

The Prospects and Challenges of E- Government Procurement (E-GP) in Bangladesh- A case study on Public Works Department (PWD).

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Masters in Procurement and Supply Management



BRAC Institute of Governance and Development (BIGD)
BRAC University

August, 2016

Procurement (E-GP) in Bangladesh- A case study on Public Works Department (PWD).

Dissertation submitted in partial fulfillment of the
requirements for the Degree of
Masters in Procurement and Supply Management

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CERTIFICATE

This is to certify that Mr. Sazzad Hossain, a candidate for the degree of Master in Procurement and Supply Management registered with BRAC Institute of Governance and Development (BIGD) of BRAC University has successfully completed his thesis entitled "*The Prospects and Challenges of E-Government Procurement (E-GP) in Bangladesh – A Case Study on Public Works Department (PWD).*" under my supervision.

To the very best of my knowledge, the research study is an original piece of work by the candidate. This research work has never been submitted previously to any other University or Institution for the award of any degree or diploma.

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DECLARATION

I, the undersigned, hereby declare that the thoughts, investigation, findings, analyses, and implications presented in the thesis entitled “The Prospects and Challenges of E-Government Procurement (E-GP) in Bangladesh – A Case Study on Public Works Department (PWD)” are entirely my own endeavor, except where otherwise acknowledged.

I also affirm that this thesis is original and has never been submitted to any University or Institution other than BRAC University for the award of any degree or diploma.

Sazzad Hossain MCIPS

Dedicated to

*my daughter Arshiya Isabel Jiana
&
son Mohammad Ayman Sajid*

my source of inspiration

ACKNOWLEDGEMENT

First and foremost, I am grateful to the most benevolent and almighty Allah for His infinite kindness to enable me to successfully write up this paper.

My sincere acknowledgement also goes to my respected supervisor, Dr. M. Shamim Kaiser, Associate Professor, Institute of Information Technology (IIT), Jahangirnagar University, Bangladesh – for his sincere support and guidance from proposal writing to completion of my thesis.

I sincerely remember Mr. Moslehuddin Ahmed, Superintending Engineer , Public Works Department, Mr. Mir Mehbubur Rahman, Senior Procurement Specialist, World Bank for their encouragement and continuous support in writing this dissertation.

I acknowledge the blessings, support, and encouragement that I received from all the course mate of cohort 5 of MPSM and respected faculty of IGS, BRAC University. I also appreciate the officers including Mr. Fuhad Ahmed, Ms. Tanzina Dola, Mr. Zahirul Islam of BIGD and BRAC University for their good-will wishes for me in this regard.

Sazzad Hossain MCIPS

ABSTRACT

Procurement is the acquisition of goods, services or works from an outside external source and performance of Services by any contractual means. Public procurement means procurement using public funds. Public sector organizations acquire goods, services and works from third parties. The system or process of public procurement in Bangladesh has been evolved, modified and developed over time. Under the primary legislation PPA 2006, the Public Procurement Rules 2008 was framed and issued, which replaced the Public Procurement Regulations 2003 of purchasing, hiring or obtaining of goods, works or services by any contractual means. Corruption and poor governance are impeding Bangladesh's efforts to reduce its massive poverty by reducing economic growth and lowering the achievement of social objectives. Electronic procurement makes public contracting more accessible, more secure and more efficient. Through the web interface, procurement information becomes accessible and competition and transparency are enhanced - making collusive bidding difficult.

Implementation of e-Government Procurement will supplement the present government's vision for building a Digital Bangladesh by 2021. The idea of a virtual bidding process could save more than 15% of the government's procurement costs, according to a World Bank study and it becomes easier to eradicate corruptions from the country. As the country marching forward for “Digital Bangladesh”, introducing the system of submitting the tender over internet is a very positive step.

Objective of this paper is to identify and discuss the e-Government Procurement prospects and challenges and recommends measures to be adopted in public procurement system in Bangladesh. For this purpose a Questionnaire survey has been conducted in PWD to gather primary data. In addition, Key Informant Interview has been conducted to collect invaluable opinions of procuring entity; their perception regarding the impact of e-Procurement, the reasons behind and suitable suggestions to overcome the negative impacts.

It was found from the study that for e-procurement solutions to be successful PWD needs to implement change in its traditional procurement practice through strong leadership, upper management buy-in, cultural change, and technological infrastructural

change and also through awareness and motivation of the prospective tenderers and internal users of the system. The study also revealed that by successful adaptation of e-GP, PWD could achieve transparent, fraud & corruption free, more accountable, time and cost efficient more improved decision making in its procurement process. Thus by obtaining the benefits and prospective performance result of the e- GP system, the paper-based system can be replaced by e-GP. In Bangladesh, it can be a very effective tool to ensure good governance in the public procurement.

From the findings of the study, we recommend that PWD needs Strategic Planning to integrate e-GP in its procurement practices. Short, mid and Long term planning and review and evaluation mechanism needs to be formulated under strategic scope. Support and active participation of the Senior Officers will play vital role in the implementation of the system. So, buy-in of the upper management is a must. Strict compliance to the orders and directives of the top management by the field offices need to be secured. Good knowledge about Public Procurement Act-2006 (PPA-06) and Public Procurement Regulations „2008 (PPR-08) need to be established among the procurement practitioners. Compatible ICT infrastructure is to be confirmed in every offices of the organization. PWD's existing capacity need to be re-assessed and plan accordingly. Separate dedicated and competent e-GP Cell for providing support to the users on 24/7 basis is required to establish. Training/workshop/good practice sharing programmes are needed to enhance and develop capacity of the suppliers or contractors on e-GP.

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List of Abbreviations

E-GP	Electronic Government Procurement
GDP	Gross Domestic Product
LGED	Local Government Engineering Department
RHD,B	Roads and Highway Department of Bangladesh
BWDB	Bangladesh Water Development Board
REBB	Rural Electrification Board of Bangladesh
PWD	Public Works Department
VFM	Value for money
ICT	Information and Communication Technology
SCM	Supply Chain Management
SCS	Supply Chain Synthesis
B2B	Business to Business
NIT	Notice Inviting Tender
PPA□06	Public Procurement Act 2006
PPR□08	Public Procurement Rules 2008
PROMIS	Procurement Management Information System
CPTU	Central Procurement Technical Unit
PPRP	Public Procurement Reform Project
IME	Implementation Monitoring and Evaluation
GPPC	Government procurement process cycle
E-CMS	Electronic Contract Management System
ERP	Enterprise Resource Planning
E-RFI	Electronic Request for Information
E-RFQ	Electronic Request for Quotation
E-RFP	Electronic Request for Proposal
ISP	Internet Service Provider

CHAPTER 1: INTRODUCTION

Introduction:

Procurement is the process of obtaining goods, works or services in any rightful ethical way, including purchasing, hiring, leasing and borrowing. It is favorable that the goods, services or works are appropriate and that they are procured at the best possible cost to meet the needs of the acquirer in terms of quality and quantity, time, and location. Procurement is an important and expensive business activity for organizations, because organizations usually spend significantly large amount of their operational budget on procuring goods, works and services.

E-procurement is an integrated end-to-end application of Indent management (workflow system administering administrative and technical approval processes); E-tendering (electronic bid submission); E-auctions (forward and reverse); Contract management (preparation and verification of bills with respect of works and services contract); Order management (for Accounting. (Somasundaram 2008 online). It is to be noted that, In Bangladesh, e-tendering is customarily referred to as e-procurement. It needs to be clarified that e-procurement is much more comprehensive than e-tendering. However, e-tendering is generally considered as the first and most important part of e-procurement.

The uptake of e-procurement in the government sector is on the rise. Developed nations such as Australia, Denmark, Singapore, the USA, Korea, and a few South American nations such as Chile and Brazil were the forerunners in implementing e-procurement with the implementation of e-procurement during early 2000. Elsewhere in Asia, Philippines, Indonesia and India have embarked on implementing e-procurement recently. Multi-lateral bodies such as the World Bank, Asian Development Bank, and Inter-American Development Bank have joined hands together to constitute a body for implementing e-procurement all across the developing and less-developed nations. This body, named Multilateral Development Bank e-Government Procurement (MDB-e-GP), is actively promoting implementation of e-procurement (Somasundaram 2008 online). Moreover, a number of public sector agencies worldwide have identified Electronic Procurement (e-Procurement) as a priority for e-Government agenda and have implemented or are in the process of implementing e-Procurement systems.

Government procurement is a voluminous activity, and in developing countries such as in Bangladesh, it is fast- growing. As per a country assessment report prepared by the World Bank, The annual volume of public procurement is estimated to be around US\$ 3.0 billion in Bangladesh (*World Bank Country Procurement Assessment Report cited in Islam 2011:*). Where about 70 per cent of annual budget is spent through public procurement (*Islam, 2011 cited Ellmers, 2011; The Daily Star, 2010*). Similarly, across the globe, governments spend significant sums of money in public procurement. It is estimated that public procurement accounts for about 10-20% of a nation's GDP (*E-GP Note vol.1 World Bank 2006:5*). In a country, the government is typically the largest buying entity. Despite the significance, there have not been many analytical write-ups on implementation of e-government procurement (e-GP). The implementation of e-procurement in the government setup is quite a challenging activity; in order to effectively deal with the challenges, it is vital that the nature of challenges are well-understood, and that the means to address the challenges are analyzed and discussed.

Government procurement or public procurement must ensure transparency, efficiency & accountability to the general citizens and assure competitiveness, equitable treatment and free & fair competition amongst all intending persons wishing to participate in procurement. In Bangladesh, until 2003, these could not be ensured properly due to a lack of proper rules and regulation. To streamline the public procurement activities, in 2003, by World Bank's initiatives, Government of Bangladesh has made a revolution through introducing Public Procurement Regulation (PPR) 2003 which was legitimated in 2006 as Public Procurement Act (PPA) 2006 and later Public Procurement Rules (PPR) 2008. Since then government agencies are bound to abide by the act and rules very strictly in their procurement activities. Over the last few years Bangladesh has made commendable progress in bringing a systemic change and creating a basic foundation for its public procurement system by mandating a uniform procurement policy. The procurement budget for the government is a huge amount of money for a developing country. To improve the spending performance of the public money and to expedite the overall efficiency in public procurement activities, government is now gradually implementing the electronic Government Procurement (e-GP) system to all Government agencies after successful piloting e-Tendering process to the four target agencies. These organizations are Bangladesh Water Development Board (BWDB), Local Government Engineering Department (LGED), Roads and Highways Department of Bangladesh (RHDB) and Rural Electrification Board of Bangladesh (REBB) (*Joarder*

2015:1). Besides these four targeted agencies Public Works Department (PWD), under the Ministry of Housing and Public Works, is one of the major government organizations that deal with the construction of different infrastructure/ physical facilities under delegated procurement from different ministries. The organization's construction work is directly connected to the national program of development and reconstruction. The Public Works Department is responsible for the construction of infrastructure along with providing service to 24 ministries. It is also the Government's biggest construction agency (<http://www.pwd.gov.bd>). Very recently PWD started its journey in E-GP but much lagged behind in E-GP adaptation compare to other development agencies of the government. So, at this stage it is very important that the prospects and benefits of e-procurement in PWD are well-understood and at the same the challenges and blockers on the E-GP implementation are identified, analyzed and managed. For this reason, PWD has been chosen for conducting the research work.

Objectives of the study

The general objective of this study is to investigate the perceived prospects and challenges for e-procurement adaptation in some offices of Public Works Department in Bangladesh and to determine whether E-GP will enable procuring entities in achieving transparency, accountability and efficiency in terms of cost, time and quality efficiency and ensuring value for money (VFM).

Specific objectives

- i. To identify and analyze the main five prospects or benefits that PWD could achieve through E-GP adaptation.
- ii. To determine and analyze the main five challenges or barriers that PWD could face in the process of E-GP adaptation.
- iii. To study and assess e-GP readiness status of PWD and its prospective tenderers.
- iv. To recommend measures to be taken to capitalize benefits and combat barriers or challenges of e-GP adaptation for PWD.

Justification of the problem:

This is to mention that the Government of Bangladesh spends 25% of its GDP income annually in the public procurement (*Joarder 2015:1*). Public works Department as one of the major infrastructure development organ spends a significant part of the whole stake. The department is responsible for the construction of infrastructure along with providing

services to 24 ministries. In this 21st century, development of ICT in PWD is getting priority (*Chief Engineer's Message*, www.pwd.gov.bd online). PWD aimed for ICT development with a view to achieve E-Governance target of the government through enhancing its services with transparency, efficiency and accountability. But PWD lagging behind in E-GP adaptation compare to other development agencies of the government. Lack of focus from the development partners, lack of understanding of the system, lack of infrastructure capability, absence of strong vision, strategy and commitment, bureaucratic mentality towards change process probably hinder the transformational change from paper based procurement to e-procurement in PWD. Many more discussions on E-GP in different forum and subsequent better understanding about E-GP, stakeholders increasing expectations towards transparency and accountability, pressure from requiring bodies (24 ministries and departments or divisions of those ministries), ICT development in recent years under the Vision 2021: Digital Bangladesh have posed significant pressure on PWD for quick adaptation of E-GP. As a result, PWD is now in a state of taking off E-GP adaptation. Very recently, PWD piloted very few e-tendering processes in some field procuring divisions. So, it is now very important that the prospects of E-GP are clearly understood and communicated in all level to secure stakeholders buy-in and at the same time the challenges on the process of successful implementation are understood and managed to bring transparency, efficiency and accountability in PWD activities and thereby ensure best value for money (VFM) of public money. No such study was conducted on PWD yet. So, the proposed research is quite justified and the research outcome can be applied to other government departments as because government departments are directed through same set of rules, regulations and policies.

Methodology

Research design

The research was an exploratory type of research and adopted a mixed descriptive design to collect both quantitative and qualitative data that will describe the prospects and challenges in the adaptation of e-procurement in Public Works Department. Descriptive survey research designs were used in preliminary and exploratory studies to allow researchers to gather information, summarize, present and interpret for the purpose of clarification. Descriptive case study also aims at collecting information about people's attitudes, opinion, and behaviors (*Orodho, 2002*).

Population

The target population for this study was the field offices (procuring entities) of Public Works Department in Dhaka Metropolitan city.

Sample size and sampling technique

For this study, purposive sampling method was used. Interviewer for this study was chosen from officers of PWD who are directly related with procurement in Dhaka Metropolitan city.

Data collection instrument

Both primary and secondary data were used for the study. The research study uses a questionnaire as a key instrument for primary data collection. Secondary data were obtained from relevant literature like journals, internet and books. The questionnaire used for primary data collection was structured (close ended) and unstructured (open ended) to elicit both implicit and explicit responses from the respondents for the analysis of the quantitative data and qualitative data respectively.

The interview for this research was semi-structured. Semi-structural interview are useful if the researcher has a clear theoretical understanding of the topic, which allows the researcher to create an appropriate questionnaire. Semi-structured interview means that there is some flexibility in the wording and order of the questions.

The first section of the questionnaire dealt with demographic statistics of the respondents such name, age, years of service of the employees etc. The other sections include questions from the prospects and challenges perspective. A covering letter with disclaimer is provided in the first page. Questionnaires were distributed to respondents. To make high response rate, the researcher delivered questionnaires individually by making an appointment or by sending the questionnaire to personal e-mail. As a strategy aimed at minimizing the time it may take to carry out this exercise, the researcher adopted both self administered and drop and pick strategies in questionnaire administration.

CHAPTER 2: LITERATURE REVIEW

Introduction

This chapter entails the literature of other scholars on general concepts on e-procurement, e-government procurement and prospects and challenges of e-procurement adaptation in government organizations. The bottom line of the study is to enrich the already existing work on e-Government Procurement attainable through critical consideration of other scholars' work. The researcher will attempt to critic the findings and establish knowledge gap with a view to enhancing the factors affecting use of e- Government Procurement in Bangladesh.

The concept of e-procurement and its use

E-procurement is strongly related to concepts such as logistics, supply chain management (SCM) as well as e-commerce. Although some definitions are suggested to distinguish between these concepts, the benefits gained or the problems faced are similar. They all require financial, transportation, legal, and communication infrastructure (Ohmae, 2000). If a country is weak in one or some of these infrastructures, then e-Procurement activities are destined to fail. In addition to these four main factors, education of the e- Procurement personnel, security issues, societal readiness and mass awareness to use information and communication technologies (ICT), and the impact of the wireless technologies should also be considered.

In recent time, purchasing has morphed into procurement (Kotler, 2004). In the past, the purchasing function was seen as a way to execute a transaction between a buyer and a seller. Today, purchasing function needs to be executed on broader level. This means connecting different partners and helping them come up to the mark (Shah, 2002). E-Procurement has a multi-layered body and is connected to auxiliary industries and distribution channels. Stanton and Stanton (2002) have created a model of Internet purchasing to show the link between personality, predisposition towards innovativeness, and adoption. However, there is not an adequate solution in monetary value of face-to-face bargaining. Tomkins (2000) proposed the supply chain synthesis (SCS) which he claimed to be the next step to SCM. If SCS can be implemented, procurement activities throughout the supply chain can be streamlined. Raisch (2001) saw the future of SCM and e-procurement as B2B marketplaces and stressed the importance of content

management and community building. *Bovet and Martha (2000)* use the term “value net” as almost the equivalent of B2B e- marketplaces.

According to *Bialy 2008*, e-procurement is done with a software application that includes features for supplier management and complex auctions. The e-procurement value chain comprises indent management, e-tendering, e-auctioning, vendor management, catalogue management and contract management. Indent management is the workflow involved in the preparation of tenders. This part of value chain is optional, with each procuring department defining its indenting process. As concerns works procurement, administrative approval and technical sanction are obtained in electronic format. On the other side, in goods procurement, indent generation activity is done online. The end result of the stage is taken as inputs for issuing the NIT (*Peter, 2012*). E- Procurement (or Business- to- Business networks) is an online system by which companies can be connected directly to suppliers for the purpose of buying products and services at the lowest cost possible. E- Procurement essentially replaces its offline version, called tender. The advantages and disadvantages of e-Procurement mostly parallel the universal benefits and disadvantages of the internet. The public sector organizations use e- Procurement for contracts to achieve benefits for example increased efficiency and cost savings, faster and cheaper in government procurement (*Archer 2005*) and improved transparency, to reduce corruption, in procurement services. E-Procurement in the public sector has seen rapid growth in recent years.

Concept of E-GP

E-government procurement (e-GP) is the use of information technology (especially the Internet) by governments in conducting their procurement activities with suppliers for the acquisition of works, goods, and consultancy services required by the public sector. E-GP is important because it has the capacity to increase the transparency and efficiency of government procurement, which represents a large portion of Government expenditure. Due to less human interference, e-GP can ensure compliance with procurement policies and contribute to reducing the opportunities of corruptive and fraudulent practices. The development of efficient and transparent public procurement systems can result in public trust and political return and be incorporated in a broader procurement reform process.

E-GP covers a broad range of applications such as online information portals for the publication of business opportunities, contract awards, and other procurement-related information; interactive e-Tendering portals with download/upload facilities for bidding documents/bids; and fully automated procurement transactions for catalogue-based e-Purchasing including e-Reverse Auctioning, e-Ordering, e-Invoicing, and e-Payment. Information and Communication Technology (ICT) can contribute to disclose public procurement information and automate the public procurement process, but few changes will occur simply through the acquisition of hardware and software. A thorough reform of the administrative environment is necessary upstream to change public sector procurement. This will affect, downstream, the successful adoption and deployment of e-GP. Procurement reform will encompass changes across areas of regulations and legislation, operational policies, financial reporting, business and executive behavior, personnel, skills.

E-GP can improve the quality of government procurement outcomes, at a lower cost and with historical track records which can be audited more easily. By improving accessibility and interoperability of the government procurement information, e-GP makes possible:

- Improving transparency, accountability, and fiduciary compliance with less opportunity for corruptive or fraudulent activities.
- Increasing business access and competition for government expenditure (creating commercial benefits for businesses; price and quality gains for the government),
- Improving efficiency and reducing processing costs by integrating and automating workflow processes for transactions and other supply chain management activities.
- Increasing and facilitating access to real time and historic information for management and audit (enabling better decision making, planning, monitoring and reporting).

E-GP (e-government procurement) trends in the world

E- Procurement in the public sector is emerging internationally; hence, initiatives have been implemented in Singapore, UK, USA, Malaysia, Australia and European Union. E-Procurement projects are often part of a country's larger e-Government efforts to better serve its citizen and businesses in the digital economy. For instance, Singapore's GeBIZ was implemented as one of the programmes under its e-Government master plan.

According to *Aberdeen 2001*, an e-Procurement system manages tenders through a web site. This can be accessed anywhere globally and has greatly improved the accessibility of tenders. E-Procurement applications focus on creating efficiencies; their goal is to make the traditional purchasing procedures more efficient and cost effective (*Wu, 2007 and Turban et al, 2006*). Top management support organizational adaptation, and training of employees are examples of issues for the successful implementation of organization IT system (*Kawalek et al, 2003*). In the study on e-procurement adaptation in Greece, *Panayiotou et al. (2004)* pointed out e-procurement strategy, re-engineering of procurement processes and management of expectations as key success factors in an e-procurement adaptation strategy. Their conclusion was that implementation must be achieved in a manner of “incremental change” where technological solutions apply to regulations and policies.

Today, e-Procurement within government is recognized as one of the main areas in the Government-to- business (G2B) category, and receives much attention from researchers (*Turban and King, 2003*), being also called electronic public procurement. *UK National e-Procurement Project Report (2004)* notes e-procurement is a tool to enable procurement activities, including sourcing, ordering, commissioning, receipting and making payments for the whole spectrum of an authority’s activities. The issues in building efficient electronic government procurement solutions have been identified by the CEN/ISSS e-Business Focus Group, as being of organizational, procedural, technical, and legal nature (*CEN, 2005*). An investigation into the implementation strategy of e-Procurement in the Irish public sector concluded that fundamental changes are required in the public sector procurement environment to achieve the benefits of e-Procurement approach (*Lee, 2001*). It was found that the key issues could be grouped into a number of areas: procurement framework and practices, organizational arrangement, e-Procurement technology framework, and the legal and economic environment. Among these issues, a strong and efficient organizational aspect was identified as a very critical success factor for efficient e-GP implementation. Research on change management in respect of e-government is more recent (*Golden et al., 2003*) than the general change management contributions. However, it does not include reference to attempts at implementation issues. For example, *Burn and Robins (2003)* reported a project in Western Australia that included measures of strategic initiatives, cultural readiness, learning capacity, IT leveraging, knowledge capacity, and relationship building. This was balanced in the context of change management practice, process management practice, outcomes and

performance gains. As the successful implementation of e-GP is related to the efficient planning and management of information, people, business processes, and the development of the relevant policies and plans, attention to these areas should ensure success and the achievement of e-GP's known benefits (*Krishna and Walsham, 2005; Bahatnagar, 2002*). Therefore, e-GP needs to be understood as a tool to underpin reform in public procurement, rather than being a technological add-on to an already complex environment (*World Bank, 2006*).

Existing Public Procurement System of Bangladesh

A procurement system is a set of interaction or interdependent procurement components forming an integrated whole. Countries need well organized and structured procurement systems, where role and responsibilities of the procurement function are well defined. The key components of Public Procurement Systems consist of:

The Legislative and Regulatory Framework

This describes public procurement legislative and regulatory framework of Bangladesh achieves the certain standards and complies with applicable obligations. It covers the legal and regulatory instruments from the highest level (national law, act, regulation, decree, etc.) down to detailed regulation, procedures and bidding documents formally in use. The Public Procurement Act was enacted in Bangladesh in 2006 (PPA-06) followed by the Public Procurement Rules in 2008 (PPR-08). These two legal documents are considered at the level of world standard in the area of procurement as almost all the phases in tender management and contract management are covered with these complying generic procurement principles.

Institutional Framework and Procurement Governance

This component looks at how the procurement system as defined by the legal and regulatory framework in a country is operating in practice through the institutions and management systems that are part of the overall public sector governance in the country. There is a procurement secretariat office called CPTU (Central Procurement Technical Unit) is responsible to provide necessary assistance to comply with act and rules. Furthermore, they provide STDs (Standard Tender Documents) to all Procuring Entity offices in the country. Each government offices have institutional set up to apply the procurement role as set in the act and rule. But still there is a room for improvement applying the procurement governance issue.

Procurement Operational-Market Practices

This component looks at the operational effectiveness and efficiency of the procurement system at the level of the implementing entity responsible for issuing individual procurement actions. It looks at the market as one means of judging the quality and effectiveness of the system when putting procurement procedures into practice. This component is distinguished from Component 1 and Component 2 in that it is not looking at the legal/regulatory or institutional systems in a country but more at how they operate. This is the key area for PWD as its individual performance gives the competitive advantage compared to other organization.

Procurement Functional-Integrity and Transparency of the Public Procurement System:

This component operates with integrity, has appropriate controls that support the implementation of the system in accordance with the legal and regulatory framework and has appropriate measures in place to address the potential for corruption in the system. It also covers important aspects of the procurement system that include stakeholders as part of the control system. There is lot of space for improvement in this area in Bangladesh.

E-GP in Bangladesh

In a major development in Bangladesh, the government of Bangladesh formally started electronic procurement in the year 2011. The Central Procurement Technical Unit (CPTU) under ministry of Planning has developed the national e-GP web portal which has officially inaugurated by the then Prime Minister on June 2011. Since then the e-GP portal has been open for registration of the bidders and the procuring entities. The electronic tender has been invited in line with the present government vision for building a digital Bangladesh by 2021. CPTU is implementing the e-GP system under the Public Procurement Reform Project-II supported by the World Bank.

Rationale of e-GP in Bangladesh Perspective

In our national budget, the public procurement has a substantial contribution that is almost 25%. So, once economy, the vital procurement principle, is ensured in the procurement process that certainly leads to the economic development. Since integrity issue is almost ensured in e-GP, as such, economy becomes the compliance in receiving the tender. System generated performance actually ensures the efficiency in

procurement. Political consensus is in favor of e-GP which might have been a strong hindrance. As such, social motivation and technical skill can bring Bangladesh in successful procurement implementation.

Evolution of National e-government procurement (e-GP) system

Bangladesh has very recently reformed its legal and institutional framework governing public procurement. Since the adoption of privatization as an economic policy reform in 1976, public procurement by contractual means in Bangladesh has been increasing day by day. Public procurement in Bangladesh including government's activities of purchasing, hiring or obtaining of goods, works or services by any contractual means. Various government agencies or procurement entities, especially the ministries, divisions, departments/directorates and other autonomous/semi-autonomous bodies or corporations in Bangladesh often acquire/purchase goods, services or works by contractual means. Although limited tendering method or direct procurement method can be used for some specific reasons, procurement and contracts in Bangladesh often take place through open competitive biddings. Corruption and poor governance are impeding Bangladesh's efforts to reduce its massive poverty by reducing economic growth and lowering the achievement of social objectives. Corruption destroys citizens' faith in their government. Economic growth is essential to reduce poverty; however, corruption slows economic growth.

Bangladesh is encouraged to pursue its plans to pass the constitutive elements of its procurement framework at the level of a parliamentary law. An amendment to a law is designed to remove the lacunas of existing law and find the way to implement the provision more effectively. But unfortunately the recent amendment introduced to the public procurement rule (PPR) would perhaps put a damper on a vital front of governance. Corruption, terrorism and mismanagement in the public purchase are the common scenario for the last decades. Mishandling and mismanagement of public procurement in absence of a uniform law contributed largely to the situation. Reforms in the public sector procurement and finance were initiated. Later on the laws were passed in 2006. But public procurement act (PPA) and PPR were made effective during the caretaker government in 2008. It has been modernized and brought to international standard through the enactment of successive law and rules, (*Shakeel Ahmed Ibne Mahmood, 2010*). Public procurement reforms are a crucial building block in improving public sector management, governance and accountability. Public procurement

expenditure constitutes over 75% of the annual development program in Bangladesh; thus procurement plays an important role in the development agenda of the Government. It is well-documented that weaknesses in public sector procurement have a cumulative negative effect on investment and economic growth. Poor public procurement skews investment toward areas where rent-seeking is prevalent, rather than toward the areas that need it more for poverty reduction and development.

The PPRP II follows up the successes of PPRP I to progressively improve performance of the public procurement system, particularly focusing on large spending areas, ministries and agencies. After piloting, the PPRP II has been rapidly expanding the electronic procurement (e-GP) and online procurement performance monitoring systems (PROMIS) in four key government agencies, namely the Roads and Highways Department, the Local Government Engineering Department, the Bangladesh Rural Electrification Board and the Bangladesh Water Development Board. Electronic procurement makes public contracting more accessible, more secure and more efficient, thereby enhancing the implementation of priority development programs. Through the web interface, procurement information becomes accessible and competition and transparency is enhanced - making collusive bidding difficult (*Word bank, 2011*). National e-Government Procurement (e-GP) portal of the Government of the People's Republic of Bangladesh is developed, owned and has been operated by the Central Procurement Technical Unit (CPTU), IME Division of Ministry of Planning. The e-GP system provides an on-line platform to carry out the procurement activities by the Public Agencies - Procuring Agencies (PAs) and Procuring Entities (PEs). The e-GP system is a single web portal from where and through which PAs and PEs will be able to perform their procurement related activities using a dedicated secured web based dashboard. The e-GP system is hosted in e-GP Data Center at CPTU and the e-GP web portal is accessible by the PAs and PEs through online for their use (www.cptu.gov.bd).

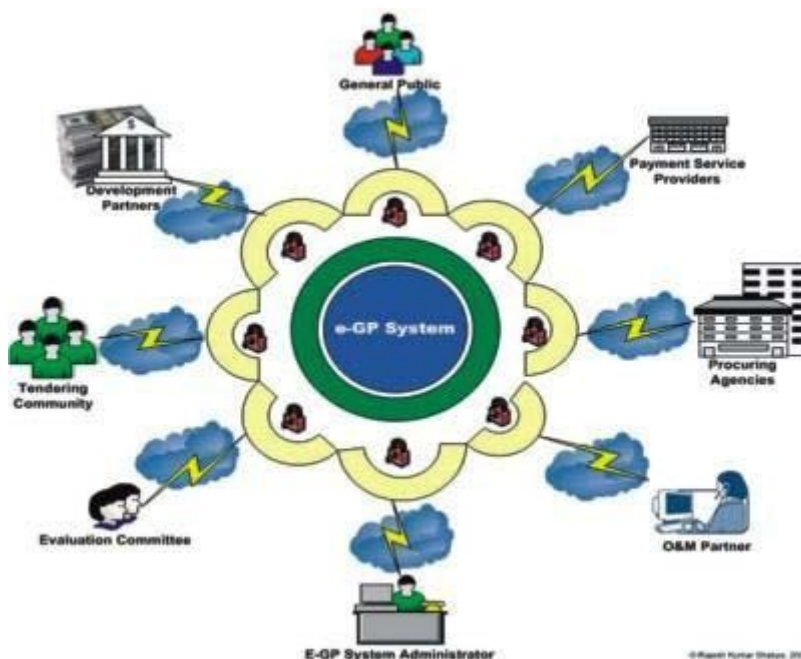


Figure 2.1: E-GP system access diagram.

This complete e-GP solution introduced under the Public Procurement Reform (PPR) Program is being supported by the World Bank and gradually used by all government organizations. This online platform also helps them ensuring equal access to the Bidders/Tenderers and also ensuring efficiency, transparency and accountability in the public procurement process in Bangladesh. The government has sought opinions from all ministries to finalize e-government procurement (e-GP) system, which is expected to minimize traditional meddling in bidding processes by musclemen. The countrywide major development projects are conducted by different agencies starting from the Prime Minister's Office to local government entities. The CPTU is responsible for monitoring and implementing the law and rules in public procurement. The entity thinks that if the government goes for an online bidding process, no one can exert or show muscle power. E-Government procurement (e-GP) as the collaborative use of Information and communications technology (especially the Internet) by government agencies and other sectors of procurement community in conducting all activities of Government Procurement Process Cycle (GPPC) for the acquisition of goods, works, and consultancy services with enhanced efficiency in procurement management. It would also connect the government body and the national and international contractors on an online platform, which automates the entire government's procurement process by

introducing centralized registration of contractors, e-tendering, e-contract management system, e-payment, e-signature and e-security (www.eprocure.gov.bd).

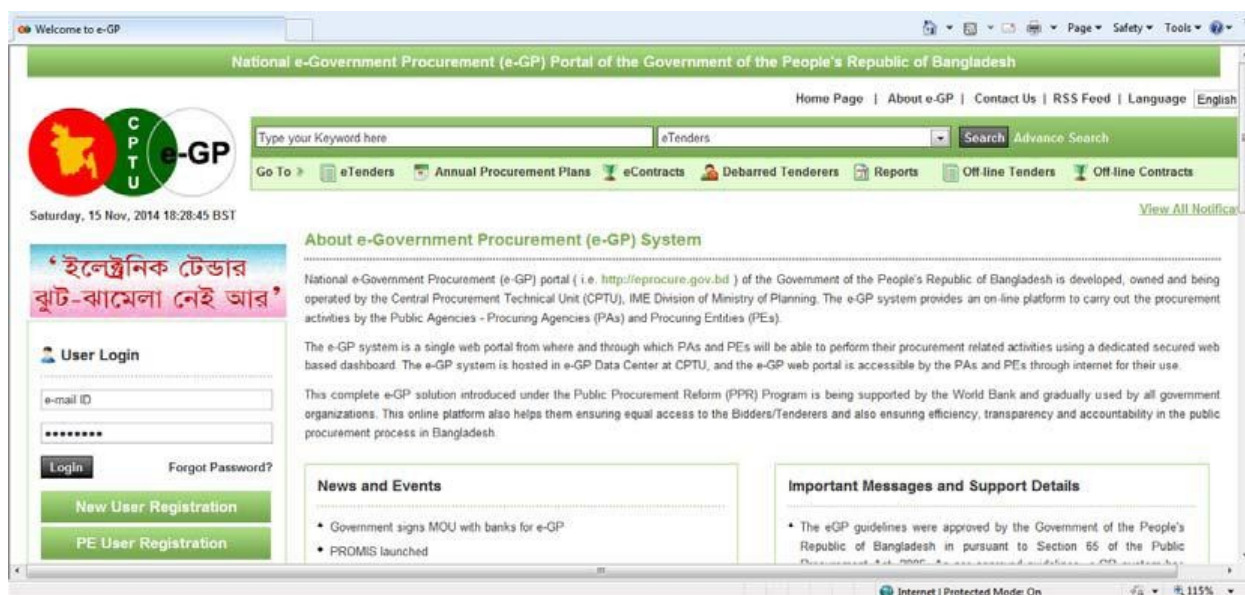


Figure 2.2: Home page of E-GP

The amount of government procurement of Bangladesh is approximately US \$3.0 billion per year. Each department and public sector entity has its individual manuals and procedures. Project Implementations are often delayed due to the delay in procurement activities of goods or services or works. Hence the need for improved governance in public sector procurement has been arisen.

The e-GP guidelines were approved by the Government of the People's Republic of Bangladesh in pursuant to Section 65 of the Public Procurement Act, 2006. As per approved guidelines, e-GP system has been introduced and implemented. The e-GP system has been developed and introduced in two phases. In the first phase, e-Tendering has been introduced on pilot basis in the CPTU and 16 other Procuring Entities (PEs) under 4 (four) sectoral agencies, namely:

1. Bangladesh Water Development Board (BWDB),
2. Local Government Engineering Department (LGED),
3. Roads and Highways Department (RHD) and
4. Rural Electrification Board (REB).

The system rolled out to 291 PEs of those 4 sectoral agencies is now expanding to all the PEs of the government up to Districts and sub-Districts or upazila level. In the second phase, e-Contract Management System (e-CMS) has been developed and introduced and implemented. E--CMS is a complete electronic

contract management system which provides platform for preparation of work plan and its submission; defining milestone, tracking and monitoring progress, generating reports, performing quality checks, generation of running bills, vendor rating, generation and issuance of completion certificate(www.eprocure.gov.bd).

E-GP prospects or benefits from previous study

There are potential for savings to be made from e-procurement is beyond dispute. The business case for e-procurement is based on yearly reductions in purchase prices and savings from lower process costs. However, the business cases are only the start of estimating potential savings versus the costs incurred in their realization. It is continuous measurement of the effectiveness of the key performance measures that are vital to the successful management and delivery of benefits realization. Thus measurement, especially in difficult trading conditions, are likely to be a prerequisite for project approval and the only way to demonstrate success and identify problems early enough to manage them effectively. Measurement drives behavior and is a key element in making a successful program – and is just as relevant to projects that are already underway. Consistency, discipline, and accuracy must be applied to obtain meaningful results. Measurement provides new and reliable input into sourcing negotiations and presents an accurate picture of procurement as a basis for improved management, whatever the organization's starting point. In order to calculate recurring benefits, key savings drivers need to be identified and measured. The key drivers for e-procurement include transactional, payment, management information and price benefits, (*David eakin 2003*). These drivers are interdependent, each enabling the others' delivery. The interaction between them is important, implying that the achievement of tangible benefit in the form of price improvement is reinforced at each successive negotiation by the improving interaction of the drivers. The result is that e-procurement enhances subsequent negotiations with a supplier by yielding increases in business, and efficiencies in the transacting of that business.

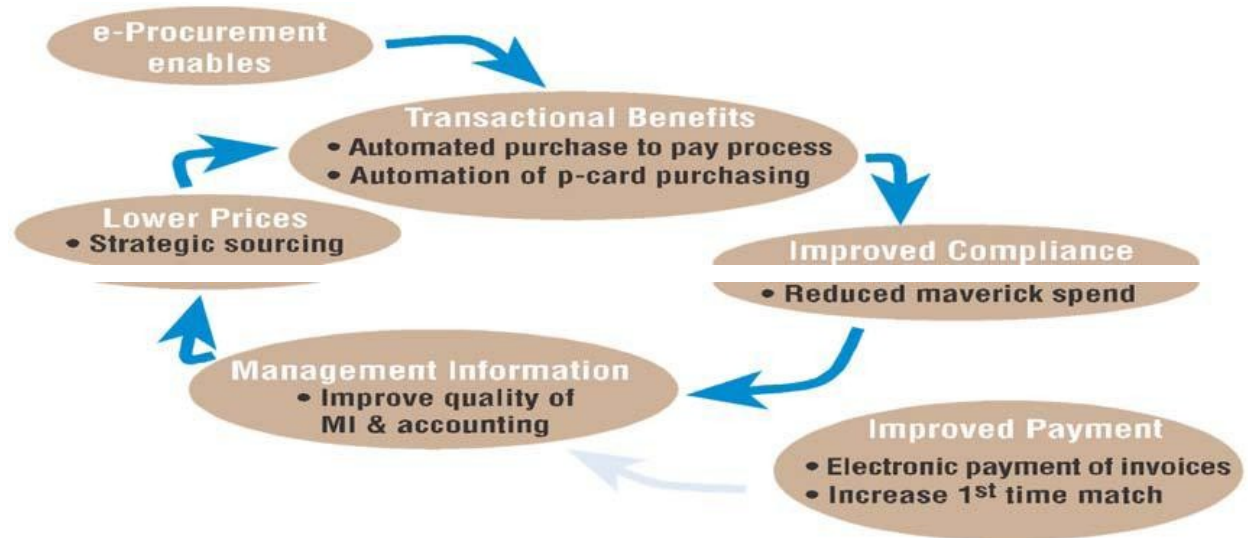


Figure 2.3: Interdependency of savings

Transactional Benefits: E-procurement enables the purchase-to-pay process online. A typical example uses a Web-based transacting tool whereby items are selected predominantly from pre-sourced catalogs and submitted for electronic approval. These tools are then linked to the back end ERP system for entry, payment of invoices, and collation of management information. Electronic processing (including the automation of p-card purchasing) leads to great time savings and efficiency due to:

- Global, automated processes incorporating best practice and eliminating unnecessary activities;
- E-enabled relationship with suppliers, which speeds procurement cycle times and facilitates supplier performance improvements; and
- Greater data accuracy, which minimizes ordering inaccuracies and provides the essential foundation for better management through measurement and analysis.

Compliance Benefits: In many cases within an organization, compliance and maverick spending is a significant issue – not because employees deliberately purchase outside of preferred arrangements, but rather through lack of awareness. E-Procurement addresses this through tools such as catalogs and standard order processing and approval processes. Compliance will be achieved due to:

- A simple and quick requisition-to-payment process including a user-friendly interface and pre-sourced catalogs tailored to the requirements of the individual user;

- A simple and quick strategic sourcing process with standard procurement processes and tools, as well as easily accessible information; and
- The e-procurement system, the only purchasing mechanism available.

Management Information Benefits: The fact that key information (cost center, commodity codes, etc.) is hard coded against the user dramatically reduces coding errors and provides highly detailed and easily accessible data. This is essential to maximize the financial benefits of strategic sourcing. A successful e-procurement implementation will provide high quality, detailed management information and will negate the need for data warehousing or resource-heavy data mining.

Price Benefits: The ability to prove to one's suppliers that are using e-procurement as a tool to ensure end users do honor their contract status will enhance ability to negotiate down prices through:

- Greater enhanced capture and therefore, reliability of spending information; and
- Increased confidence that spending volumes can be guaranteed from increased compliance with the system, thus allowing volume price breaks and discounts to be achieved.

Payment Benefits: The successful operation of the first four benefits enables electronic payment of invoices. This includes the ability to better control the business cash flow and to manage the efficient payment of suppliers due to more streamlined procurement processes providing more timely and accurate information to the accounts payable department. Potential benefits include reduced manpower (a "hard" benefit only if improvements lead to head count reduction) and reduced spending on postage and stationery. During negotiations the procurement manager can more credibly guarantee the supplier a level of prompt payment, which was not possible prior to e-procurement. As well, e-invoicing benefits are often under-assessed and ignored. It was suggested that the public sectors are likely to benefit more from the use of electronic commerce for the purpose of sourcing than for transaction management and that electronic commerce promotes economic efficiency in public sector procurement. The implications for supply chain transformation from the perspective of transaction cost optimization have been considered. The use of e-procurement is thought to have implications for information asymmetries or impact in inter-organizational relationships and in particular for search and monitoring costs. Alternative explanations for the benefits of e-procurement arise

from the resource based perspective through which the resources of the firm may be leveraged to achieve competitive advantage with electronic commerce presenting opportunities to enhance firm resources. While there is some evidence that electronic commerce in procurement may not result in reduced costs in acquisitions in particular markets, various cost reductions and benefits have been identified.

These include the implications of e-procurement for the following (*Tonkin, 2003*):

- The cost of expenditure on goods/services related directly to the production/service delivery.
- The cost of non-production goods and services.
- The cost of operational purchasing activities – e.g., requisitioning, ordering, expediting and administrative support.
- The cost of tactical procurement activities – e.g., formulating specifications, selecting suppliers, negotiating with suppliers, contracting, disposals etc.
- The costs of strategic procurement activities – e.g., spend analysis, transaction analysis, market analysis, planning, developing purchasing policies etc.
- Internal benefits arising from investments in particular inter-organizational relationships.
- The contribution of investments in particular inter-organizational relationships to revenues.

Despite a challenging environment, Bangladesh has been transforming its procurement environment for better outcomes in public contracting with improved efficiency, effectiveness, and transparency at key sectoral ministries and agencies. The Second Public Procurement Reform Project (PPRP II) has introduced electronic procurement and on-line performance monitoring at four sectoral agencies that accounts for majority of public procurement. PPRP II is working to improve performance of the public procurement system, particularly in sectors that hand out large or many contracts (*World Bank, 2003*). In case manual tendering system, it was found that –

- Details Tender notice published in the daily newspaper which is costly.
- Preparation of tender schedule required more time. If no tender is found first time, then details re-tender notice is published in the newspaper. Pre-tender meeting required declared place and time the tenderers required to come for attending pre-tender meeting physically.
- In the purpose of purchase and submission tender schedule, the tenderers require to come physically and submit the tender. The name of the tenderers,

who purchase tender schedule, is declared by unauthorized person and there is a possibility of collusive practice.

- Political and other barrier may occur in manual tendering system. Electronic processing leads to great time, cost savings and efficiency due to: Global, automated processes incorporating best practice and eliminating unnecessary activities; e-enabled relationship with suppliers, which speeds procurement cycle times and facilitates supplier performance improvements; and greater data accuracy, which minimizes ordering inaccuracies and provides the essential foundation for better management through measurement and analysis. Tender Documents are prepared electronically and published, so savings of cost occurred due to no paper works required for tender preparation.

In PPR-2008, following major areas as ethical behavior should not be followed as-

- Corrupt,
- Fraudulent,
- Collusive or Coercive Practices

The Government requires that Procuring Entity, as well as the Contractor shall observe the highest standard of ethics during implementation of procurement proceedings and the execution of Contracts under public funds. If corrupt, fraudulent, collusive or coercive practices of any kind determined by the Procuring Entity against the Contractor alleged to have carried out such practices, the Procuring Entity shall exclude the concerned Tenderers from further participation in the particular Procurement proceeding; or declare, at its discretion, the concerned Tenderers to be ineligible to participate in further Procurement proceedings, either indefinitely or for a specific period of time. So, The Corrupt, Fraudulent, Collusive or Coercive Practices can be eliminated in the e-Procurement System as no Physical place is required for submitting tender Documents.

- In tender submission purposes, The tenderers prepare tender documents and submit online, so the tenderers is not require to come physically for purchase and submit the tender.
- The winning bidders are informed automatically by e-mail and published in the concern website which reduce the time for prepare contract award and related documents.
- As the process is completed through on line, so no political and others interfere is occurred in the process of Government purchases and it is easy to ensure

competition, accountability, transparency in the tender process which ensured best value for money.

- In e-Procurement Process, it is easy to ensure efficiency in procurement and provide equitable treatment of bidders and fairness in bidding offers. E-Procurement advantages can only be fully realized when the systems and processes to manage it are in place. Software tools are needed to create the standard procurement documentation: electronic requests for information (e-RFI), requests for proposal (e-RFP) and requests for quotation (e-RFQ). These are proven methods to source goods and make the framework agreements that offer the best prices. An adequate, fully integrated e-procurement approach is needed for overall success. Additional programs provide the framework for the supplier databases and spend management as well as holding key vendor information and being an electronic repository for contracts. All these facilities cost money and a clear business case must be made for e-procurement. In most cases this is fairly clear that cost savings are possible. It pays for companies to spend money on e-procurement technology, this investment will boost efficiency. The longer term reduction in costs will enable companies to direct their resources to more strategic initiatives. E-Procurement advantages are significant bottom-line benefits, including cost reduction, process efficiencies, spending controls and compliance. Companies using e-procurement gain additional control over maverick spending and can reduce the headcount supporting purchasing transactions. E-Procurement can have a major impact on compliance on many different levels of the procurement process: it supports managerial budgetary control; reduces data entering failures; offers greater transparency and accessibility to corporate wide spending; improves system reliability; and improves the access to managerial information (*Davila et al, 2003*).

E-GP barriers or adaptation challenges from previous research

Even though the benefits, adopting e-procurement solutions can be significant, there are some internal and external challenges and risks related to the adoption of e-procurement. There has been a long term problem with identifying value from Income Tax (IT) investments and in creating a case for IT introduction in general. This is why companies need a clear plan for implementing e-procurement technologies.

There are three important challenges to e-procurement implementation (*Angeles and Nath, 2007*):

1. Lack of system integration and standardization issues.
2. Immaturity of e-procurement-based market services and end user resistance.
3. Maverick buying and difficulty in integrating e-procurement with other systems.

Lack of system integration and standardization issues relates to the fact that e-procurement is still relatively new business application and it is not unusual to find a lack of remarkable reference models. Another challenge is software immaturity and the lack of certain key features like invoicing, payment reconciliation or managing of different geographical jurisdictions, tax structures, currencies etc. Also, companies need to be aware of the possible hidden costs related to implementation of e-procurement solutions, such as system integration, content aggregation and rationalization, catalog and search engine maintenance, supplier enablement, end user training and procurement process re-engineering. These costs can easily exceed software licensing and maintenance cost by five to ten times (*Angeles and Nath, 2007*). The second challenge relates to the immaturity of providers of e-procurement services and the lack of supplier preparation, and the resistance of solutions end-users. In some cases the immature service providers may not be able to provide a complete suite of services, especially for more complex or advanced e-procurement implementation projects. The immaturity of tenderers and the lack of preparations are also a challenge for many organizations. After all, suppliers need to learn how to generate catalogs, process electronic purchase orders, how to use invoicing mechanisms among other tasks (*Angeles and Nath, 2007*). The success of e-procurement solutions relies on the network effect that will be more effective if enough players are adopting the same technology. The other challenge here relates to the resistance of end-users towards operating the e-procurement solution. To prevent these companies should encourage using new e-procurement technologies through intensive training and educational sessions with End-users. The third challenge is linked to the difficulty of changing purchasing-related behavior among the company's employees. Some companies find it difficult to eliminate maverick buying even after the implementation of e-procurement. This can be prevented by intensive end-user training and educational programs. Companies also need to be aware of the problems in integrating the e-procurement solution with other systems. Integrating e-procurement solutions with other business applications (e.g. accounting) can be more complex than businesses think. There are four risks associated with adopting e-procurement

technologies. These four risks need to be carefully addressed before these technologies are adopted.

Internal business risks: Business has to be careful while integrating e-procurement technologies with other business applications such as accounting, human resources, accounts payable and cash management. Most companies already have invested heavily in these other applications and the integration of e-procurement should go as smoothly as possible, or it can jeopardize the reliability of organizational information.

External business risk: e-procurement solutions also need to be able to cooperate with suppliers IT infrastructure. For e-procurement solution to be successful suppliers must be accessible through the Internet and provide catalogs to satisfy the needs of their customers. In some cases suppliers might lack the resources to meet the demands of customers in catalog developing and updating. Companies also need to develop mechanisms that provide the buyers with assurance that new suppliers meet the expectations and standards relating to supplier quality, service and delivery capabilities.

Technology risks: Many companies are unsure which e-procurement solution best suits the specific needs of their company. The lack of widely accepted standards blocks the integration of different e-procurement solutions across the supply chain. The researchers insist that without widely accepted standards for coding, technical, and process specifications, adoption of e-procurement technologies will continue to be slow and will fail to deliver the promised benefits.

E-procurement process risks: This risk relates to the security and control of the e-procurement process itself. Such issues can be related to, for example data security and fraud prevention e.g. fake tenderers, fake bids etc. As identified in the examination of earlier e-procurement literature, adopting e-procurement solutions can provide substantial cost savings and other benefits, but there are also challenges and risks companies need to take into account when considering e-procurement adoption. Making the procurement process more efficient and faster can be achieved with the use of e-procurement solutions. None the less, this requires that the implementation process must be planned and executed thoroughly in order to minimize the challenges and risks companies might face (*Viljami Vanjoki 2012*).

E-GP in Construction Industry

In a number of industry sectors it has been shown that the development of business process models has supported the embedment of the business process within the organization (*Alshawhi et al, 2004*). The study of these other industries shows the many benefits that construction could potentially harness through e-business savings and efficiencies. The identification of the drivers and barriers to e-procurement in construction is vital to gaining an understanding of how the benefits of e-procurement can be used to increase its uptake and to provide a model to embed e-procurement. A limited study had been carried out in this field; *Eadie et al (2007)* carried out a preliminary study into drivers and barriers in construction and ranked these from a Northern Irish Public Sector Contractors perspective. The study applied drivers and barriers identified from other industries to e-procurement in construction and produced a ranking of the importance of drivers and barriers. The drivers and barriers commented on by *Martin (2008)* were also analyzed to identify those which are applicable to construction. It was felt a more rigorous verification of the application of general e-procurement drivers and barriers to construction e-procurement may provide a clear outlook for the potential for the advancement of e-procurement in construction.

Drivers to construction e-procurement identified from Literature:

Numbers of drivers have been identified from the research works of different supply chain professionals and academicians. In a brief those drivers are as follows:

- Process cost savings - (Tender / Purchase Process) by *Knudsen (2003)*, *Minahan and Degan (2001)*, *Martin (2008)*;
- Service / Material / Product Cost Savings by *Minahan and Degan (2001)*, *Martin (2008)*
- Reduced Waste; Transaction Administration Cost Savings by *Davila et al (2003)* and *Panayiotou et al (2003)*;
- Reduced Administration Costs by *Egbu et al (2003)*, *Hawking et al (2004)*, *Raghavan and Prabhu (2004)*;
- Increasing Profit Margins by *McIntosh and Sloan (2001)*, *Wong and Sloan (2003)* , *Ribeiro (2001)*;
- Strategic Cost Savings by *Knudsen (2003)*;
- Enhanced Inventory Management by *Hawking et al (2004)*, *Martin (2008)*;
- Decrease in Costs through reduced staffing levels by *Kong (2001)*, *Davila et al (2003)*, *Egbu et al (2003)*;

- Shortened Overall Procurement Cycle Times by Minahan and Degan (2001);
- Shortened Communication Cycle Times by Knudsen (2003);
- Reduction in time through greater transparency (Less objections) by Panayiotou et al (2003);
- Reduction in Evaluation Time by Panayiotou et al (2003), Martin (2008);
- Reduction in Time through improved internal workflow by Panayiotou et al (2003);
- Reduction in purchasing order fulfillment time - Contract Completion by Davila et al (2003);
- Reduction in time through increased visibility by Kalakota et al (2001);
- Increased Quality through increased competition by Kalakota et al (2001);
- Increased Quality through Benchmarking (Market Intelligence) by Hawking et al (2004);
- Increased Quality through increased visibility in the supply chain by Minahan and Degan (2001) and Hawking et al (2004);
- Increased Quality through increased efficiency by McIntosh and Sloan (2001), Ribeiro (2001), Martin (2008);
- Increased Quality through Improved Communication by Hawking et al (2004);
- Gaining Competitive Advantage by Wong and Sloan (2003)

Barriers to construction e-procurement identified from Literature

Similarly there are also numbers of barriers or challenges in the adaptation of e-procurement in the construction industry as identified in various research work by various researcher. Those are as follows:

- Upper Management Support / Lack of Leadership by Davila et al (2003), Hawking et al (2004);
- Other Competing Initiatives by Kheng et al (2002);
- Resistance to change by Davila et al (2003), Martin(2008)- Natural Inertia;
- Lack of a widely accepted solution by Davila et al (2003) , Martin (2008);
- Magnitude of Change by Kheng et al (2002);
- Lack of a national IT policy relating to e-procurement issues by Carayannis et al (2005);
- Lack of Flexibility by Carayannis et al (2005);
- Bureaucratic dysfunctionalities by Carayannis et al (2005);

- Complicated procedures and extended relationships by Carayannis et al (2005) show how excessive state;
- Lack of technical expertise by Davila et al (2003), Martin (2008);
- Staff turnover by Kransdorff (1998);
- Slowdown in the uptake of internet services since the dotcom bubble burst by Christensen et al (2002);
- Company access to the internet by Smith (2006) - BBC Webpage;
- Religious objections to the internet by McMullan(2005) Correspondence to CPD;
- Insufficient assessment of systems prior to installation by Forrest (1999);
- Security in the process - Data transmission to the wrong person by Gebauer et al et al (1988), Kheng et al (2002) -59% of Singapore sample cite security as the main barrier;
- Confidentiality of information – unauthorized viewing by Gebauer et al et al (1988), Julia-Barcelo (1999);
- Prevention of tampering with documents - changes to documents by Gebauer et al et al (1988), Feniosky and Choudary (2001);
- Data transmission reassembly – incorrect reassembly of data transmitted in packets by Jennings (2001);
- Partial Data Display - incomplete documents provided by Jennings (2001);
- Lack of pertinent case law by Hawking et al (2004), Price Waterhouse Coopers (2002), Julia-Barcelo (1999), Martin (2008);
- Different national approaches to e-procurement by Carayannis et al (2005);
- Proof of intent - electronic signatures by Julia-Barcelo (1999), Rawlings J (1998), Dumortier et al (1999), Wright (1999);
- Clarity of sender and tenderers information by Wright(1999), Dumortier et al(1999);
- Enforceability of electronic contracts by Jennings (2001), CITE website (2004);
- Information technology investment costs by Irani and Love (2002), Wong and Sloan (2004), Martin (2008);
- Cost of assessment of systems to find correct system to fulfill tasks by Forrest (1999), Wong and Sloan (2004);
- Internal Compatibility by Davila et al (2003), Boeing (1996);
- External Compatibility by Davila et al (2003), Boeing (1996);

- Investment in compatible systems by Davila et al (2003);
- Reluctance to „buy-into“ one off systems by Irani and Love (2002)

E-GP in PWD

Over the last few years Bangladesh has made commendable progress in bringing a systemic change and creating a basic foundation for its public procurement system by mandating a uniform procurement policy. The procurement budget for the government is a huge amount of money for a developing country. To improve the spending performance of the public money and to expedite the overall efficiency in public procurement activities, government is now gradually implementing the electronic Government Procurement (e-GP) system to all Government agencies after successful piloting e-Tendering process to the four target agencies. These organizations are Bangladesh Water Development Board (BWDB), Local Government Engineering Department (LGED), Roads and Highways Department of Bangladesh (RHDB) and Rural Electrification Board of Bangladesh (REBB) (*Joarder 2015:1*). Besides these four targeted agencies Public Works Department (PWD), under the Ministry of Housing and Public Works, is one of the major government organizations that deal with the construction of different infrastructure/ physical facilities under delegated procurement from different ministries. The organization's construction work is directly connected to the national program of development and reconstruction. The Public Works Department is responsible for the construction of infrastructure along with providing service to 24 ministries. It is also the Government's biggest construction agency (<http://www.pwd.gov.bd>). Very recently PWD started its journey in e-GP but much lagged behind in e-GP adaptation compare to other development agencies of the government. So, at this stage it is very important that the prospects and benefits of e-procurement in PWD are well-understood and at the same the challenges and blockers on the e-GP implementation are identified, analyzed and managed.

This is to mention that the Government of Bangladesh spends 25% of its GDP income annually in the public procurement (*Joarder 2015:1*). Public works Department as one of the major infrastructure development organ spends a significant part of the whole stake. The department is responsible for the construction of infrastructure along with providing services to 24 ministries. In this 21st century, development of ICT in PWD is getting priority (*Chief Engineer's Message, www.pwd.gov.bd online*). PWD aimed for ICT development with a view to achieve E-Governance target of the government through

enhancing its services with transparency, efficiency and accountability. But PWD lagging behind in e-GP adaptation compare to other development agencies of the government. Lack of focus from the development partners, lack of understanding of the system, lack of infrastructure capability, absence of strong vision, strategy and commitment, bureaucratic mentality towards change process probably hinder the transformational change from paper based procurement to e-procurement in PWD. Many more discussions on e-GP in different forum and subsequent better understanding about e-GP, stakeholders increasing expectations towards transparency and accountability, pressure from Requiring bodies (24 ministries and departments or divisions of those ministries), ICT development in recent years under the Vision 2021: Digital Bangladesh have posed significant pressure on PWD for quick adaptation of e-GP. As a result, PWD is now in a state of taking off e-GP adaptation. Very recently, PWD piloted very few e-tendering processes in some field procuring divisions. So, it is now very important that the prospects of e-GP are clearly understood and communicated in all level to secure stakeholders buy-in and at the same time the challenges on the process of successful implementation are understood and managed to bring transparency, efficiency and accountability in PWD activities and thereby ensure best value for money (VFM) of public money.

From research and analysis on e-GP by different researchers, analyst in different countries it is evident that huge prospects and at the same time barriers exist in the adaptation of e-GP. Good numbers of prospects and barriers in construction procurement are also evident in different research work found in different books, journals, articles all over the world. But for a government organization entrusted for government construction work in a under developed or developing country this type of research is very few. In Bangladesh, e-GP practices have started very recently and limited to few organizations in a limited version. Other than, the four target agencies mentioned earlier in this report, e-GP practice is very few. PWD started e-GP last year for the first time. Last year only 89 nos. of e-tendering for small works were done followed by an administrative order by the chief engineer to do at least 2 nos. of e-tendering in each working divisions. On an average each year PWD procure small works specially repair and maintenance works through 9000 nos. of tenders. But last year only 89 nos. of tenders for small size (within 2 lack taka) repair and maintenance works were procured through e-tendering. Up to January 2016 total 149 tenders were done through e-GP. It is mentionable that in those 149 e-procurements only the tender floatation and

receiving were done electronically. So, it seems that PWD is very reluctant in e-GP adaptation. This is because of less understanding, less believe, less commitment to the prospects or benefits of e-GP and at the same time strong presence of the barriers or weak forces required to overcome those barriers. So, this research is focused towards identifying the prospects or benefits and at the same time main challenges or barriers that are very much relevant for PWD and at the same time for other infrastructure development organization of the government of Bangladesh. Because similar type of government organization are governed by same set of rules, policies and procedures. This research work will find out and analyze prospects and challenges of E-GP adaptation for PWD in a macro perspective-focusing generalized issues relevant to the whole organization not specific to any individual working divisions directly related to procurement or procuring entity.

CHAPTER 3: ANALYSIS AND FINDINGS

3.1. Introduction:

In this study the target respondents are the working divisions of PWD in Dhaka Metropolitan City. The office head of the working divisions are the executive engineers. So, generally they are quite experienced in procurement following PPA and PPR. But few of them have experience on e-GP.

In this study, e-GP's prospective benefits that are much relevant for any govt. organization concerned for infrastructure development in Bangladesh context are identified by analyzing different study, research literature and then those benefits are set on a questionnaire to get opinion of the respondents on those benefits. In the questionnaire, identified benefits were kept in close ended questions to get respondents response as most important, important, neutral, less important and least important. There were also open ended space for listing and ranking additional benefits according to the respondents own judgment that were not listed but much relevant to PWD and Bangladesh context as per respondents view.

The bottom line of the study is to identify five most relevant benefits that PWD could achieve from e-GP adaptation and to discuss why these benefits are most important. At the same time, to identify five most relevant barriers to e-GP adaptation for PWD and how to address those obstacles.

Analysis and Finding:

Results from primary data on e-GP prospects and barriers for PWD are analyzed from different perspective.

Respondents' age group:

The research findings revealed that of the twenty respondents, six respondents aged between 36 years and 40 years or 30%; eight respondents aged between 41 years and 45 years or 40% and six respondents aged between 46 years and 50 years or 30%, as shown in the figure 4.1 below:

Age group	36-40 yrs.	41-45 yrs.	46-50 yrs.
No. of respondents in these groups	6	8	6

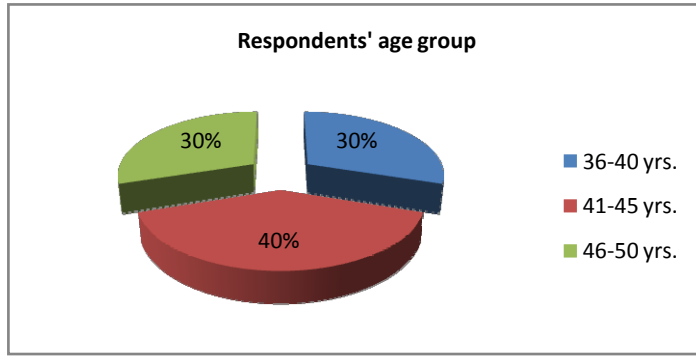


Fig 3.1: Respondent's age group

Respondents' experience in public procurement processes:

The research findings showed that majority or 45% of respondents have worked in procurement process between 11 years and 15 years while 35% of respondents have worked in procurement process between 16 years and 20 years. The following figure 4.3 shows respondents' length of time in procurement process:

Years in govt. service	Below 10 yrs.	11-15 yrs.	16-20 yrs.	More than 20 yrs
No. of respondents in the groups	2	9	7	2

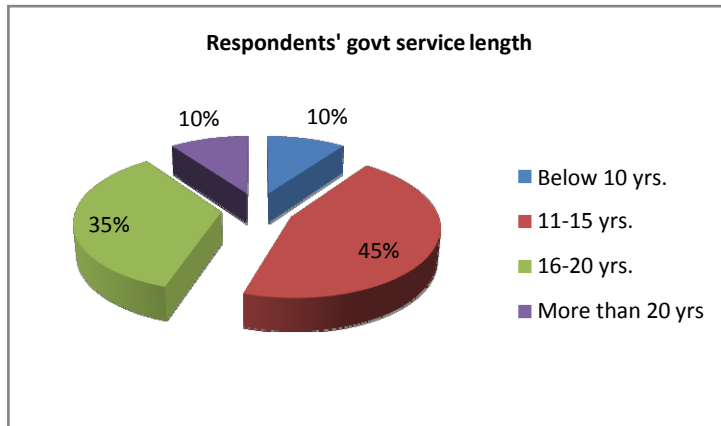


Fig 3.2: Respondent's govt service length

Respondents' general perception about e-GP:

Respondents general perception data (total respondents is 20 nos.)			
Sl. No.	Questions	Yes	No.
1.	Do you know, what is e-Procurement?	20	
2.	Have you ever used/participated in e-Procurement?	7	13
3.	Do you think that e-Procurement is better than manual tendering process?	20	

Respondents' opinion of e-GP prospects or benefits for PWD:

	E-GP prospects or benefits (identified and listed from previous literature)-close ended	Respondents opinion (no. of respondents in this group)				
		Least important	less important	neutral	important	most important
1.	Better transparency due to free and fair competition and reduced opportunity for fraud and corruption due to automated process.		1	1	2	16
2	More accountability with more specific individual responsibility		1	5	11	3
3	Tender processing and other administrative cost savings	1		4	8	7
4	Time efficient in terms of shortened procurement cycle time	1		1	7	11
5	Quality enhancement with enhanced electronic monitoring		2	7	8	3
6	Improved decision making			8	9	3
7	Improved contract compliance		6	5	3	6
8	Better management of information reports		4	7	4	5
	Additional benefits identified and ranked by respondents that are relevant to PWD and Bangladesh context-open ended questions and remarks					
9	Wider access to prospective tenderers				1	
10	Reduced malpractice in tendering process					1

Now we can assign 5 marks as weighted for the most important response, 4 marks for the important response, 3 marks for neutral response, 2 for less important and 1 for least important response to get overall impact of the responses on the issue. Multiplying each no. of response by its associated marks and then by combining them we will get an overall score for the issue which will reveal its ultimate importance.

For the benefits or prospects listed in the above table the overall scores for each prospect are given below:

For sl. No. 1- Overall score: $(16 \times 5) + (2 \times 4) + (1 \times 3) + (1 \times 2) = 93$

For sl. No. 2- Overall score: $(3 \times 5) + (11 \times 4) + (5 \times 3) + (1 \times 2) = 76$

For sl. No. 3- Overall score: $(7 \times 5) + (8 \times 4) + (4 \times 3) + (1 \times 1) = 80$

For sl. No. 4- Overall score: $(11 \times 5) + (7 \times 4) + (1 \times 3) + (1 \times 1) = 87$

For sl. No. 5- Overall score: $(3 \times 5) + (8 \times 4) + (7 \times 3) + (2 \times 2) = 72$

For sl. No. 6- Overall score: $(3 \times 5) + (9 \times 4) + (8 \times 3) = 75$

For sl. No. 7- Overall score: $(6 \times 5) + (3 \times 4) + (5 \times 3) + (6 \times 2) = 69$

For sl. No. 8- Overall score: $(5 \times 5) + (4 \times 4) + (7 \times 3) + (4 \times 2) = 70$

According to respondents ☐ views 5 most important benefits that PWD could achieve from e-GP adaptation are:

(1) Better transparency due to free and fair competition and reduced opportunity for fraud and corruption due to automated process:

In an e-procurement system the tender documents are hosted in the web site for downloading free of cost from the day of publication of tenders. This has eliminated bidders' dependence on department officials for issue of tender documents. Availability of information online to the bidders has eliminated human interface with department officials in pre- and post-tendering activities and this in fact has significantly contributed to reduce subjectivity and corruption in the procurement process. Information on the transactions, the status of evaluation and award of contracts is automatically made available to the bidders on the portal in e-GP process. Transparency in the procurement processes will improve the department image and will sharply reduce instances of adverse media reports related to flaws in procurement processes.

Ensuring value for money through better transparency, free and fair competition, greater participation is the prime motto of public procurement. Good governance can be achieved through transparent, fair and fraud free public processes. It can also bring efficiency and effectiveness in the procurement. Being a government organization Public works Department can achieve efficiency in its procurement process through transparent, free & fair competition, wide participation, fraud and corruption free procurement process. For these, e-GP is much desired method for PWD. In a country like Bangladesh where lack of good governance, muscle power, political intervention and wide range of corruption put severe hindrance towards free fair and transparent public procurement, e-GP adaptation is the most desired alternative method for public procurement due to automation in the whole process.

(2) Time efficient in terms of shortened procurement cycle time:

Time is a major concern for PWD in implementing projects. The concerned requiring ministries, departments and other stakeholders most of the time express their serious concern about delayed completion of projects delegated to PWD for implementation. So, reducing procurement cycle time is very important for PWD.

Preparation of tender schedule required more time. If no tender is found first time, then details re-tender notice is published in the newspaper. Pre-tender meeting required declared place and time, the tenderers required to come for attending pre-tender meeting physically. In paper based procurement process, the evaluation takes significant amount of time due to document verification and for physical meeting of TEC members etc. Moreover, less time is required for e-tendering process as technology reduced some human effort which is time consuming. Beside this, in manual tender, user can manipulated the time frame (date obligation) especially for evaluation of tender and approval of tender evaluation report. But in e-Tender once an activity is done like sign the report, publish, send or receive a notification corresponding time is recorded in the system for future audit trail. User is aware that, there is no scope to manipulate the time. Thus users have a tendency to complete any activity within stipulated time to ensure time compliance. A significant time reduction on tender processing lead time and total tender processing time are evident in many case studies across the world.

Automated work flows and simplification of processes achieved through e-procurement have improved the internal efficiency of procurement departments and significantly reduced the tender lead time from 90–120 days in the conventional mode to 36-60 days in the e-procurement mode. Reduction of lead time has contributed significantly to early completion of projects and reduction of cost overheads to departments as well as to the suppliers. So, prospects of e-GP in PWD are very significant in terms of shortening procurement cycle time.

(3) Tender processing and other administrative cost savings:

Improving efficiency and reducing processing costs by integrating and automating workflow processes for transactions and other supply chain

management activities is very much desired for PWD like other departments. Potential benefits include reduced manpower (a “hard” benefit only if improvements lead to head count reduction) and reduced spending on administrative activities. The introduction of e-tendering will also reduce the overhead cost involved in the process. There are several components of the overhead costs. These are; paper, postage, printing/copying (excluding paper) and stationery (can include envelopes, letterheads, address labels and pre-printed return envelopes)

In case of manual tendering system, it was found that –

- Details Tender notice published in the daily newspaper which is costly.
- Preparation of tender schedule required more time and at the same time cost. If no tender is found first time, then details re-tender notice is published in the newspaper thus tender publication cost increases. Pre-tender meeting required declared place and time and the tenderers are required to come for attending pre-tender meeting physically. As a result, cost of procurement increases in the supply chain.
- In the purpose of purchase and submission tender schedule, the tenderers require to come physically. But In e-GP system for tender submission purposes, The tenderers prepare tender documents and submit online, so the tenderers are not require to come physically for purchase and submit the tender and thus cost decreases in the supply chain.
- Electronic processing leads to great time, cost savings and efficiency due to: Global, automated processes incorporating best practice and eliminating unnecessary non-value adding activities; e-enabled relationship with suppliers, which speeds procurement cycle times and facilitates supplier performance improvements; and greater data accuracy, which minimizes ordering inaccuracies and provides the essential foundation for better management through measurement and analysis. Tender Documents are prepared in electronically and published, so savings of cost occurred due to no paper works required for tender preparation.

In most cases this is fairly clear that cost savings are possible. It pays for PWD to spend money on e-procurement technology, this investment will boost efficiency. The longer term reduction in costs will enable PWD to direct their resources to more strategic initiatives.

(4) More accountability with more specific individual responsibility:

In the procurement process, there are many steps each with specific responsibility for each individual. Tender publication, tender opening, tender evaluation and tender approval these activities have specific date and time frame for specific personnel to complete. No one can manipulate the time frame in automated e-GP system which is quite possible in manual tendering process. So, Responsible individuals in the e-procurement process have to complete his or her work within that time frame. So, Individuals specific accountability expedites procurement process with more accurately and efficiently.

(5) Improved decision making:

A successful e-procurement implementation will provide high quality, detailed management information and will negate the need for data warehousing or resource-heavy data mining. Readily available data and information will help quick and right decision making. Greater and easier access to real time and historic information for management and audit enables higher quality decision making and planning as well as greater transparency and accountability.

E-GP allows a more transparent and efficient information flow as well as improved access to information and services. Beneficiaries include not only governments and suppliers but also the public at large in having access to transparent information on the public expenditure of taxpayers' money.

The application of digital technology for procurement information disclosure and transactions lays the foundation for the collection of those data, which provide the basis for performance measuring and monitoring. Besides the safekeeping of public procurement information and data, e-GP ensures a much higher quality of public procurement reporting and decision-making.

The e-procurement platform provides a cross-section of management information system reports. This has improved the availability of information to the government departments for monitoring and reviewing the public procurements. Earlier collection of information related to status of procurements from various procurement entities spread across the state was time-consuming and the integrity of data collected was doubtful. Now the e-procurement system provides

real-time MIS reports to the senior bureaucrats in the government instantaneously at the click of the mouse. The public representatives, citizens are given access to the information related to government procurements.

Respondents' opinion on e-GP barriers for PWD:

	E-GP barriers or challenges to adaptation (identified and listed from previous literature)-close ended	Respondents opinion (no. of respondents in this group)				
		Least important	less important	neutral	important	most important
1.	Inadequate financial resources	3	5	10	2	
2	Lack of employee competency	5	6	2	1	6
3	Inadequate technological infrastructure	1	1	2	12	4
4	Inadequate Technological infrastructure of tenderers and lack of their interest			3	14	3
5	Implementation, training and other indirect costs		2	6	12	
6	Organization culture, bureaucratic inertia or processes	1		2	9	8
7	Lack of change management, upper management support, strong leadership and peer influence			1	4	15
8	Internal user resistance to learn multiple procurement systems and procedures			4	14	2
	Additional challenges identified and ranked by respondents that are relevant to PWD and Bangladesh context-open ended questions and remarks					
9						
10						

Similarly, the same marks, method and calculations can be followed to calculate overall score of each issue or impact of each barriers or challenges. For the barriers or adaptation challenges in the above table the overall scores for each barriers or challenges are given below:

For sl. No. 1- Overall score: $(2 \times 4) + (10 \times 3) + (5 \times 2) + (3 \times 1)$ = 51
 For sl. No. 2- Overall score: $(6 \times 5) + (1 \times 4) + (2 \times 3) + (6 \times 2) + (5 \times 1)$ = 57
 For sl. No. 3- Overall score: $(4 \times 5) + (12 \times 4) + (2 \times 3) + (1 \times 2) + (1 \times 1)$ = 77
 For sl. No. 4- Overall score: $(3 \times 5) + (14 \times 4) + (3 \times 3)$ = 80

For sl. No. 5- Overall score: $(12 \times 4) + (6 \times 3) + (2 \times 2)$ = 70

For sl. No. 6- Overall score: $(8 \times 5) + (9 \times 4) + (2 \times 3) + (1 \times 1)$ = 83

For sl. No. 7- Overall score: $(15 \times 5) + (4 \times 4) + (1 \times 3)$ = 94

For sl. No. 8- Overall score: $(2 \times 5) + (14 \times 4) + (4 \times 3)$ = 78

So, According to respondents' responses assessed through the overall score

calculation, the five (5) most important challenges of e-GP adaptation by the PWD are:

(1) Lack of change management, upper management support, strong leadership and peer influence:

Change is very difficult in any government system. Bureaucracy is a resistant to change. The fear of loss of position, loss of power is the main cause of resistance to change. The full benefits resulting from e-GP adoption will only be realized through significant changes in the organization of public procurement operations and as such will require effective change management and excellent leadership. In the absence of such change management and leadership, the outcome may be at a net cost with technologies operating alongside or simply replicating traditional operational methods. In this area PWD lacks behind seriously. There is no specific change management initiative, no assessment about required change, there is no one to lead change initiative, no benchmarking to set goal in PWD. As a result, PWD is lagging behind in e-GP adaption compare to other departments.

A strategic initiative necessitates a business plan requiring the involvement of senior staff to ensure robustness of e-GP adaptation programme. Without the active participation and support of the senior management change is impossible in a bureaucratic government system. Changes not only in the facilities or infrastructure but also in culture and work practices, changes in the way of thinking are required for a successful adaptation of new system.

The function of the change champion is a specific area of interest to observe where „best practice“ would suggest the champion should be positioned within the hierarchy of the organization. It can be postulated that when a strategic initiative, such as e-procurement, is introduced into an organization senior management accountability is vital to success. Appointment of a champion is a means of ensuring accountability. Here, a clear and defined role ensures that internal and external stakeholders are in no doubt who is accountable for the

Success of the related activity. Appointing a champion for e-procurement could be deemed to be good practice although it is no guarantee of success. It depends on many more tangible and intangible human factors. Tangible factors are infrastructure, system, process etc. and intangible factors are leadership, change management, culture, influence, motivation, initiative, management etc.

(2) Organization culture, bureaucratic inertia or processes:

In the traditional bureaucratic model, public managers focus on internal productive efficiency, functional rationality and departmentalization, hierarchical control, and rule-based management (Ho, 2002). In contrast, under e-procurement, public managers shift from emphasizing producer concerns, such as cost efficiency to focusing on user satisfaction and control, flexibility in service delivery and network management with internal and external parties. The new paradigm stresses innovation, organizational learning and entrepreneurship. Organizational culture and work practices create inertia in the processes. Historic practices and very old culture of PWD is a major area that requires transformational changes. In a bureaucracy people doesn't want to welcome changes because they fear that changes will make them inefficient and incompetent and they may lose their job.

(3) Inadequate Technological infrastructure of tenderers and lack of their interest:

Initially the end user resisting using e-procurement since it is a self-service tool. Many supplier especially small ones lack the IT infrastructure for the e-procurement integration. Small business owners, however, feel that they are disadvantaged in the e-procurement process because of their lack of technical expertise and education on the government's procurement regulations. MacManus (2002) makes the argument that one of the most serious inclusive issues facing government procurement officers today is the minority business owner's digital divide. As many large sized businesses use the Internet, minority entrepreneurs (many small business owners) are struggling to harness the power of information technology and e-procurement. On an average, PWD invites 9000 tenders for small size repair and maintenance works yearly. The prospective bidders for those tenders are very small sized business entity. Most the cases, they do not have any office, support staff and supporting infrastructure. So they

generally lack digital and internet infrastructure required for smooth integration with government procurement system. This lacking in technological infrastructure of small organizations and at the same time their unwillingness to learn new system or change their way of doing business are major resistant to e-GP adaptation in PWD.

(4) Internal user resistance to learn multiple procurement systems and procedures:

In a bureaucracy, change is very difficult as it creates inertia in the system. Moving toward e-procurement from traditional paper-based processes also brings great challenges to procurement officers. They need new technical and managerial skills, such as managing electronic bids; building relationships with online vendors and Independent internet Service Provider (ISP) (or portal site providers), and developing strategic team based purchasing with other purchasing entities. To sustain the development of e-procurement, PWD must provide appropriate technical training and assistance to procurement staffs and develop closer working relationships with vendors and various government buyers.

(5) Inadequate technological infrastructure of the procuring organization:

PWD lacks technological infrastructure required for successful e-GP adaptation. There is no exclusive projects or programmes in PWD to enhance technological capability in terms of infrastructure required for e-GP. Building technological infrastructure is costly. So, this requires business case analysis for smooth implementation of technological infrastructure development initiative. There is no central initiative or champion to achieve technological infrastructure in all offices of the department. Rather each individual unit is trying to develop its infrastructure. As a result, synchronization of the system is quite difficult to achieve and disproportionate development results in wastage of money, time and effort.

Respondents' opinion about PWD's e-GP readiness:

E-procurement Readiness:						
	E-GP readiness	Respondents opinion (no. of respondents in this group)				
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	PWD is ready for e-procurement		1	9	10	1
2	Tenderers are ready for e-procurement	2	10	7	1	

Respondents' opinion about e-GP readiness states that PWD is almost ready for e-GP implementation but the prospective bidders are lacking much behind PWD in their readiness. This is a matter of great concern because procurer and its prospective bidders' readiness for e-GP should be commensurate for a successful implementation of e-GP.

CHAPTER 4: SUMMARY, CONCLUSION AND RECOMMENDATION

4.1. Summary of findings

The general research objective was to find out and analyze the prospects or expected benefits of e-GP adaptation and at the same time find out and analyze the obstacle or barriers or challenges in the adaptation of e-GP at Public Works Department (PWD), Bangladesh. The response rate was sufficient to conduct the study. The study established that respondent procurement officers lie in the age group of between 36 years and 50 years with highest 40% of them in the age group between 36 years and 40 years. The respondents' minimum academic level was mainly bachelor degree in engineering and that majority of the respondents had stayed in government procurement process for a long time of more than 11 years. The period of stay by respondents in government procurement is long enough to gain advantage of experience in discharging their duties in procurement processes. Generally, all the respondents have understanding about e-GP and they feel that E-procurement is better than manual tendering process. 65% of the respondents have experience of e-GP. So, long experienced educated respondents' views are sufficient to establish research objective. The analysis of the data collected indicated that better transparency and reduced fraud & corruption, time efficiency, cost savings, more accountability with individual responsibility and improved decision making in the procurement process can be achieved by PWD through e-GP adaptation which establishes the first objective of the study. The finding also agrees with Lysons and Gillingham (2003) assertion that firms have made considerable gains as a result of having electronic integration system installed. This is because the use of internet and technology based systems in procurement has led to greater transparency, reduced time, lower costs and efficiency in the process. The perceived benefits found out in the study will normally drive managers of the organization PWD to invest in e-procurement thereby realizing cost saving, improved quality, better relationship with supplier thus ensuring value for money (VFM). The research objective two was to determine and analyze the five main barriers or adaptation challenges of e-GP in PWD. The findings confirmed that lack of change management, upper management support and strong leadership, organizational culture and bureaucracy, inadequate technological infrastructure of the purchaser and supplier and organization's internal resistance to e-GP are the main five obstacles or barriers in

the adaptation of e-GP by PWD. The study also revealed that there is significant gap between PWD (procuring organization) and tenderers or suppliers in terms of their e-GP readiness. For successful adaptation of e-GP in PWD this gap need to be minimized by enhancing e-procurement capability of the prospective bidders. Awareness, training, education, motivation and technological support are required for bidders especially for small size tenderers and new entrepreneurs or suppliers.

Conclusion

The study was conducted to find out and investigate the main five prospect or perceived benefits and the five main challenges or barriers in the adaptation of e-GP in PWD. Based on the findings, it was concluded that e-GP adaptation will bring transparency in PWD's procurement process and PWD will enable to achieve efficiency in terms of time and cost through more individual specific responsibility and improved decision. At the same time leadership, successful change management, senior officers' buy-in, motivation of support staffs, tenderers and other stakeholders are required for overcoming barriers in e-GP adaptation in PWD. Bridging e-GP readiness gap between PWD and its prospective bidders is also very important. Good governance and value for money in government purchase can be achieved through e-GP. To capitalize the prospective benefits of e-GP, procuring entity should carefully assess enablers and blockers and then bring necessary changes to combat those blockers. Changers can be incremental or transformation as per requirement of the procuring entity. This study on PWD will also provide good inner view about other similar type of any govt. organization's e-GP adaptation benefits and challenges as because similar type of govt. organizations are governed by same type of rules, policies and procedures. So, this study is very important not only for PWD but also for other similar type of govt. organization.

Recommendation

Based on the perceived benefits of e-GP adaptation and challenges or barriers to e-GP adaptation by PWD in its procurement process, the researcher came up with the following recommendations;

1. PWD needs Strategic Planning to integrate e-GP in its procurement practices. Long term and midterm planning and immediate actions need to be taken along with time to time review and evaluation policy to be formulated under strategic scope.

2. Support and active participation of the Senior Officers will play vital role in the implementation of the system. So, buy-in of the upper management is a must.
3. Strict compliance to the orders and directives of the top management by the field offices need to be secured.
4. Good knowledge about Public Procurement Act-2006 (PPA-06) and Public Procurement Regulations „2008 (PPR-08) need to be established among the procurement practitioners.
5. Compatible ICT infrastructure (Computer, Printer, scanner, uninterrupted and high speed internet connectivity, uninterrupted power supply (high capacity UPS) etc.) is to be confirmed in every offices of the organization. PWD's existing capacity need to be re-assessed and plan accordingly.
6. Separate dedicated and competent e-GP Cell (central or divisional) for providing support to the users on 24/7 basis is required to establish.
7. Training/workshop/good practice sharing programmes are needed to enhance and develop capacity of the suppliers or contractors on e-GP.

Suggestion for further research

This study was centered on offices operating in Dhaka town which is one of the 64 districts and one of the 8 divisions of Bangladesh. The researcher proposes that similar studies be conducted in other major towns or division headquarters in the entire country to ascertain the e-GP prospects and challenges of adaptation for PWD in a holistic perspective. Similar type of study can also be conducted in other major procurement departments of the government to find out central issues and department specific issues regarding e-GP adaptation in Bangladesh.

APPENDIX: A: REFERENCES

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APPENDIX: B: QUESTIONNAIRE

Questionnaire Cover Note



The attached survey is collecting information toward the completion of the dissertation for the Masters in Procurement and Supply Management, “The prospects and challenges of E-Government Procurement (E-GP) in Bangladesh- A case study on Public Works Department (PWD).” Your participation however is entirely voluntary. All responses will be strictly confidential and you will not be identified in any way. Your responses will be compiled and combined with others for analysis only. Your participation is extremely important to me and BIGD, BRAC University. I would like to thank you in advance for your assistance. Kindly complete the attached questionnaire and return the same through your convenient medium within the next three days.

---Signed---

Yours Sincerely,
Sazzad Hossain

Questionnaire

Research on “The prospects and challenges of E-Government Procurement (E-GP) in Bangladesh- A case study on Public Works Department (PWD).”

Part : 1 : Demographic & General Information

Name:.....

Office / Organization's name &

Designation:.....

Age:

Years in Service / Business:

Gender: Male / Female (Tick Mark): Male ☐ female ☐

Highest Education:.....

Part : 2 : E-GP understanding and experience related general information

1. Do you know, what is e-Procurement? (Y/N) Yes ☐ No ☐

2. Have you ever used/participated in e-Procurement? (Y/N) Yes ☐ No ☐

3. Do you think that e-Procurement is better than manual tendering process?
Yes ☐ No ☐

Part: 3: Prospects of E-GP

E-GP brings many benefits. Below is a list of prospects or benefits you may have already experienced or expected to be achieved. Please rank those prospects or benefits and also list and rank any additional prospects or benefits according to you.

What are the E-GP (E government procurement) prospects or benefits that have already achieved or expected to be achieved in PWD?

Please indicate with an 'X': Identify the 5 most important e-procurement prospects, ranking them from (1-least important, 2-less important, 3-neutral, 4-important, 5-most important)

	E-GP prospects or benefits	1	2	3	4	5
1.	Better transparency due to free and fair competition and reduced opportunity for fraud and corruption due to automated process.					
2	More accountability with more specific individual responsibility					
3	Tender processing and other administrative cost savings					
4	Time efficient in terms of shortened procurement cycle time					
5	Quality enhancement with enhanced electronic monitoring					
6	Improved decision making					
7	Improved contract compliance					
8	Better management of information reports					
	Any other (Please mention here and rank accordingly)					
9						
10						

Part 4: Challenges or barriers of E-GP adaptation

Successful adaptation and practicing of E-GP is challenging. Below is a list of blockers or challenges you may already have experienced or expected to face. Please rank those challenges and also list and rank any additional blockers or challenges that may come in E-GP adaptation according to your judgment.

What are the E-GP (E government procurement) barriers or blockers or adaptation challenges that have already experienced or expected to be faced in PWD?

Please indicate with an 'X': Identify the 5 most important e-procurement barriers or adaptation challenges , ranking them from (1-least important, 2-less important, 3-neutral, 4-important,5-most important)

	E-GP barriers or adaptation challenges	1	2	3	4	5
1.	Inadequate financial resources					
2	Lack of employee competency					
3	Inadequate technological infrastructure					
4	Inadequate Technological infrastructure of tenderers and lack of their interest					
5	Implementation, training and other indirect costs					
6	Organization culture, bureaucratic inertia or processes					
7	Lack of change management, upper management support, strong leadership and peer influence					
8	Internal user resistance to learn multiple procurement systems and procedures					
	Any other (Please mention here and rank accordingly)					
9						
10						

Part 5: E-Procurement Readiness:

E-procurement Readiness:

Please indicate with an 'X': (1-strongly disagree, 2-disagree, 3-neutral,4-agree,5-strongly agree)

	E-GP readiness	1	2	3	4	5
1	PWD is ready for e-procurement					
2	Tenderers are ready for e-procurement					