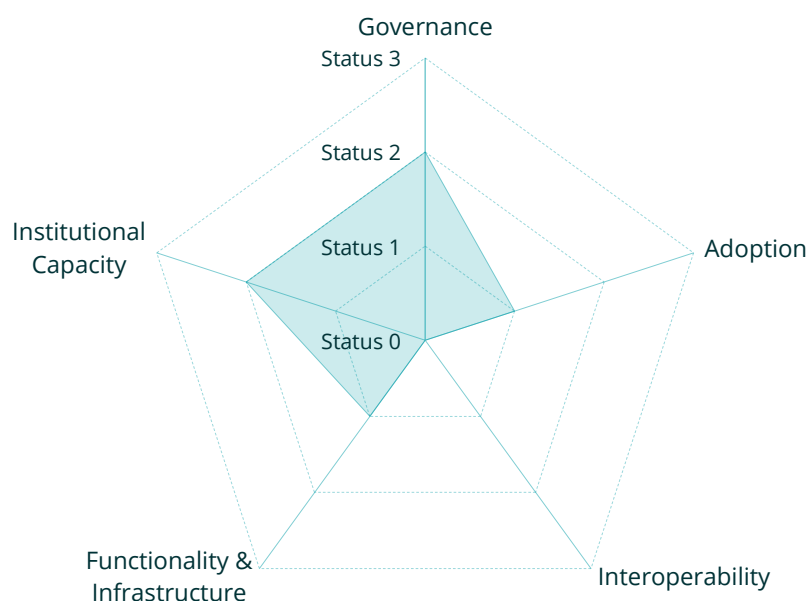


FIGURE 3: EXAMPLE OF COUNTRY STATUS AGAINST E-GP STRATEGIC OBJECTIVES

Governments just embarking on the e-GP journey often find themselves in the following “Status 0” for each strategic objective:

- » **Governance:** Each department has its own policies and procedures, derived from its own interpretation of existing legislation as well as its own accumulated experiences. Very little or no common ground exists between these interpretations and their implementations by the various entities/CAs.
- » **Institutional Capacity:** No dedicated entity exists to oversee procurement for the government, and leadership is dispersed across numerous departments. Nonexistent specialization in e-GP.
- » **Functionality and Infrastructure:** No common set of requirements exists, so the vast majority of CAs perform offline procurements. The small number of e-Procurement systems implement their own functional requirements, leading to confusion and the duplication of effort.
- » **Interoperability:** Many disparate atomic systems exist with no or very limited connectivity between and across systems.
- » **Adoption:** Private and public sectors are conflicted, as procurement information is scattered, difficult to obtain, and often incomplete. Low levels of trust can be witnessed in communities with regard to the procurement systems of the government, leading to low CA involvement and EO participation.

After successful implementation, the goal is to achieve the following status for each strategic objective:

- » **Governance:** An integrated legal and policy framework is established in support of the procedures that cater to, promote, or even enforce e-Procurement.
- » **Institutional Capacity:** Leadership of procurement occurs in a coordinated fashion across government with specialized and skilled e-GP institutions.
- » **Functionality and Infrastructure:** Tools and procedures are simple and standardized, ideally in centralized installations. Specialized organizations are created with the requisite functionalities to oversee and manage all public procurement activities.
- » **Interoperability:** Applications are standardized and interoperable, leveraging off massive connectivity and ensuring availability, synergies, and automation.
- » **Adoption:** A partnership exists between the public and private sectors, including citizens who actively participate and monitor procurement performance. Training is available for all user communities that require it.

The question for governments is no longer one of whether to implement e-GP but how to approach it. Many e-Procurement applications exist in the marketplace today that have been developed by governments or private entities and can be suitably adapted to fulfill all the requirements of even the most ambitious e-Procurement implementation effort.

The way a government organizes itself to manage and deliver the e-Procurement service is as important as its successful technical implementation. Rules for how, when, and by whom the system should be used, as well as support to ensure successful operation and accompanying procurement reforms, will determine the success of the system.

As noted, changing the mindset of CAs and EOs to accept new approaches and practices is the main challenge to be overcome when introducing an e-Procurement system. Regular and relevant information needs to be provided on an ongoing basis to ensure that all stakeholders are informed of progress, pending changes, new requirements, and so forth. Communication on its own will not suffice if participating agencies are not equipped with the required computer and network infrastructure resources to allow them to make use of the system. The lack of suitable resources is a particular challenge in developing countries.

The following subsections provide additional information on the five strategic foundations.

2.2 GOVERNANCE

Technology cannot compensate for ineffective or insufficient procurement legislation or regulation. It has been previously highlighted that e-GP extends well beyond technology and should be considered a business service also. The successful configuration and implementation of the new technology must be guided by sound legislative and management frameworks, requiring a modernized procurement law and updated policies that explicitly support the use of automation.

An e-Procurement system can substantially improve the overall procurement operation, due in part to the increased availability of detailed information even on the smallest purchase. Transactions that were previously very difficult or impossible to audit are now available online in real time. The auditing function can be transformed from one that relies on chance into one that is based on accurate information and predictable results. This increased access to information also allows managers to conduct a more thorough analysis of public procurement spend patterns and to adjust strategies as appropriate. Moreover, it will be much easier to uncover additional opportunities for aggregation of demand or instances where procurements can be split into smaller lots to stimulate the participation of SMEs in the process without purposely circumventing approval thresholds. Transparency and management oversight are also enhanced by the increased availability of relevant data. In addition to information, procurement managers can have better access to modernized procurement methods, access that extends also to new CAs and EOs, offering information on innovative business models such as shared services and leasing as opposed to purchase.

In order to allow such opportunities, however, additional changes will likely be required to procurement regulations and legislation and a set of detailed policies will need to be drafted to govern the process. For example, Terms of Use for the system should be presented to users upon registration that must be accepted before being granted access to the system. Similarly, at the time of bid submission, EOs should be reminded of their responsibilities and of the Terms and Conditions associated with their electronic bid.

Additional policies related to the general use of information systems may need to be drafted where they do not already exist. The policies should cover several topics, such as:

- » Business-related operational policies
 - e-GP notice publication
 - e-GP bid opening
 - e-GP bid security
 - e-GP outage (response to short-term unavailability)
 - e-GP business continuity (response to long-term unavailability)
- » Technology-related operational policies
 - Acceptable use of e-GP acceptable
 - Electronic payment
 - Privacy of personal data
 - IT security and password management
 - Backup, archival, and retrieval of data
 - Disaster recovery (DR)

For developing countries seeking to implement e-GP, most of these can be based on the corresponding policies implemented in the more developed countries and thus do not need to be developed from scratch.

In addition, documents utilized in the procurement process need to be standardized. Although document standardization should be pursued under any procurement system, e-GP implementation provides an ideal opportunity for existing templates to be reviewed or created if they do not exist. Some departments may resist this initiative, claiming that they have unique requirements, but addressing these concerns in the newly standardized documents is the best way to overcome these objections.

This standardization initiative should encompass the creation of templates for documents that are used at any point in the procurement process, including:

- » Annual procurement plans
- » Tender documents for different types of procedures as well as the documents needed to accommodate the requirements of development partners who may mandate the use of their own documentation
 - Bank guarantee formats
 - Model contract (for different types of procurement types)
 - Terms and conditions
 - Notices
- » Bid opening report
- » Procurement reports

These templates should be contained in the e-Procurement system as part of the bidding document preparation process and auto-filled with information on the specific tender at the different stages of the procurement cycle. The publication of these documents should ideally occur automatically as the procurement proceeds through its workflow process.

In addition to creating standardized documents for individuals, the e-Procurement system should make it easy for CAs to create electronic forms that EOs are expected to complete when submitting their electronic bids (referred to as bid questionnaires). The tender documents should be reengineered before being converted into web forms for maximum efficiency. In many cases, the requirements for a tender are compiled by multi-disciplinary teams, not all of whose members are procurement experts, and the system should provide the capacity to reuse structures that had been developed previously. This feature ensures that the e-Procurement system will be more consistent across the various CAs using the system.

Proper governance also involves the elaboration of best practice guidelines as well as the creation of e-Procurement-specific rules in order to better assist stakeholders in using the system to their maximum capacity.

2.3 INSTITUTIONAL CAPACITY

Support for e-GP at the highest level of government is essential for successful implementation. The government's vision for implementation needs to be mandated to a dedicated agency, that is, a Public Procurement Regulatory Authority (PPRA), with specific roles and responsibilities (see chapter 4) that clearly delineate who is in charge. The dedicated agency will need to collaborate and coordinate with all involved stakeholders during the reform program, and other divisions of government need to be fully aware of this agency's role.

Along with the leading agency, the highest level of government should also set the scope and strategic objectives of the e-GP, which could become a sub-initiative of an overall public financial management (PFM) reform program.

If implementation is left to individual departments, many of the benefits of e-GP may not be realized, as costs will escalate rapidly and systems and websites will proliferate, confusing the EO community and making it difficult to identify the available opportunities. Furthermore, disparate technical standards and approaches to implementation may be adopted, leading to interoperability problems. Recovering from this kind of inefficient operating environment in the future would likely be very costly and time consuming.

The leadership of the e-GP implementation program should not be confused with the functions of CPBs and individual CAs. Both CPBs and CAs retain ownership of and accountability for the actual procurement procedures and do not transfer them to the head of the e-GP implementation process.

Managing the needed changes in the buyer community remains an integral part of e-GP implementation. Dedicated coordination boards (see chapter 4) will allow all stakeholders to shape the system's configuration and reassure public procurement staff from the buyer communities that their responsibilities will be reinforced and their productivity increased through automation under e-GP. They will quickly realize that the technology is in fact a

useful tool that will not only assist them in doing their jobs better and more efficiently but also provide them with additional skill sets.

Finally, a well-planned, extensive training program needs to be developed by the leading agencies to ensure that all procurement officers are educated on the use of the e-Procurement system. There will be few, if any, who will be unable to make the transition from the paper-based to the electronic processes supported by the new system.

2.4 FUNCTIONALITY AND INFRASTRUCTURE

The various modules found in an e-Procurement system are guided by the distinction between simple and complex procurements, which have different rules, procedures, and tools associated with them. Simple transactions tend to be low in value but high in volume, whereas complex transactions are low in volume but high in value. The same technology is not necessarily able to support these diverse needs, and thus the new system must contain multiple modules to address the variety of requirements.

On average, simple transactions account for around 90 percent of procurement acts but roughly only 15 percent of total spend.⁸ One of the objectives of e-GP is to improve the efficiency with which these purchases can be made to free up skilled procurement staff to devote more of their attention to the riskier, complex procurements. It would not make much sense to implement an e-Tendering capability if the intention is to improve the efficiency only of simple procurements. Conversely, an e-Catalogue module will not assist CAs in executing complex procurements that are best suited to tender procedures.

The e-Procurement system should be built using published, open standards with inputs from both technical resources as well as those representing business process engineering. One can severely undermine the work of the other if not properly coordinated. There is the risk that standards will be selected that appear promising but are ultimately unworkable, as they are not supported by different implementations and have poor or no interoperability.

An e-Procurement system, no matter how advanced, cannot offer the envisaged benefits if the underlying infrastructure cannot support the system's user base. The infrastructure required for efficient e-GP implementation involves both the technical environment hosting the system as well as the physical Internet connectivity that allows users to reliably connect to and utilize it. In many developing countries, a real obstacle to e-GP implementation is the availability and bandwidth of Internet connections, particularly in remote communities. A government could overcome some of these problems by coordinating existing markets, for example, by implementing policies and regulations to motivate Internet providers to cover bigger parts of the population and a wider geographical area of the country. In many developed countries, these facilities would not require any government intervention and would be provided by the private sector, but in less-developed countries, government may be required to intervene due to the relatively low maturity levels of services.

2.5 INTEROPERABILITY

Although a “stand-alone” e-Procurement system can by itself offer substantial benefits, its interface with external systems can offer full automation through system-to-system communications. An effective e-Procurement system will interconnect with numerous other structures, including those that manage user authentication, business registration, payment gateways, the financial management information system (FMIS), e-Tax, and so on. Such interconnectivity should be achieved through an appropriate scoping and planning exercise so that:

- » only the types of interconnections whose benefits justify the implementation/configuration and maintenance costs are included
- » only the types of interconnections that treat all EOs in a fair and equal manner are included, hence not imposing (or even implying) favoritism

⁸ ADB, IDB, and World Bank (2004b).

- » interconnections with modern communication protocols are included, in order to ensure future performance, security, and sustainability
- » implementation is planned in a manner that does not impose substantial risks to the overall stability of the system, particularly during the peak periods involving user adoption programs

Use of industry standards and modern system-to-system interface techniques should be employed (for example, web services), and the system should implement (or be easily extendable in order to implement) well-documented and readily available interfaces to accommodate interconnections with external systems.

2.6 ADOPTION

An e-GP strategy cannot assume that implementation of a new system will automatically lead to increased user participation. A communication plan to educate CAs and inform EOs about the benefits that an e-GP environment can offer is a crucial factor in implementing a successful e-GP project.

The business efficiencies, cost reductions, and overall benefits will need to be demonstrated in a tangible manner to both the CA and EO communities. A sound business case will always attract a commitment to invest over simply a good idea. The enablement strategy should take into account not only existing users who do business with each other (such as e-Procurement-enabled CAs and EOs) but also the potential future users. The strategy also needs to include the support and training services that will be made available to the full user base by the leading agencies or other third-party providers.

Due consideration should be given to issues of location and access to technology, as well as fees and charges levied, as they all have the potential to foster negative attitudes toward e-GP and need to be actively managed. The extent of change introduced by e-GP implementation can also affect the attitude of the private sector. A phased approach will mitigate this risk by allowing CAs and EOs to become familiar with and generate savings from the basic technologies before moving on to more advanced components.

3 STAKEHOLDERS

3.1 INTRODUCTION

The implementation of an e-Procurement system involves many stakeholders, both within and outside the government. Dedicated bodies will need to be established where they do not already exist to ensure the efficient and effective implementation of the overall e-GP strategy as well as the daily operation of the system. Where they do exist, a necessary restructuring and reengineering must be completed in line with their new mandates and authority. Some of these bodies will be permanent, while others will be interim entities that will exist only during the period of transformation. In most cases, the interim bodies will be tasked with the establishment and operationalization of the permanent bodies that will succeed them.

3.2 STAKEHOLDERS INSIDE GOVERNMENT

3.2.1 PERMANENT STRUCTURES

3.2.1.1 Public Procurement Regulatory Authority

The PPRA is tasked with, among other duties, establishing a national policy for e-GP as well as overseeing its implementation. It needs to have sufficient standing within the public sector to be able to give effect to its mandate and also able to operate effectively across the various sectors that make up central government.

In many though not all cases, the PPRA is a unit located within the Department of Finance. One of its roles is focused on national policy related to improving public procurement performance, while another is to deliver the e-Procurement system and deal with daily operational issues. These responsibilities are usually allocated to separate divisions in the structure.⁹ Close cooperation is required with the government agencies responsible for management of public expenditure, particularly when the e-Procurement system is to be integrated with FMIS implementation.

The main functions of the PPRA are typically contained in discrete departments supported by shared administrative personnel. The PPRA would likely need to make use of special advisors, either from government units or externally through term contracts, who will assist in policy formulation and legislative reform effort. Inputs will also need to be obtained from the respective ministries and other public bodies that will actually be implementing procurement procedures, a process usually managed through the Permanent Commission for Public Procurement (PCPP), as described in section 3.2.3.3.

The PPRA should be staffed with key personnel in full-time positions who have the authority and budget to supplement the staff with external expertise, as required.

The Operations division should be accountable for the operational implementation of the strategy, with a focus on the policies and regulations created by the Standards and Support division. To operationalize the strategy, the division will need to perform the following tasks:

- » translate national policy into operational strategy for all aspects of procurement
- » compile and issue best practice guidelines and standards
- » carry out performance monitoring to ensure that CA operations are in compliance with legislation and other performance indicators

⁹ Depending on a country's institutional structures, the two different functions of the PPRA, namely policy and implementation, may be addressed by two separate units rather than one. For instance, policy may be under the responsibility of the Federal Chancellor, while implementation is under the control of the Federal Procurement Agency.

- » provide business support functions such as procurement expertise, legal advice, or technical support to CA users
- » manage the daily operations of the e-Procurement system
- » compile and distribute national procurement statistics
- » execute the change management plan during the introduction of e-GP

In order to succeed in these tasks, the following conditions must be met:

- » The unit must have sufficient authority across the entire public sector.
- » It must be an independent source of advice or assistance for those CAs wishing to make use of it.
- » It must be adequately equipped to provide a broad range of assistance from management advice to specific business support services in the area of procurement.

An indicative structure for the PPRA is shown below:

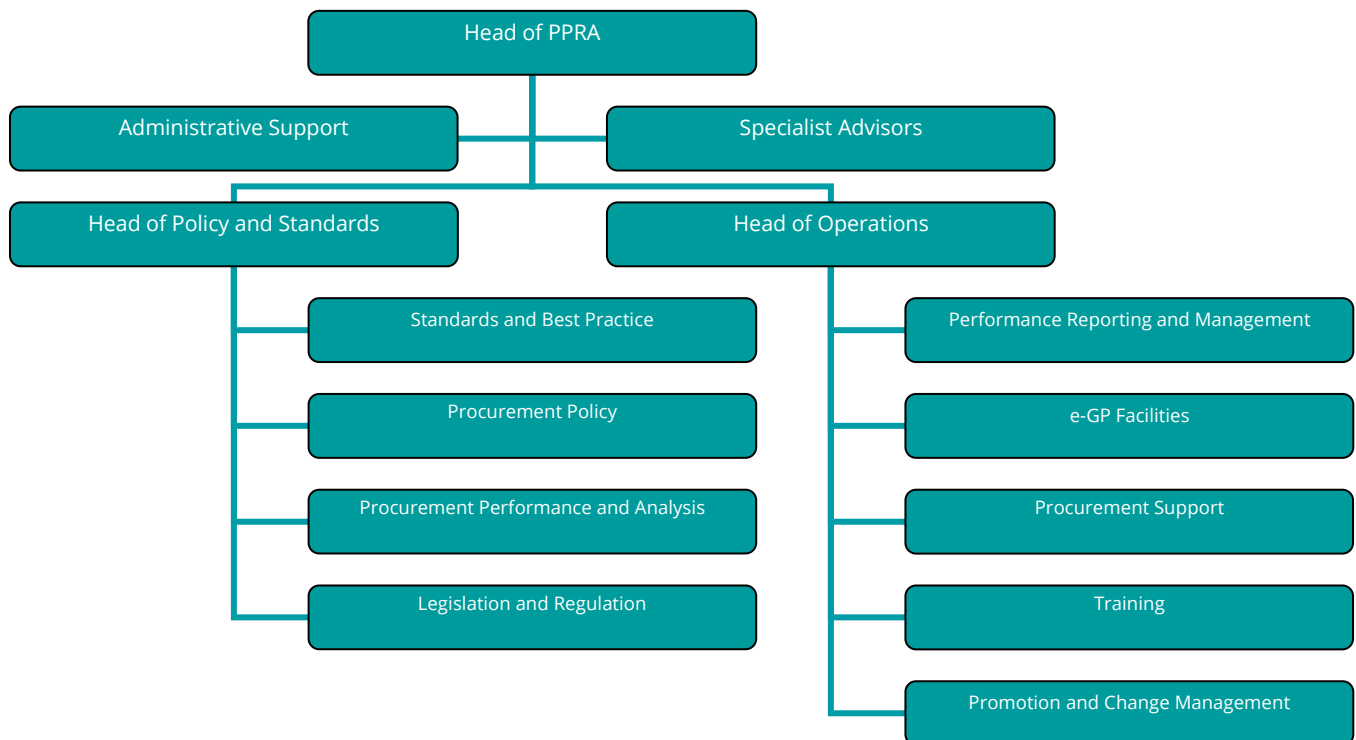


FIGURE 4: RECOMMENDED STRUCTURE FOR THE PPRA

3.2.1.2 Financial auditing bodies

As part of any governance program, independent financial audits need to be in place, which, in addition to performance audits, are generally provided on behalf of the entire government by the appointed agencies, such as the Auditor General. The e-Procurement system and its associated regulations and policies need to ensure timely and sufficient access for these organizations to be able to carry out their mandate. In some instances where government may not possess the required technical skills, external service providers may be engaged to conduct the audits on behalf of government. These providers should be treated as part of government for these purposes and not as the external auditing bodies described in section 3.3.2.

3.2.1.3 Appeals body

Appeals could be processed by a body to promote transparency, fairness, and impartiality. This body may be administrative or judicial in nature, and it is commonly, but not necessarily, independent from the PPRA. Where the appeals body is administrative, EOs should have the opportunity to challenge its decisions in a judicial body such as a court of appeals. In most instances, the decision of the court of appeals is final and cannot be appealed further.

Many countries prescribe a fee to be paid in advance of an appeal, set at an amount that would discourage “frivolous” challenges. The fee is often refunded to the EO if the appeal is upheld, and if it is not successful, the fee is retained to cover the expenses of the appeal process. Administrative processing of such appeals could be available in the e-Procurement system.

3.2.1.4 Contracting Authorities

In most jurisdictions, procurement legislation mandates the appointment of officers responsible for procurement in each CA whose role is to ensure that legal and administrative requirements are implemented and followed. The focus of this role needs to move beyond simply enforcing compliance, however, as in order to achieve the envisaged results, procurement performance targets need to be established. Analysis of procurement expenditure should be conducted on a regular basis, and strategies for the procurement of different types of goods, works, or services should be updated regularly (see chapter 4). These actions may be implemented at individual CA or at sector level, depending on the size of the procurement function and the available skills.

3.2.2 INTERIM STRUCTURES

Where existing structures to manage public procurement in a holistic manner do not exist, interim bodies may need to be created and remain in place until the permanent structure is established. This would also allow the experience gained in the initial period to be incorporated into the establishment of the permanent structure. These interim entities should be established for a duration sufficient to allow them to complete their mandate and should then be disbanded as the permanent bodies assume full responsibility .

3.2.3 COLLABORATIVE STRUCTURES

3.2.3.1 International Trade Agreements Board

Governments participate in international and regional trade agreements to create access to larger markets for their domestic EOs as well as to gain access to products produced by their trading partners. The negotiation and monitoring of compliance with these agreements involve government departments that are not necessarily responsible for the management of public procurement activities. A collaboration structure, such as an International Trade Agreements Board (ITAB), is therefore required to facilitate regular discussion between these departments and the PPRA to ensure that the procurement strategy supports rather than undermines the new trade agreements. These agreements may prescribe requirements for the interoperability of systems, consolidated reporting, and so forth, which will need to be encapsulated in the national procurement regulations.

3.2.3.2 International Standards and Compliance Board

A structure is also required to monitor activities and progress according to international standards-setting bodies, such as the World Trade Organization (WTO), the United Nations Commission on International Trade Law (UNCITRAL), and the various multilateral development banks (MDBs), as well as technology standards bodies, such as the International Organization for Standardization (ISO) and the World Wide Web Consortium (W3C). (This structure would be separate from the one needed to monitor international and regional trade agreements.) These standards can be adopted as part of the implementation strategy for e-GP or may already be implemented by vendors who provide existing e-Procurement solutions. The PPRA should be represented by a purpose-built International Standards and Compliance Board (ISCB), which should oversee separate committees made up of subject matter experts drawn from the various government departments. The role of these committees is to remain updated on developments in their area of expertise and to recommend amendments to policy, regulations, and/or systems as appropriate.

3.2.3.3 Permanent Commission for Public Procurement

The PPRA cannot determine an appropriate national strategy without obtaining input from the various sectors of government. The individuals in the relevant ministries are the ones dealing with procurement on a daily basis and are best positioned to provide feedback on requirements and challenges. To facilitate such interaction, a Permanent

Commission for Public Procurement (PCPP) should be created as a collaborative structure. This board should be chaired by the PPRA and consist of representation from key ministries that should include procurement personnel as well as ICT staff who are skilled in supporting e-Procurement systems.

The PCPP should meet regularly enough to ensure that national policy remains relevant and effective. The sector representatives should be senior managers who are key decision makers within their individual agencies and who can be expected to approve the policy and operational strategies developed by the PPRA. In addition to the representation of CAs, the EO community and other key stakeholders should be consulted when decisions taken by the board will impact them. The board itself can determine the most appropriate mechanisms for including these stakeholders in the process.

Similar collaborative structures can also be created at the individual sector level to allow the representatives on the national board to consult more widely within their own sector to ensure alignment with the national strategy.

3.2.3.4 National Procurement Managers Forum

The actual implementation of the strategy will be in the hands of procurement managers across government. A structure should be created, referred to as the National Procurement Managers Forum (NPMF), to allow these managers to collaborate with each other, share experiences, get or provide advice, discuss common procurement issues, and transfer knowledge between sectors. This structure is important in increasing the skill levels of procurement staff as rapidly as possible.

The NPMF should meet periodically and be chaired by a representative from the PPRA. Its primary function is to facilitate communication and integration between and within the sectors of government at an operational level, in contrast to the strategic and policy focus of the PCPP.

3.3 STAKEHOLDERS OUTSIDE GOVERNMENT

3.3.1 PRIVATE SECTOR ENTITIES

The EOs who will be competing to win public contracts are the largest group of stakeholders outside the formal structures of the public sector, and their interests in the implementation of e-GP cannot therefore be understated. An extensive change management program must be devised to communicate changes in the legislative/procedural framework and implementation approach and to focus on the benefits of the new system. Training and support will need to be provided on an ongoing basis, especially to those sectors of this community that may have limited ICT expertise and/or infrastructure of the kind required to participate in e-GP.

3.3.2 EXTERNAL AUDIT BODIES

Nongovernmental bodies that are tasked with conducting audits on government performance, be it financial or otherwise, require access to the data produced by the e-Procurement system. The needs of these bodies should be assessed on a regular basis through a formalized structure in which the PPRA is represented. The e-GP policies and operational procedures should stipulate how information will be made available to allow them to fulfill their mandate.

3.3.3 GENERAL PUBLIC

The general public pays for the procurements of the public sector through its taxes. It will want to be assured that the benefits of e-GP (see chapter 1) are indeed realized through the implementation of the e-GP strategy. As such, the main citizen involvement in the e-GP system is to verify the good use of government funds through the adequate transparency of the process, which is possible through the open availability of procurement data.

3.3.4 FINANCIAL INSTITUTIONS (TREASURY, BUDGETARY BODIES, BANKS, INSURANCE COMPANIES)

Private and public financial institutions, such as the national treasury, banks, and insurance companies, play a pivotal role in ensuring that funds are available for public procurements and that these funds are efficiently processed through a payments system that compensates EOs for the goods, works, and services supplied. Further to ensuring the efficient collection and payment of funds, banks offer additional services, such as bid securities, performance guarantees, and other value-added amenities. Integration between the e-Procurement system and the banking providers can assist in reducing the number of issues involving falsified or misstated bid security documents and performance guarantees.

4 PROCUREMENT METHODS AND ECONOMIC OPERATORS

4.1 INTRODUCTION

In order to develop the most appropriate e-GP strategy, it is necessary to understand the nature of the procurements required by the public sector. The temptation to continue doing what has been done in the past has to be overcome in order to realize the potential of e-GP to transform public procurement. When the environment has been primed, suitable functionality in the e-Procurement system can be selected, and the types of goods, works, and services being procured, as well as the relative buying power of government in relation to the suppliers, need to be understood. Appropriate management strategies and procurement methods can then be utilized to obtain the optimum results.

This analysis depends on the availability of information. It may be necessary to institute a separate data gathering exercise where the information is not readily available. The results of this analysis will assist in determining the priority and the sequence in which the various e-Procurement system modules should be implemented.

4.2 TYPES OF PROCEDURES

There are several model procurement procedures as defined by the WB, European Union (EU), UNCITRAL, and so on. Although there are variations between them, they all share the same core principles of fair, efficient, and transparent procurement. This section briefly describes the procurement methods available in the EU and their intended use. Not all methods are suitable for all types of goods, works, or services, as described here.

The EU has published directives that have to be implemented by all member states for procurements that exceed the set thresholds. For below-threshold procurements, the EU directives do not need to be used, and individual member states may implement additional procurement methods, though these must nevertheless follow the principles and spirit of the EU's rules.¹⁰

4.2.1 INDIVIDUAL CONTRACTS

The EU directives define the public procurement procedures that can be used to procure individual contracts. The main ones are:

- » Open procedure
- » Restricted procedure
- » Negotiated (with and without advertisement) procedure
- » Competitive Dialogue

4.2.1.1 Open procedure

In an open procedure, any interested EO may submit a response to a call for tender, as advertised through a Contract Notice. This is the only procedure that does not include a prior selection and/or dispatch of an invitation to specific EOs by a CA. All interested EOs are eligible to submit a bid as long as they comply with the requirements.

¹⁰ The EU directives and supporting material are available at http://ec.europa.eu/growth/single-market/public-procurement_en.

4.2.1.2 Restricted procedure

In a restricted procedure, a Contract Notice is issued to advertise the action. EOs declare their expression of interest by submitting an appropriate participation request to the CA. The CA assesses the interested EOs and dispatches an invitation to those that may submit a bid, specifying in the contract notice the criteria that will be applied. The EOs may be short listed, and a minimum of five EOs should be included in the short list after these criteria have been applied. If no short listing applies, all qualifying EOs who meet the selection criteria are invited to submit a bid.

4.2.1.3 Negotiated procedure

In a negotiated procedure, the CA intends to negotiate the terms of the contract and invites at least three EOs to participate. The EU directives restrict the circumstances under which this procedure can be used. Sectors such as water, energy, transport, or postal services are allowed to make use of this action as a standard procedure.

The option to use this procedure without advertisement is available only in restricted cases that are outlined in the directives. These include instances when no bids are submitted in an open or restricted procedure, when, for technical reasons, the contract can be carried out only by a single EO, or for reasons of urgency. If these conditions are not met, the negotiated procedure must be initiated with an advertisement through the publication of a contract notice.

4.2.1.4 Competitive dialogue

For large infrastructure projects where the CA cannot fully define the technical specifications up front, the competitive dialogue procedure can be used. Interested EOs request participation after the publication of the contract notice by the CA. At least three candidates must be invited to a dialogue with the purpose of defining the final technical, legal, and economic requirements, after which the EOs then submit their final bids. This procedure may not be used in the water, energy, transport, and postal services sectors.

4.2.2 REPETITIVE CONTRACTS

Two instruments are available in the EU directives for repetitive purchases: a DPS and an FA. Both instruments establish a framework for repetitive purchases for a given validity period up to a maximum of four years, allowing the CA to reduce the costs associated with the purchasing of the same goods or services on a recurring basis.

An FA is a closed system, where the list of participating EOs is restricted to only those admitted to the agreement at the end of the initial tendering procedure. A DPS, on the other hand, remains open to all qualifying EOs throughout its validity period.

In both cases, only goods or services described in the initial tender procedure establishing the FA or DPS may be purchased through specific contracts.

4.2.2.1 Dynamic Purchasing System

A DPS is valid for a maximum duration of four years and is used by CAs to make purchases of commonly used goods and services. Any EO that submits an indicative tender complying with the specifications may participate during the validity of the DPS.

The procurements performed through a DPS are performed solely by electronic means and are typically based on an e-Catalogue of goods and/or services.

4.2.2.2 Framework Agreements

An FA establishes an agreement with one or more CAs and one or more EOs. The goods and/or services to be procured over a period of time are specified, as well as terms such as price or envisaged quantity.

Only in duly justified cases may the duration of the FA exceed four years. The initial establishment of the FA follows the rules for procuring an individual contract up to the awarding stage. At this time, the successful EOs are included in the FA by applying the defined criteria.

Typically, the procurements performed through an FA are grounded in e-Catalogue-based supplies and/or services. Through FAs and depending on the exact nature of a procurement, the CAs can either perform direct purchasing or invite admitted EOs to participate in mini-competitions (also known as call-offs).

4.2.3 EXTENSIONS

4.2.3.1 Electronic auctions

According to the EU directives, an electronic auction is not in itself an autonomous procurement procedure but is used during the awarding phase of an existing tender to revise the prices of the original tender. In some countries, electronic auctions are used as autonomous procurement procedures to arrive at the lowest possible cost and are applicable when the parameters for evaluating a tender can be precisely defined. In this case, the CA can make use of an e-Auction to award the contract, a fact that must be pre-stated in the original Contract Notice of the tender. Certain public service and public works contracts involving intellectual performances, such as the design of works that cannot be ranked using automatic evaluation methods, should not be the object of electronic auctions.

4.3 PROCUREMENT SPEND AND SUPPLIER POSITIONING

The procurement procedures discussed in the previous section have different advantages and disadvantages, so the question emerges of how procurement officers go about selecting a particular method. In addition to consulting the existing legislation and regulations, the answer depends on a number of factors that require some analysis and planning in terms of what goods, works, or services are being purchased and what the EO market looks like for each of these categories.

Where such an analysis has not been conducted and data are not available, governments might assume that using a single approach exclusively (such as e-Reverse Auctions) will always yield improved procurement performance. This is not correct, however. It is for this very reason that the model procurement procedures of international bodies, such as the WB, EU, and UNCITRAL, as well as the e-Procurement systems themselves are comprised of various modules supporting different procurement methods and workflows in order to assist the procurement officers.

A number of models exist to help the buyer to determine the most appropriate procurement method to be used. The user is encouraged to read further on these models:

- » Spend Analysis
- » The Kraljic Portfolio Purchasing Model
- » Supplier Relationship Matrix
- » Supplier Positioning Model

All of these models classify the scope of a procurement according to quadrants. The x-axis is an indicator of the relative or absolute spend. The y-axis represents supply risk, which might indicate shortage of supply, a weak position of government as a buyer, or other risks related to sourcing the good or service. Whether conducting a spend analysis or using the WB's Supplier Positioning Model to place items in the quadrants, the resulting procurement methods to be utilized do not differ substantially. A different strategy is employed in each quadrant to manage the relationship with the EOs, based on the relative importance (that is, cost) and risk associated with the EO or the general supply of a good or service. These different strategies for managing the EO relationships also translate into the different procurement procedures being used in each quadrant to achieve the most optimum results.

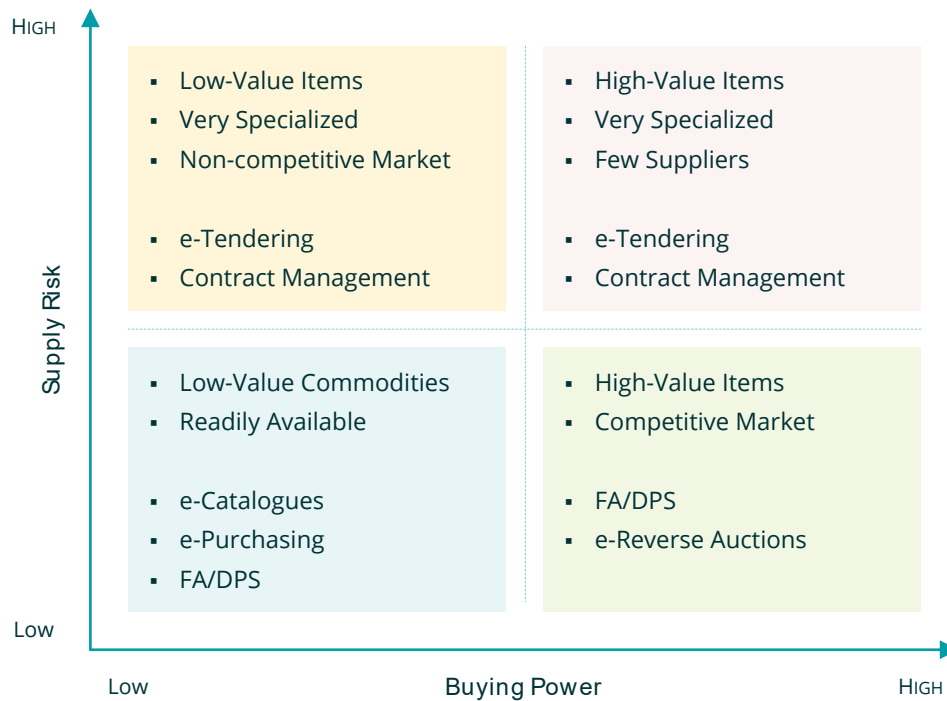


FIGURE 5: APPLICATION OF E-GP PROCUREMENT METHODS

4.3.1 LOW-RISK–LOW-SPEND QUADRANT

This quadrant involves the routine, frequent purchase of low-value goods or services that are readily available and usually accounts for the highest proportion of public procurement spend in terms of volume. Here, government has very similar buying power to other buyers and will not be able to substantially influence the purchase price. The objective is to improve efficiency by lowering processing and transaction costs. E-Catalogues/FAs are ideally suited for products/services in this quadrant to leverage buying power and obtain the lowest price at the lowest transaction costs.

4.3.2 LOW-RISK–HIGH-SPEND QUADRANT

In this quadrant, goods and services are readily available but spend is larger. There is a high degree of competition in the market, which allows government to leverage its position as a major buyer. E-Auctions can be used to drive prices down due to the low supply risk and ready availability of EOs. Goods and services are still standardized and can be sourced from multiple sources without compromising the quality. The perceived negative effects of e-Auctions on EO profit performance need to be managed through dedicated relationship management plans to ensure that EOs continue to see government as a key client.

4.3.3 HIGH-RISK–HIGH-SPEND QUADRANT

In this quadrant, government is purchasing specialized goods and services of high value, such as electric power plant generation, so the various options available may necessitate higher levels of negotiation. This quadrant usually accounts for the highest proportion of public procurement spend in terms of value but not in volume. These types of procurements are best sourced through the use of e-Tendering to ensure optimal competition that results in the best available solution for the government—which is not necessarily the one with the lowest cost, as quality factors often play a significant role in the evaluation of the most economically advantageous tender. Total cost of ownership is more important than up-front purchase price. Contract management will yield substantial benefits in managing the actual implementation.

4.3.4 HIGH-RISK–LOW-SPEND QUADRANT

In this quadrant, government has the least buying power. Spend is relatively low and economic supply risk is high, as goods or services in this quadrant can be sourced only from a limited number of EOs or are subject to shortages of supply. Monopoly pricing is likely to apply due to these conditions. E-Tendering should be used in this quadrant to lock EOs into longer-term supply agreements with guaranteed delivery and availability. Contract management will also yield benefits in managing the actual implementation. It may be advantageous to run additional tenders at times when supply is strong in order to boost inventory levels at a favorable price. Where feasible, insourcing may be a viable option to change the buying power relationship.

5 IMPLEMENTATION STRATEGY

5.1 INTRODUCTION

Countries will experience different challenges in implementing an e-Procurement system. Some of the strategic issues may require less focus than others, depending on which initiatives have already been implemented in the past. This chapter presents an action plan template with model activities that can help to ensure most countries a successful e-GP implementation. The goal here is not to answer all of the questions or concerns regarding the design and implementation of an e-GP strategy, but rather, to stimulate deliberations on the matter and provide the reader with the types of questions that need to be asked and answered as well as the main issues that should be addressed.

5.2 INDICATIVE ACTION PLAN AGAINST STRATEGIC OBJECTIVES

An effective e-GP implementation strategy consists of five strategic objectives, as presented in chapter 2:

- » Governance
- » Institutional Capacity
- » Functionality and Infrastructure
- » Interoperability
- » Adoption

A comprehensive implementation strategy should address all of these objectives. Clearly, it is impossible to provide a single model strategy that will be suitable for all governments at varying stages of e-GP adoption and implementation. However, in order to offer the most comprehensive option possible, the indicative action plan outlined below presents a template that assumes that no e-GP-related initiatives have been implemented and that the government is just starting on this journey. Steps that have already been completed in a particular national context should be removed from the suggested template in order to arrive at a more customized action plan that is aligned with a specific national e-GP strategy. The indicative action plan incorporating all five strategic objectives is depicted in Figure 16.

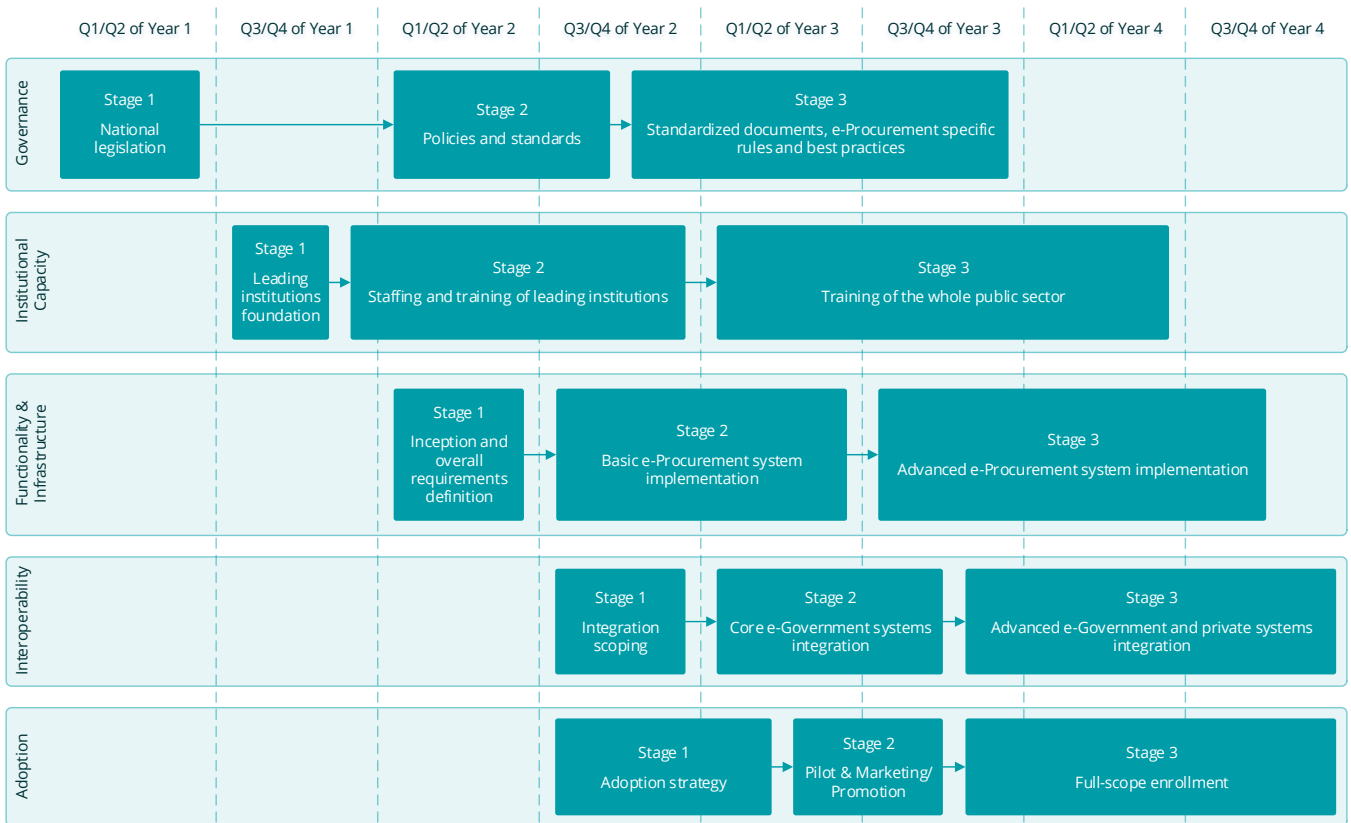


FIGURE 6: INDICATIVE ACTION PLAN

Strategic Objective	Stage 1	Stage 2	Stage 3
Governance	First stage for this strategic objective is the modernization of the national public procurement law, which explicitly foresees the use of electronic means. Use of advanced tools that cannot be supported through paper-based means, such as electronic auctions and electronic catalogues, must be defined.	Second stage for this strategic objective is the definition of policies and standards that must be defined in operational detail for the practical application of e-GP in the public sector. Interpretation and elaboration of the legal text must be defined so that there are no misconceptions on how public procurement must be performed.	Final stage for this strategic objective is the definition of e-Procurement system-specific rules and best practices that can take full advantage of the technology for the benefit of all parties. In addition, standardized documents should be defined to alleviate the need for custom implementation by each individual CA.
Institutional Capacity	First stage for this strategic objective is the establishment of the leading institutions that will drive the e-GP implementation forward, as foreseen by a modernized public procurement law. In many countries, modernizing the law may not necessarily imply the establishment of new leading institutions, in which case this stage is skipped.	Second stage for this strategic objective is the appropriate staffing and training of the leading institutions so that an adequate expert base is built. Staffing should ideally include expert personnel of several different disciplines, including public administration, law, procurement, accounting, ICT, etc.	Final stage for this strategic objective is the appropriate training of the whole public sector. Training should be twofold: on one side, trainees must be fully educated on the new public procurement laws, rules, and regulations, and on the other side, they must become familiar with the specific technology employed to support their business through electronic means.
Functionality & Infrastructure	First stage for this strategic objective is the inception of the scope of the e-Procurement system, followed by the definition of overall system requirements (functional, nonfunctional, infrastructure). A market analysis exercise should also be performed to define optimum tendering conditions for selecting the best possible vendor and solution.	Second stage for this strategic objective is the implementation of a “basic” e-Procurement system. This phase should aim to provide core functionality for all users, first, to achieve some of the envisaged benefits and second, to introduce users to the necessary discipline for working in an e-Procurement environment.	The final stage for this strategic objective is the implementation of the “advanced” e-Procurement system. This phase should aim at the deployment of a full-fledged e-Procurement system, leveraging also integration capabilities with external systems.
Interoperability	First stage for this strategic objective is the scoping of system integrations. An e-Procurement system can potentially be integrated into several different systems, hence analysis is required to define both the scoping and the planning for such integrations.	Second stage for this strategic objective is the implementation of “core integrations,” i.e., the types of integrations that are either imposed by laws/rules/policies or can form “quick wins” regarding the full automation scope of the overall system.	Final stage for this strategic objective is the implementation of “advanced integrations,” i.e., the types of integrations that are deemed beneficial but are either complex to achieve or depend on e-Procurement system functionalities contained in the “advanced” package.
Adoption	First stage for this strategic objective is the definition of a detailed “adoption strategy” that clearly defines all actions on promotion, training, support, etc., along with timings, responsible parties, stakeholders/audience, etc.	Second stage for this strategic objective is the implementation of the adoption strategy in a controlled “pilot” environment. Initial steps on full-scale marketing/promotion should ideally also be performed at this stage.	Final stage for this strategic objective is the full-scale deployment of the adoption strategy, hence aiming at enrolling the full user base in the e-Procurement system implementation.

TABLE 2: STAGES OF STRATEGIC ACTION REALIZATION

It is important to note that although the above action plan presents an outline of objectives, stages, and actions that are deemed necessary for a full e-GP project implementation, it needs to be elaborated on and customized on a per case basis. In addition, once Stage 3 of a strategic objective is met, it cannot be considered that no further evolution is necessary; rather, continuous improvement should be a constant goal. As such, an action plan should include particular details on organizational structures that will support such evolution.

An additional aspect that should be taken into account is assessment and monitoring. Some, if not all, of the aforementioned stages require continuous feedback from stakeholders so that the leading institutions can easily identify shortfalls and plan for their rectification. The e-Procurement Indicators available in a dedicated document in the WB's e-Procurement Toolkit¹¹ can be a valuable asset in this direction.

Individuals wishing to develop a more detailed action plan do not need to start from scratch. In particular, the following material can form starting points for each strategic objective:

- » **Governance:** Laws can be based on EU directives on public procurement, UNCITRAL model law, the WB procurement framework, and so forth.
- » **Institutional Capacity:** Coordination mechanisms can be modeled as described in chapter 4 above.
- » **Functionality and Infrastructure:** Template requirements can be obtained from the WB's e-Procurement Toolkit.
- » **Interoperability:** Potential integration scope can be obtained from the WB's e-Procurement Toolkit.
- » **Adoption:** Information on plans for e-GP adoption in the ECA countries can be found in the WB's study "Promoting E-Government Procurement (E-GP) - Strategy and Role of World Bank in Europe and Central Asia (ECA) Countries."

5.3 ADDITIONAL CONSIDERATIONS

There are several other major and minor topics that need to be considered with regard to the implementation of an e-Procurement system. These include:

- » building of a commercial off-the-shelf (COTS)-based system or proceeding with in-house developments
- » definition of the ownership needs and select business model (if COTS based)
- » sustainability of the system in the future, past the initial configuration/setup phase, which is potentially donor funded
- » level of integration with the banking sector and EO systems
- » use of purchasing cards (also referred to as p-cards) for routine purchases
- » establishment of data warehouse capability for analyzing procurement data

There are several e-Procurement systems/platforms that can be configured to allow a single department, region, or government at the national level to establish an e-Procurement system. For a country, region, or city wishing to set up the most open and transparent system, a single unified structure is the most effective approach to follow.

The lifespan of an e-Procurement system ranges between 10 and 25 years. Operational management and support activities will need to be provided by government throughout this time frame. As the e-Procurement system provides a critical supporting role to the procurement process on behalf of the government, it is essential that an uninterrupted service be provided.

In order to establish a foundation for future reforms and changes, most governments begin their e-Procurement system programs by implementing a basic e-Tendering system. Such a system supports the registration of CAs and EOs as well as the online publication of tender documents and tender notices. It can also easily coexist alongside current manual processes while establishing the foundations for government and EOs to make use of the Internet for future interactions. CAs and EOs alike can familiarize themselves with new approaches to procurement that will

¹¹ <http://eProcurementToolkit.org>.

be implemented as part of the introduction of an e-Procurement system before the addition of more advanced features related to online bid submissions or catalogue-based procedures.

Different modules of the e-Procurement system fulfill different procurement needs. High-value, low-volume transactions supported by the e-Tendering module tend to relate to a small number of CAs. As such, the effort needed to migrate from manual processes to an electronic system is less than that for e-Purchasing, which is characterized by high-volume, low-value transactions. Buyers in this latter category tend to be more widely spread across a larger number of agencies and to have less procurement expertise than their counterparts who are involved in e-Tendering.

The following section provides some of the main points for consideration.

5.3.1 BUSINESS PROCESS REENGINEERING

Transitioning to an e-Procurement system requires time and perseverance. Introducing a new system can result in significant changes to operational procedures for CAs and EOs as procurement practices, rules, and guidelines are overhauled or introduced for the first time. While implementing e-GP, business procedures are reengineered as part of the reform effort, ideally within the context of an overall PFM reform program. A dedicated set of organizations is required to support the program and oversee its administration, management, operation, and ongoing development. These organizations need to be empowered by government with the appropriate responsibility and authority, staffed with resources skilled in procurement, and provided with the necessary leadership to ensure—or even impose, if necessary—a successful transition to e-GP.

The traditional, paper-based approach requires that an advertisement be placed in a newspaper or a notice on a bulletin board, or that invitations be sent to a select list of EOs. EOs then need to contact the CA to confirm their desire to participate and obtain a bid package (often paying a fee to cover the cost), possibly attend a bid conference, and ultimately submit their bid directly to the agency. The CA is responsible for managing the procurement process according to the rules and regulations prescribed by law, any administrative financial controls, and the specific practices of each given CA based on adapted tender documents and bid evaluation mechanisms. EOs need to be notified of any updates or amendments to the bid package contents, including responses to inquiries. This process is costly, time-consuming, and often inefficient, and it can also lead to a lack of transparency.

Even without e-GP, to improve management of the process and provide better oversight, some jurisdictions centralize procurement functions. However, this approach in practice is not usually an open one, as access to information about procurement opportunities is limited and outside influences can more easily interfere with the process. These factors create opportunities for corruption or collusion and perpetuate the perception of unfair competition in public procurement.

Conversely, by using an e-Procurement system, a CA places information such as tender notices, bidding documents, and updated information online for EOs to retrieve directly in a standardized format. They are able to search for opportunities, submit inquiries (such as requests for clarification), and eventually post their bids electronically. Public bid conferences and bid openings can also be performed through electronic means. By virtue of the online availability of information and its delivery in standardized forms, direct communication with CA officials is no longer necessary during the procurement process, an operation that in the past often led to occasions of bias or even fraudulent activity. With easy access to all published notices, EOs are able to select the opportunities in which they are interested.

Existing rules and regulations that guide manual procurement procedures need to be reviewed and updated to reflect the new ways of obtaining tender information, submitting inquiries, declaring interest in a tender, submitting a bid, and opening a bid online. Each party's roles and responsibilities need to be clearly outlined in the new guidelines, including those of the e-Procurement system itself. The rules should plainly state that the CAs are accountable for publishing in the system all information related to each procurement action to allow the EOs to retrieve it.

5.3.2 BUSINESS MODEL SELECTION

Government needs to make a substantial financial investment to implement an e-Procurement system. At the same time, existing (and often hidden) costs in the publication of advertisements in newspapers, compilation of bid packages, and handling and archiving of paper documents, all of which require substantial human resource allocation and often lead to unnecessary inefficiencies (appeals, cancellations, and so on), can be substantially reduced through the introduction of e-GP. Nevertheless, initial new costs related to the development and daily operation of the system will be incurred, and new skills to manage the IT infrastructure as well as to support and train the CA and EO users will be required. Yet once established, the system is a critical service to the government, as both the CA and EO communities will rely on it for timely access to information to conduct business.

The most common approaches used by governments to establish an e-Procurement system include the following:

- » **Government owned and operated.** The government owns and operates the e-Procurement system, which is built by its own ICT team. Alternatively, external partners may be used during the development or the support phases of the project, but these partners have no rights to any part of the system. They are compensated for their services based on contracted fees.
- » **Government-managed service.** In this approach, the system is operated, supported, and owned by a third-party partner, but the government retains ownership of all the data and support services, such as a user help desk and training. A dedicated unit within the government is accountable for managing the service, including the performance of the third-party partner as well as any other government departments that provide support services such as training.
- » **Public-private partnership (PPP).** In this model, the e-Procurement system is owned and operated by a third-party service provider. The intention of this model is that at some time in the future and specified in the agreement, the service will be transferred to the government. In the interim, the service provider is compensated either through a fixed monthly fee or transactional revenues based on the usage of the system.
- » **Shared service.** A third-party service provider has established a service that is used by multiple governments or other clients. The economies of scale created by a shared service often make it a very cost-effective choice, although there can be only limited customization because of the other users of the platform. This is a very attractive approach where the government does not wish to own the physical technical infrastructure and associated software, as these remain the responsibility of the service provider.

A plethora of software platforms have been developed over time to implement all the functionalities required by an e-Procurement system. Today, an existing off-the-shelf solution or a shared service can be customized to specific requirements in a much shorter time frame and most probably at a much lower cost than a custom development project.

Either way, the introduction of the new system should be planned in a phased manner. It is recommended that a pilot phase be implemented first, with a limited set of CAs making use of the system. This allows both the operating unit as well as the user community to become familiar with the new challenges and opportunities. Training programs can be tailored based on feedback from users, and system functionality can be tweaked for performance or usability before a full rollout is initiated. Regular backup and disaster recovery procedures should be tested during this pilot phase to confirm their appropriate operation, as this will ensure that once the system is fully adopted by its client base and operating at full capacity, most likely interfaced with other government systems as well (for example, FMIS components, e-Tax, business registration, and so on), the government is able to provide a reliable and effective service to the CA and EO communities.

With the plethora of e-Procurement vendors and systems currently available on the market, most countries avoid embarking on in-house custom development implementation unless they already have the proven internal ICT capacity. Nevertheless, both approaches are viable, with their own advantages and disadvantages, as described in the table below.

	COTS	In-House
Quality	<ul style="list-style-type: none"> ⊕ System based on an already tested and used e-Procurement platform. ⊕ Vendor has know-how on analyzing, configuring, and rolling out e-Procurement systems. ⊖ System may impose functional constraints as it is already pre-built. ⊖ System may adopt standards that may be incompatible with existing government systems and/or infrastructure. 	<ul style="list-style-type: none"> ⊕ Software is owned by government. ⊕ Software is built for purpose. ⊖ Government may have difficulties in retaining ICT experts in its team since the private sector can offer more competitive salaries. ⊙ If government has proven, internal ICT capacity, high-quality product can be achieved; otherwise, in-house developments may be risky.
Time	<ul style="list-style-type: none"> ⊕ Core system functions are already available in the vendor's e-Procurement platform. ⊙ Vendor may require more time than in-house staff to understand the country-specific requirements. 	<ul style="list-style-type: none"> ⊖ Time required for the development of from-scratch implementation can be expected to be more than for a COTS-based system. ⊙ If government has proven, internal ICT capacity, analysis, development, and rollout of the system can be achieved in reasonable time; otherwise, excessive time may be required.
Cost	<ul style="list-style-type: none"> ⊙ Government will be contractually bound to the vendor and system; if a clear financial arrangement is not defined right from the start, maintenance/evolution costs may be large. ⊙ At the end of the contractual term with the vendor, procurement process for contracting a new e-Procurement system, as well as migration to the new system, may be costly. 	<ul style="list-style-type: none"> ⊕ Maintenance/evolution of the system will be cost efficient, since all required expertise relating to the system architecture will already exist. ⊖ Government may need to make special financial arrangements for retaining experts for the development and maintenance/support of the system.

TABLE 3: PROS AND CONS OF COTS-BASED VERSUS IN-HOUSE BUILT E-PROCUREMENT SYSTEMS

The implementation of an e-Procurement system normally forms part of a greater procurement reform program. As part of this effort, the government may wish also to enhance the reporting and auditing functions of the procurement process. The e-Procurement system contains very valuable information that can assist the government in making strategic decisions on how budgets are being allocated and spent. Real-time access to this information for analysis or to ensure compliance with the regulations should be included in the original system design, and sufficient budget should be allocated for the development of a reporting and data mining infrastructure.

The complexity of the e-Procurement system can increase very rapidly as all the modules are implemented, which can lead to increased costs, delays in delivery, or downtime if not planned properly. The government needs to ensure that the unit tasked with establishing and/or maintaining the new system is adequately resourced in terms of both financial and human resources in order to mitigate these risks. Using third-party providers can help alleviate some of the risks associated with the access to and retention of key skills, as these are carried by the providers rather than the government. Indeed, third parties specialized in e-GP implementations are often more attractive employers than government itself; hence, they are able to retain their staff for longer periods of time, which is ultimately to the benefit of government.

The more the e-Procurement system is used by CAs and EOs to conduct their procurement activities in a timely and efficient manner, the more critical the system becomes and the more it supports the entire procurement process. The poor performance or inaccessibility of the system can have a detrimental impact on the entire mission. Moreover, the system contains private and confidential information about EOs, bids, and payments that needs to be sufficiently safeguarded, so the system's security architecture should be reviewed on a regular basis to ensure it complies with ICT best practices and government regulations regarding information security management.

5.3.3 HOW MANY SYSTEMS?

As identified previously, many platforms and services already exist to support the implementation of e-GP. The new system could service a single department, a city, a regional agency, a single national agency, or the entire public sector. The economies of scale derive from having multiple CAs and EOs use the new setup. It is recommended that a single, centralized system be implemented to support procurement in the whole public sector, as this enables the government to establish standard practices and to better monitor all procurement activities. The EO community has to register in only a single system rather than in multiple regional, city, or departmental systems, possibly with different requirements each time. Integration with other systems is also accomplished more efficiently with a single system for the public sector, as interfaces are common and the duplication of effort and flow of information is avoided.

The choice of a single or multiple system ultimately depends on the legislative powers contained in the procurement legislation. Certain departments with substantial procurement volumes or autonomy may benefit from their own e-Procurement system. In countries where the constitution provides for such autonomy in public procurement, multiple systems may be the easiest and clearest choice, considering the constitutionally imposed need for regional or federal autonomy. Similarly, in countries where the communication infrastructure is less reliable, it may make sense to implement regional systems to facilitate EO access to government contracts on a regional basis.

Nevertheless, multiple systems, no matter how well designed and integrated, increase the overall cost of implementing e-GP across the government and may lead to confusion or frustration in the EO community as well as obstacles to effective budget preparation and procurement planning through aggregation of demand. Moreover, consolidated reporting across all public procurement activity is more difficult to achieve when multiple systems have been implemented. Each system will be required to integrate with a centralized reporting capability and meet specific requirements on data structures and formats (for example, taxonomies/classifications). This increases the complexity of the environment as well as the operational support required to ensure that all systems have published their information in a timely manner, records have not been duplicated, records are consistent with each other, and so forth.

Another factor to consider is whether there are any systems already in place, particularly where these may have been implemented by individual departments before the formation of a national strategy. A migration plan may have to be drawn up for each of those systems, taking into account existing contractual relationships with providers. These systems may need to operate in parallel with the national system until their data can be migrated and the system de-commissioned at the end of their existing contract. Government will need to ensure that the national reporting requirements can be satisfied by these systems.

5.3.4 SYSTEM REQUIREMENTS

5.3.4.1 Scalability

The e-Procurement system is expected to grow over time. A centralized solution needs to support multiple CAs that may have very different purchasing profiles and procurement budgets. The number of EOs may be small for complex, service-related tenders or may be counted in the thousands for standardized items purchased through catalogues and auctions. Care should be taken so that the selected system can accommodate the expected growth of users and transaction volumes over time. Often, the tendency is to allocate budget according to the initial needs without making sufficient provisions for the ultimate volumes that the system will need to maintain itself. The technical design and financial sustainability model should ensure that future growth projections are taken into account.

5.3.4.2 Flexibility and customization

Whereas standardization of processes is the goal when reforming procurement through implementation of e-GP, there are valid reasons why some procedural variations can exist, and the system should be easily configurable/adaptable to accommodate them. A CPB could have approval workflows that are different from those of decentralized departments. The software design of the system should allow for these differences at a reasonable cost. It should also be possible to insert additional modules easily and cost effectively, either because they have already been developed by the provider or because they need to be developed specifically for the government.

5.3.4.3 Data management and reporting

The data provided by the CAs and EOs and stored within the e-Procurement system are arguably more important than the functionality provided by the system modules themselves. Reporting of this kind does not just happen; rather, it needs to be explicitly designed as an integral function of the system. The reports that an IT system can produce can derive only from data stored in the system's data repositories; therefore, it is important that the reporting requirements are captured and cross-referenced against the available data fields. Using a detailed and standardized product classification scheme, such as the Common Procurement Vocabulary (CPV) or the United Nations Standards Products and Services Code (UNSPSC), as part of the tender record is highly recommended. This enables better reporting and analysis options, which lead to a better understanding of what goods, works, or services are being procured as well as which types of procedures are being used and by which EOs. Comparisons of tenders are more easily drawn when a standardized coding scheme is in place.

Data from the system are thus highly valuable and need to be properly managed and protected, whether the system is operated by government or a service provider. Access must be restricted only to those who are required to fulfill operational, auditing, or analysis roles. The principle of "least privilege" should apply as a design principle when managing the data, meaning that users should not have any more access rights than those required to fulfill their specific responsibilities. Sensitive and confidential data should be available only to expressly authorized users, and audit trails should ensure that data cannot be modified without clear indication. No single user in the system should be able to create, approve, and execute a transaction in the system on his or her own. In addition, the registration of EOs should be verified to ensure that the system does not contain bogus or falsified records.

An important consideration in data management and reporting relates to the use of data for achieving two core goals of e-GP: a) openness of data for the benefit of the general public and b) analysis of data to assess performance and adoption rates. The former is addressed through standards such as the Open Contracting Data Standards (OCDS),

while the latter is closely related to the use of e-Procurement indicators. More information on both topics can be obtained through the two dedicated documents available in the WB's e-Procurement Toolkit.¹²

5.3.4.4 Other requirements

Additional requirements, such as multiple languages and interfacing or integration with other systems, need to be considered when selecting or designing an e-Procurement system. It could be very costly to add these at a later stage if they were not correctly accommodated in the original design.

5.3.5 COTS SYSTEM SELECTION / IMPLEMENTATION

An e-Procurement system is seldom a single product. To allow customization for specific clients, the software is usually modular. Individual modules can be enabled or disabled according to the e-GP strategy requirements. Certain foundational components will also be present, such as registration, a search facility, and the ability to send notifications. Other modules may interact with each other as well as with other external systems, such as payment gateways, Enterprise Resource Planning (ERP) systems, or catalogue management programs. It is highly unlikely that the e-Procurement system will not have links to any external system. In the EU, for example, integration with the Tenders Electronic Daily (TED) system¹³ and possibly with e-PRIOR¹⁴ will be required.

However the system is designed, it should be able to provide an end-to-end procurement process, including the planning of procurement, publication of requirements, selection of bidders, and management of contracts (comprising, among other actions, invoicing and payments). Although e-GP implementation cannot be considered to be solely a technology issue, the functionality available in the selected system can have a significant impact on the way the system is adopted by CAs and EOs. Fortunately, with the available array of software packages on the market, mature solutions are available that can address all major implementation risks.

5.3.5.1 Selection factors

Success stories abound regarding e-Procurement system implementations in both the public and private sectors, whether self-managed or outsourced. Not all, however, can be heralded as successful. The most common reason for failure is the lack of government leadership and/or adoption by the EO community, which then makes it very difficult to sustain the levels of investment required to support and continually update the system. Although a poorly executed communication program may account for low EO participation, other reasons relate to the system itself, which may have been too complex or inaccessible, leading to an erosion of trust; overly costly for all but the very largest EOs; or simply too difficult for EOs to implement in their environments.

In addition to the system itself, the selection of an appropriate business model and partners to support the system plays a significant role. The chosen third-party service providers create new business relationships that need to be managed, both between government and these providers and sometimes between the providers and the user communities (CAs and EOs). Government needs to ensure that the interests of the providers do not overshadow the strategic objectives of e-GP implementation.

5.3.5.2 Nature of the contract

An implementation contract for an e-Procurement system or services typically ranges from three to five years. The business service should usually be planned for a period closer to 15 or 20 years, so it is vital to prepare for events at the end of the initial contract term. Some of the considerations include the following:

- » Who owns the system infrastructure at the end of the term so that the system can continue to operate?
- » Does the government have the skills and capacity required to run the system on its own?

¹² <http://eProcurementToolkit.org>.

¹³ TED (Tenders Electronic Daily) is the online version of the 'Supplement to the Official Journal' of the EU, dedicated to European public procurement. See <http://ted.europa.eu/TED/misc/aboutTed.do>.

¹⁴ e-PRIOR Supplier Portal is a communication middleware for suppliers and the European Commission, containing e-Invoicing and e-Request modules. See http://ec.europa.eu/dgs/informatics/supplier_portal/index_en.htm.

- » Who owns the software?
- » Does the government always own the data?
- » Can data be exported from a third-party service and migrated to an alternative solution?

Although third-party service providers can minimize the investment required by government, a thorough assessment should be undertaken with regard to the impact on data security and business continuity. These can all be addressed in the contract agreed with the provider, protecting the rights of the government and ensuring that the required level of service is delivered. Although system administration can be undertaken by service providers, government should always retain ownership of the data. Within the lifetime of the business service, technology will evolve and the system might become obsolete, so it is unlikely that the system will look the same in 10–15 years, though the data contained within it will not change as much. Full encryption should be performed on all sensitive information stored in the system.

How the system will be transitioned at the end of the initial contract term needs to be determined in the original agreement. The government should have the option of renewing the contract if it is satisfied with the performance of the provider, and conversely, if it is not satisfied, the government should be able to acquire the software and all the data. If an alternative is to be implemented, sufficient time should be allowed for the procurement of the new solution as well as the migration of data from the existing scheme. The provider's responsibility to assist with data migration must be clearly specified in the contract, as should the removal or destruction of all copies of the data that the provider holds.

Where the government has implemented a customized off-the-shelf package or a shared service, it may not be able to claim the intellectual property rights (IPR) for the entire design, as certain rights would have been held by the provider before it engaged to provide the service or the software. In this case, a government should at least ensure that it retains the right to the continued use of the software, even if it cannot get access to the source code or rights to the application. If the solution was custom developed by a third-party provider, the government should ensure that it owns all rights to the software source code.

PPP models are more risky because of the possibility that the forecasted revenues do not materialize and the provider is unable to economically continue to operate the service. The source code should be protected in an escrow account to safeguard the rights of government, should this eventuality arise. The vendor is responsible for ensuring that the latest code is maintained in the escrow account as it was deployed in the running application. Independent mechanisms can be set up to ensure that this is indeed taking place.

5.3.5.3 Provider track record

When choosing a software platform, the history and track record of the provider(s) are important considerations. Several questions must be asked, such as:

- » How many similar projects have they implemented in the government or private sector?
- » What does their financial stability look like?
- » What kind of support services do they offer?
- » Are they able to provide support in the correct time zone if they are an international provider or should sub-contracting/consortium with local partners be mandated?

These types of questions are generally included in a government's procurement procedures, so its own e-Procurement system should not be an exception.

5.3.6 PHASED IMPLEMENTATION

All stakeholders will face a learning curve in the implementation of the e-Procurement system. These stakeholders include the government unit responsible for implementation and for ongoing operation of the system, if these are two separate units, CA and EO users, and even the service provider, who needs to become familiar with local legislation.

The e-Procurement system is composed of a number of modules, some of which are primary elements that users interact with (such as e-Tendering, e-Evaluation/e-Awarding, e-Purchasing), while others offer supporting functionality to the primary modules (such as e-Registration, vendor management, search facility, and monitoring and reporting). Implementing all of these components is a major undertaking, and defining their different requirements can take a significant amount of time. Even where these have already been developed as part of an existing product, they still require some customization to suit the operating environment where they will be deployed.

An e-Procurement system can be represented as a combination of process phases and functional components (see Figure 7).

- » **e-Procurement Planning:** at the beginning of each fiscal period, the publication of procurement plans by CAs. This allows EOs and the public at large to be aware of the nature, timing, and volume of the planned procurements. The plans can be published individually or consolidated in a hierarchical manner from child to parent, eventually producing a single consolidated national procurement plan.
- » **e-Publishing/Notification:** the publication of notices on the web so that they are available for interested parties to view. Notifications are sent to users who have registered to be alerted when tenders for particular goods or services are launched as well as when particular actions are required by them as part of the procurement workflow.
- » **e-Tendering:** the submission of inquiries and responses as well as the electronic submission of bids in response to a tender. The response may also contain information regarding required securities and guarantees.
- » **e-Evaluation/e-Awarding:** the opening (decryption) of submitted bids, the partial or complete evaluation of the responses submitted by bidders, and the notification of the outcome of the process. This module also handles complaints before the final award to the winning bidder as well as the award process itself.
- » **e-Reverse Auctions:** the mechanism within e-Evaluation/e-Awarding used to obtain the best available price. This mechanism is not suitable in all cases and should only be used for goods or services where the requirements are precisely defined and offers from different EOs are comparable.
- » **Contract Management:** the management of the contract once it has been awarded and accepted. This includes features to manage contract documentation, amendments, key performance indicators (KPIs), tasks, and deliverables.
- » **e-Catalogue:** the creation of a catalogue workspace as well as the ability to browse catalogues and manage the cart.
- » **Catalogue Management:** the preparation, submission, and approval of a catalogue between EOs and CAs. A catalogue can be versioned and activated or de-activated.
- » **e-Purchasing:** the preparation of requisitions and the management of the corresponding quotations. Once a quotation has been accepted, a purchase order is generated. When the goods or services are delivered, they are accompanied by a goods receipt/delivery note, which allows for the submission of an invoice and its settling through electronic payment.
- » **e-Registration:** the creation of accounts in the system for CA and EO users to allow access to information and functionalities not available to the general public.
- » **Vendor Management:** the management of EO profiles, attestations, and performance.
- » **Searching:** the ability to search for information regarding tenders, awards, bid openings, catalogues, users, and organizations.
- » **Procurement Monitoring and Reporting:** data mining, analysis, and reporting of procurement data.

Not all of these modules are necessary in all e-Procurement system implementations. Those selected will depend on the objectives and priorities of e-GP in each specific case.

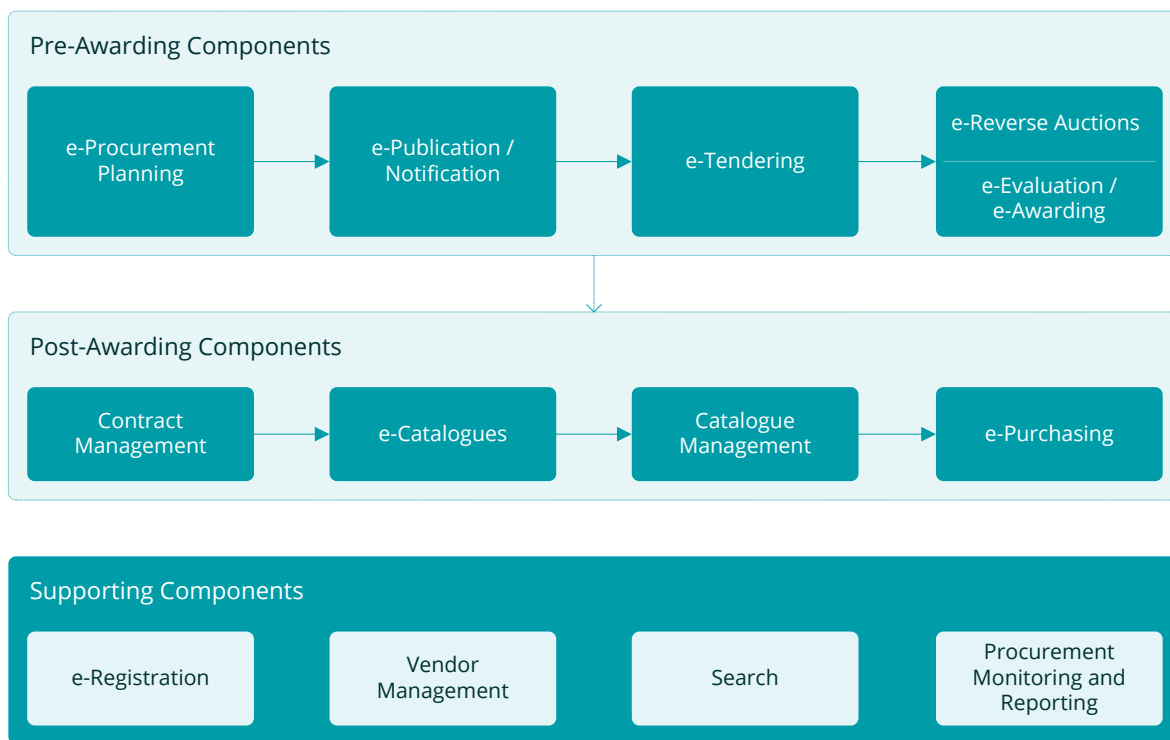


FIGURE 7: OVERVIEW OF MODULES IN AN E-PROCUREMENT SYSTEM

It is recommended that a phased implementation approach be adopted, based either on the procurement cycle (for example, pre-awarding functionalities) or on a specific procurement method (such as open procedure and FAs). The first phase needs to establish a set of basic components, including a web portal, that will eventually contain the remaining e-Procurement system functionalities; subsequent phases can activate additional components for a more elaborate system. Section 5.2 above presents an indicative action plan that recommends the implementation of a full-fledged e-Procurement system in two phases based on the procurement cycle: the first, to address a “basic” system to support the pre-awarding functionalities and the second, to implement an “advanced” system that supports post-awarding functionalities as well as additional advanced operations.

When implementation is phased, it is crucial for the initial stage to generate awareness in the CA and EO user communities. It should also establish the foundation for future phases and complement the delivery of the system with user education in the required technologies (for example, user manuals, online help features, user trainings, and so on). Governments should note, however, that not all of the target users will adopt the system at the same pace, and a transition and rollout plan needs to be developed that will require active support. This plan should include a pilot operation in order for the responsible bodies to immediately assess key aspects, such as end-user understanding as well as the usability and friendliness of the system, in order to determine the actions needed to promptly rectify shortfalls.

A pilot approach also offers an opportunity to validate the system’s configuration, support structures, training needs, and IT infrastructure performance and should involve a small group of CAs and their current EOs. All parties, including the implementing department, the service provider, the CAs, and the EOs, should have the opportunity to assess the system’s functionalities and to provide recommendations for adjustments that should be carefully considered in order to make the full rollout easier for the majority of users.

It is also recommended that the functionality of the first phase be limited in order to manage the change that needs to be absorbed by all the participating parties. This approach offers CAs sufficient time to ensure that they coordinate the new procedures with their EO community, whose members need to register with the system and receive training on its use. If the functionality is too complicated in the pilot phase, adoption will be hampered, as EO users will be reluctant to use the system for fear of making a mistake or not remembering all of the training materials that were delivered to them.

The addition of new features and modules becomes easier once the initial learning curve regarding the use of the e-Procurement system has been overcome.

5.3.7 SUSTAINABLE BUSINESS MODEL

As with any other technology solution, certain costs are incurred to ensure successful operation of the system beyond the initial purchase of hardware, software, and implementation services, as applicable. In particular for e-Procurement systems, governments may underestimate these operational costs due to the fact that the initial investment may be made, partially or in cases fully, by donors. Past the initial funding phase, it is therefore necessary for a specific business model to be in place in order to ensure the sustainability of operations, including software/hardware maintenance, promotion/marketing activities, help desk operations, training services, and continuous evolution of the five strategic objectives outlined here. Funding must be shared between the various stakeholders, meaning that not only one group, such as EOs, for example, should be targeted exclusively as the sole source of income. When designing the model, it is critically important to ensure that all the underlying costs of running the system are understood and accounted for. Depending on the business model selected (see section 5.3.2), different processes for establishing the sustainability plan are to be followed:

- » **Sustainability for the PPP business model:** When this model is selected, the operator of the service defines the charges that will be levied against the central government, individual CAs, and/or EOs to ensure a sustainable solution. The role of the government is to review the business model and ensure that the charges are fair and equitable. Furthermore, the government must ensure that the service is sustainable for the operator. It is as much in the government's as in the operator's interest to ensure that the contract runs through to term in order to avoid the additional costs associated with early termination.
- » **Sustainability for the other business models:** When one of the three other business models is selected (such as government-owned and operated, government-managed service, or shared service), the government is exclusively responsible for elaborating a plan that ensures sustainability. Operations may become sustainable through a combination of fixed capital funding and ongoing operational revenue raising. From a human resource perspective, a combination of government employees as well as specialist service providers can be used to ensure a smooth service operation. These service providers may be involved in many aspects of the system, including technical operations and maintenance, end-user training, and end-user support through a dedicated help desk. Regular upgrades to the underlying technology platforms should be planned to ensure that the system continues to operate over a lifetime that exceeds that of the physical technology components.

Regardless of the ownership of the sustainability plan, in essence, there are three possible sources of income to sustain the operations of the e-Procurement system:

1. Central government funding
2. Revenue from CAs
3. Revenue from EOs

Fees recovered from CAs can take the following formats:

1. Fixed fee per tender administered by the system (the fee may vary depending on the types of procedures to account for the relative complexities)
2. A percentage of savings realized through the use of the system (this fee requires clear agreement on the definition of savings to avoid any disputes from CAs regarding the fees that are due on their behalf)
3. A percentage of the estimated or awarded value of a procurement procedure, irrespective of the savings realized through the use of the system
4. Fixed fee per contract managed through the system
5. Fixed fee per transaction or a percentage of the value of purchase orders/invoices handled through the system
6. A combination of the above options

Fees recovered from EOs can take the following formats:

1. Fees for initial and ongoing registration to participate in the system
2. Fees to bid for individual tenders
3. Fixed fee per transaction or a percentage of the value of purchase orders/invoices handled through the system
4. Fees to cover certain costly processes such as appeals
5. Fees for alert services for tender notifications based on category codes
6. A combination of the above options

Additional options for raising funds may relate to:

1. Advertisement placement within the e-Procurement system pages
2. E-Procurement data exposure for commercial purposes
3. Commercial use of the e-Procurement system for supporting private sector procurements

The sustainability model should be defined as early as possible to allow sufficient time to engage with all the stakeholders and obtain their buy-in. Feedback should be obtained from the respective CA and EO communities to ensure that they eventually endorse the implementation plan after being fully informed of the financial impacts. Early definition also allows sufficient time for scenario and sensitivity analyses to be conducted to understand the impact of a possible slower than anticipated uptake of the e-Procurement system or conversely, better than anticipated adoption, which may result in the need for capacity increases sooner than planned.

To the extent possible, the organizational unit responsible for operating the e-Procurement system should try to ensure that EO costs do not exceed those of a traditional paper-based environment and thus become obstacles to the use of the system by SMEs. If the costs are perceived as too excessive by the EO community, it could result in the slow uptake of the new system. As EO adoption is critical to a successful e-GP implementation, the importance of this topic cannot be overstated.

5.4 MONITORING IMPLEMENTATION

The success of e-GP should be evaluated against the originally expected benefits rather than the implementation status of the required technology. Ongoing monitoring and evaluation, with some needed adjustments along the way, are required to ensure that the benefits are realized. As the system evolves and provides more functionality to users, the monitoring environment also needs to evolve to measure additional indicators that are relevant to the new operations being implemented.

The overall e-GP objectives of transparency, efficiency, and business development should be included in the monitoring plan. Deviations from the desired results will alert management to where corrective actions need to be taken, either by adjusting system functionalities to remove bottlenecks or by providing additional support and training to users in order to speed up adoption.

Monitoring of the implementation can be achieved through the use of fit-for-purpose e-Procurement indicators. The WB has elaborated a number of these indicators for the ECA region. More information on the elaborated indicators can be obtained through the dedicated document available in the WB's e-Procurement Toolkit.

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