

Utilization of E-Commerce can Change the Auction Culture of Bangladesh Specially in Public Sector

Anupam Kumar Bairagi

Abstract— Private sector firms worldwide, in sectors ranging from tourism to agriculture to manufacturing, are integrating electronic commerce (e-commerce) into their everyday business practices. In developing countries, large companies and small and medium enterprises (SMEs) alike have adopted e-commerce techniques such as web-based marketing and customer service, electronic transaction processing, inventory management, e-procurement systems, and email. This paper begins with brief description of e-commerce, forward auction (FA), reverse auction (RA), scenario of e-commerce and then how Bangladesh especially public sector can be implement this RA and FA using information and communication technology to adopt the changing business environment as well as how it can be beneficial for the country also. Here benefits and constraints of this approach also discussed and finally concluded the paper with some comments.

Index Terms— E-commerce, SME, e-procurement, Forward Auction (FA), Reverse Auction (RA)

1 INTRODUCTION

AUCTIONS have long been a popular method for buying and selling products and services. With the advent of the Internet and the proliferation of Web users, auctions are moving online and gaining in popularity because they reduce transaction costs for both suppliers and buyers. Hence, online auctions can have a significant impact on profitability for both buying and selling firms [1].

Through reduced search and communication costs, the Internet enables the buyer organization to access a large number of potential suppliers. However, as this large pool includes both efficient and inefficient suppliers, the task of evaluating and developing appropriate strategies for selecting potential suppliers assumes greater importance for the buyer. Past research on traditional procurement has identified that factors such as quality, delivery reliability, trust, economic performance, and financial stability are important criteria for selecting suppliers [2]. While these factors are equally important in an online auction environment, there are additional supplier characteristics that can have a significant influence on the success of online auctions.

As the buyer in an online reverse auction is seeking the best possible price, the cost reduction capability of the supplier is an important factor. The information technology (IT) sophistication, the familiarity and the comfort level of the suppliers for conducting business online will have an impact on their participation level in online auctions.

A major limitation of traditional auction methods, caused by time, location constraints, lack of information, hidden hands, power practice, and political pressure are the potential lack of sufficient bidder participation. Electronic auctions reduce these constraints and lead to more partici-

pants [3]. Online auctions are open to any supplier with access to the Internet. Once the buying firm opens the gates to more than “pre-qualified” suppliers, many more firms can have access to supply products to companies that were previously out of their reach.

2 CONCEPT OF E-COMMERCE

The term commerce is viewed as transactions conducted between business partners. Electronic commerce is an emerging concept that describes the process of buying and selling or exchanging of products, services and information via computer networks including internet. E-Commerce is generally used to cover the marketing, sales, distribution, and delivery of goods and services by electronic means.

Kalakota & Whinston(1997) define EC from various perspectives:

- **Communication perspective:** EC is the delivery of information, products/services or payments over telephone lines, computer networks or any other electronic means.
- **Business process perspective:** EC is the application of technology toward the automation of business transactions and work flow.
- **Service perspective:** EC is a tool that addresses the desire of firms, consumers and management to cut service costs while improving the quality of goods and increasing the speed of service delivery.
- **Online perspective:** EC provides the capability of buying and selling products and information on the Internet and other online services.

Though use of electronic means was in vogue for some time, spread of Internet has boosted this mode of transactions significantly. Commercial transactions can be divided into three main stages; (i) searching/advertising, (ii) order

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placement and payment, and (iii) delivery. Usually first two stages are performed electronically and delivery, except in cases of digitized information/data -base or computer software etc, is done through physical means.

The business organizations conduct the transactions with its trading partners which are usually business and/or consumers. Business to Business (B2B) and Business to Consumer (B2C) are the usual commercial transactions, though there is increasing use of this business process in Government today. The categories are-

	Government	Business	Consumer
Government	G2G (coordination)	G2B (Information)	G2C (Information)
Business	B2G (Procurement)	B2B (e-commerce)	B2C (e-commerce)
Consumer	C2G (Taxation)	C2B (price comparison)	C2C (auction)

E-commerce can take many forms depending on the degree of digitization of the product (service) sold, the process and deliver agent. Choi [4] created a model that explains the possible configurations of these three dimensions and shown in Fig. 1.

If there is at least one digital dimension we will consider the situation electronic commerce (not pure). Buying book from Amazon.com is partial E-commerce & buying software from Egghed is pure E-commerce.

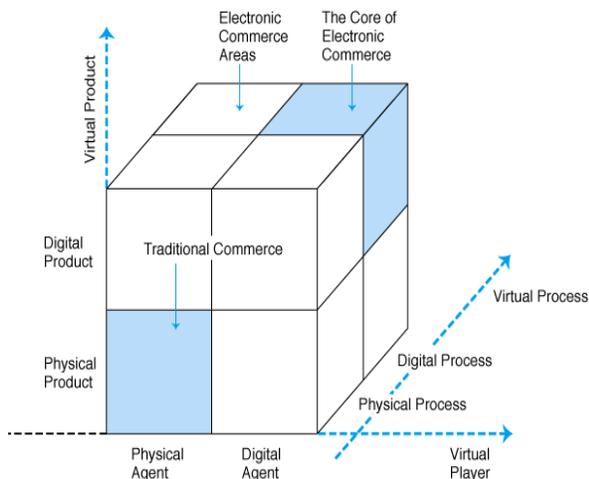


Fig. 1. The Dimension of Electronic Commerce.

Web based E-Commerce architecture is shown in the Fig. 2. These architectures use a component-based approach to systems deployment. This means that in addition to the design and front-end development tasks required to launch viable web-based applications for Real Application Clusters, We may also need to consider your middleware performance requirements. Newer n-tier architectures are obviously less costly because they eliminate redundant server hardware. They also eliminate redundant database connections

and reduce the amount of data that must travel through the network. N-tier architectures provide enhanced scalability by encapsulating application functions within smaller subcomponents. These components are then linked within the n-tier framework. This combination:

- Decreases the network load on any one part of the infrastructure
- Minimizes or eliminates single-points-of-failure
- Significantly reduces network traffic

N-tier architectures also improve manageability by reducing hardware and software overhead. In addition, n-tier architectures offer high availability and increased reliability

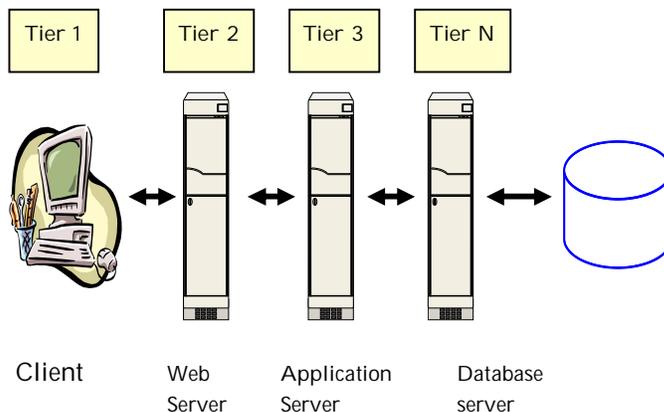


Fig. 2. E-Commerce Architecture.

by providing connection pooling and enhanced load balancing.

3 E-COMMERCE APPLICATION

3.1 Reverse Auction

Reverse auction is a tool used by many purchasing and supply management organizations for spend management, as part of strategic sourcing and overall supply management activities. In a typical auction, the seller puts an item up for sale. Multiple buyers bid for the item and depending on the nature of the auction (English or Dutch), and one or more of the highest bidders buy the goods at a price determined at the conclusion of the bidding.

In a reverse auction, a buyer contracts with a market maker to help make the necessary preparations to conduct the re-verse auction. This includes: finding new suppliers, training new and incumbent suppliers, organizing the auction, man-aging the auction event, and providing auction data to buy-ers to facilitate decision making.

The market maker, on behalf of the buyer, issues a request for quotation (RFQ) to purchase a particular item or group of items (called a "lot"). At the designated day and time, several suppliers, typically 5-20, log on to the auction site and will input several quotes over a 30-90 minute period. These quotes reflect the prices at which they are willing to supply the requested good or service. Quoting performed in real-time via the Internet results in dynamic bidding. This helps achieve rapid downward price pressure

that is not normally attainable using traditional static 3-quote paper-based bidding processes.

The prices that buyers obtain in the reverse auction reflect the narrow market which it created at the moment in time when the auction is held. Thus, it is possible that better value - i.e. lower prices, as well as better quality, delivery performance, technical capabilities, etc. - could be obtained from suppliers not engaged in the bidding or by other means such as collaborative cost management and joint process improvement. The buyer may award contracts to the supplier who bid the lowest price. Or, a buyer could award contracts to suppliers who bid higher prices depending upon the buyer's specific needs with regards to quality, lead-time, capacity, or other value-adding capabilities. However, buyers frequently award contracts to incumbent (i.e. current) suppliers, even if prices are higher than the lowest bids, because the switching costs to move work to a new supplier are higher than the potential savings that can be realized. This outcome, while very attractive to buyers, is often strongly criticized by both new and incumbent suppliers.

The use of Optimization software has become popular since about 2002 to help buyers determine which supplier to source the work to. It includes relevant buyer and seller business data, including constraints. Reverse auctions are used to fill both large and small value contracts for public and private commercial organizations. In addition to items traditionally thought of as commodities, reverse auctions are also used to source buyer-designed goods and services, and has even been used to source reverse auction providers. The first time this occurred was in August of 2001, by

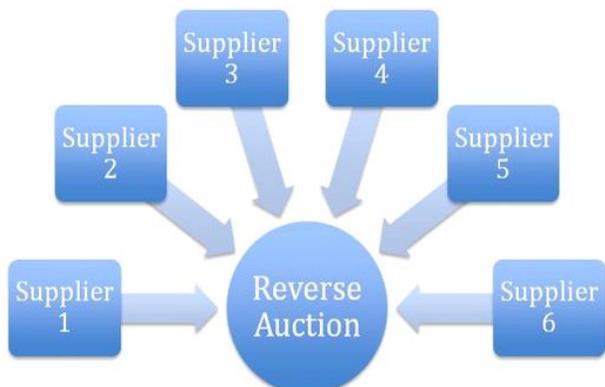


Fig. 3. Reverse Auction.

America West Airlines (now US Airways) using FreeMarkets software.

The majority of purchasing spend subject to reverse auctions over the years has been in the category of buyer-designed goods, followed by services, and then commodity items. Today, an average of 5% of total corporate spending is sourced using reverse auctions. This figure was higher in past years, indicating the goods and services to which reverse auctions can be successfully applied is limited [5].

Buyers, sellers, and market makers should adhere to auction rules and industry codes of conduct for the use of

re-verse auctions, if they exist. Problems arise when one or more parties fail to conform to auction rules. This can range from simple cries of "foul" to litigation.

Buyers should not assume that reverse auctions will, in every case, deliver savings - either on a unit price or total cost basis. Reverse auction savings can range from negative (i.e. it costs the buyer money) to neutral (i.e. no savings) to positive savings (average gross of 10-20%, but net savings is typically half or less). Suppliers are advised to determine if a value proposition exists for them that would warrant their participation.

Some have characterized reverse auctions as a technologically-assisted form of zero-sum power-based bargaining, or as "going in reverse" with respect to developing buyer-seller relationships, collaboration, and purchasing process improvement. Reverse auctions have also been criticized as "bid shopping" - when a buyer uses a supplier's bid to obtain lower prices from other suppliers.

Suppliers seeking to avoid reverse auctions can create unique intellectual property, expand the value propositions for its customers by creating new products and services, or seek to extend or improve collaborative activities with their customers.

3.2 Forward Auction

Forward auction are electronic auctions, which can be used by sellers to sell their items to many potential buyers. Sellers and buyers can be individuals, organizations etc. Items are commonly placed at a special site for auction (e.g. eBay.com). Buyers can continuously bid for the items they are interested in. Eventually the highest bidder wins the item.

Two types of forward auctions are common. The first is a liquidate auction. Here buyers seek to obtain the lowest price for an item they are interested in. The second type is a



Fig. 4. Forward Auction.

marketing efficiency auction. Buyers wish to obtain a unique item.

3.3 Benefits Occurred due to Reverse and Forward Auction Implementation

- Transparency: It offers transparency in the procurement process. Role based access facilities are available for information access to various users.

- Equal opportunity to all: The system can be accessed to and from all over the world even sitting in room. So all the prospective suppliers and customers can participate in the auction process.
- Low transaction cost: Transaction cost will be minimized due to easy access to the system and easy submission process.
- Profit for the Buyer: Due to the presence of many number of suppliers, the cost of the procured goods will be decreased due to high competition among suppliers.
- Profit for the Sellers: Due to the presence of more number of customers, the price of the auction's goods will increase as the competition is open for all.
- Fast time to Market: It enables multiple buyers and sellers to come together on a common platform and conduct business without compromising individual requirements and relationships among the participants very quickly.
- End-to-End Services: The solution offers the ability to leverage other procurement-related value added services like payment, logistics etc. owing to the integration capability of these tools with other portals.
- Potential for Aggregation: With the implementation of FA and RA tools across all the units of buyers/sellers organization, the potential for aggregated procurement/sales manifold.
- Common interface for Seller(s) and Buyer(s): These tools offer a common user interface to buyers/ sellers who do business with multiple units of buyer/seller organization.
- Decrease time for auction process: Due to easy access and manipulation process of information in e-commerce, the execution time of the auction process will dramatically reduced.

4 CURRENT STATE OF E-COMMERCE

Today the Internet might be viewed as a huge market potentially capable of covering the population of the whole world. This is why electronic commerce or E-Commerce is so attractive for many traditional businesses.

According to eMarketer's annual report in 2006 the E-Commerce market size in Europe has grown to '106 billion (\$133 billion). Analysts say that it is very likely to go on increasing and display a very fast rate of annual growth ' up to 25%. The situation will be stable for at least five years and the market will reach the point of '323 billion (\$407 billion) by 2011.

Britain, France and Germany prevail in the European E-Commerce market. These countries have the largest share in the total figures transactions ' up to 72%. British E-Commerce market ranks first and analysts believe it

will reach \$84 billion in 2007, which is 39% higher than the figures of 2006. Germany holds the second place. However, it is first in the number of online-customers ' there are as many as 3 million. Some researchers also note that in the next five years the European market might increase significantly due to the E-Commerce growth in the countries like Italy, Holland and Spain.

A wide range of goods and services can be sold through the Internet. A large piece in this pie is held by Information Technology. However, the share of other niches (for instance, traveling and finance) is unexpectedly high. Real estate, computers, hardware and software, tourism, and financial services comprise the top of the list.

According to Mentis Corporation (North Carolina, USA) in the future total sales will jump to \$4.5-\$6 billion. An average Internet-transaction will be \$25-\$30. The total Internet-transaction figure is likely to amount to \$130-\$200 million. The on-line goods market share will come to 60%-70%. Although these figures make up only a comparatively small part of the total retail market volume their absolute value makes E-Commerce market attractive for new investments. Computer Intelligence (California, USA) reports, over 3 million customers have conducted on-line transactions in a single day.

Auctions offer trading opportunities for both buyers and sellers and assure prudent execution of contracts [3]. While the business-to-consumer (B2C) has been the most popular category of online auctions, business-to-business (B2B) online auctions are emerging as a prominent business model [6]. In fact, B2B online auctions totaled \$109 billion worth of transactions in 1999 alone, and that number is expected to grow to \$2.7 trillion by 2004 [7]. Within the category of B2B online auctions there has been rapid development of reverse auctions [8].

Reverse auctions are undergoing a resurgence at present (9/2008), as evidenced by a number of service auction sites for freelancers (e.g. eLance.com, guru.com, script-Lance.com) that are doing a significant volume of business both in number of projects and amount of money spent (20,000 projects in 30 days and over \$100 million spent since 2006 according to eLance's website).

In 2002-03, SAIL (Steel Authority of India Limited) went into 18 RAs and in 2003-04 50 RAs and the savings was 8-10%. From 2002-2008, SAIL has secured goods worth Rs 3000 crores (approx). ISP (IISCO Steel Plant) got Rs. 360 per ton of iron ore using forward auction (where as in conventional auction the price was Rs. 60-70 per ton [9]).

5 E-COMMERCE AND DEVELOPING COUNTRIES

The adoption of Business to Business (B2B) e-commerce platforms based on the internet and the World Wide Web is being promoted as offering producer firms in developing countries, new exchange mechanisms that enable them to compete on a more equal basis in world markets. According to this view, the implementation of B2B e-commerce is expected to result in a reduction of the transaction costs that are incurred by these firms, thereby lowering barriers to their participation in international trade. It is argued that the adoption and implementation of Information and Communications Technologies (ICTs) facilitates a closer integration of adjacent steps in the value added chain, so allowing firms potentially to reduce costs associated with selecting suppliers, negotiating and fulfilling contracts, and ensuring that contract terms are met. It is claimed that this reduction in the unit costs of co-ordination will encourage firms to expand the number of transactions they conduct across both organizational and geographical boundaries.

Unfortunately, this view overlooks the importance of the procedures and processes as well as the dynamics involved in transacting. Underestimation of the dynamics of transacting may lead researchers to over-estimate the potential savings that may be incurred. Very little analytical work has been done to assess these assumptions. Of the little analytical work done on, for example, Internet based B2B e-commerce in the garments/apparel and horticulture/agriculture sectors, indications are that the B2B e-commerce available to user firms is not as effective in opening the doors to global markets for firms in developing countries [10]. Empirical studies revealed that:

- There is very little evidence of support for the preparation and/or completion of transactions online using web-based B2B e-hub interfaces
- B2B e-commerce activities are related primarily to the exchange of information using Internet and web-based applications.
- B2B e-commerce generally takes the form of accessing online bulletin boards which serve as online 'dating' agencies for firms seeking new trading partners by facilitating initial introductions, but leaving negotiation to traditional methods.

6 E-COMMERCE IN BANGLADESH

In Bangladesh, there is a great deal of interest in e-business; however, due to various economic, infrastructural and legal reasons it has not spread. Most important companies, associations, chambers and some government offices have set up websites. These sites mainly provide information about the organization, and its products and services. There are very few sites where financial transactions can be completed. Main reasons for low ecommerce transactions are absence of legal framework for completing an electronic business or financial payment system, low Internet usage due to lack of adequate telecom facilities, and overall lack of confidence in the security and reliability of e-commerce transactions.

Bust present government is trying their best to boost up the ICT and ICT based transaction in Bangladesh by legal framework and setting up infrastructures. The roadmap of Bangladesh regarding this is shown in the Fig. 5.

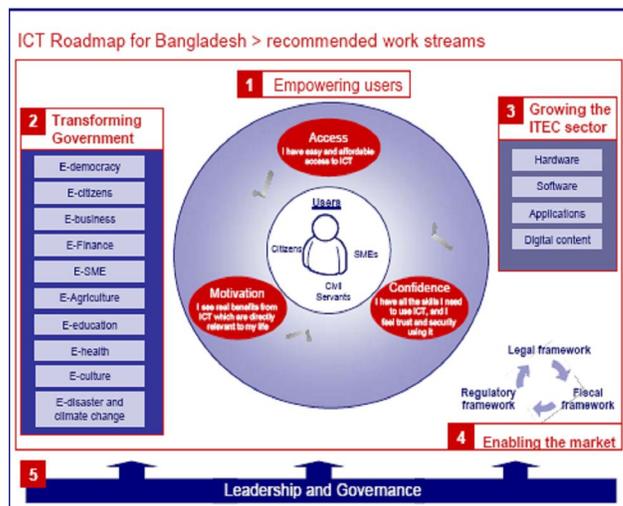


Fig. 5. National ICT Roadmap of Bangladesh.

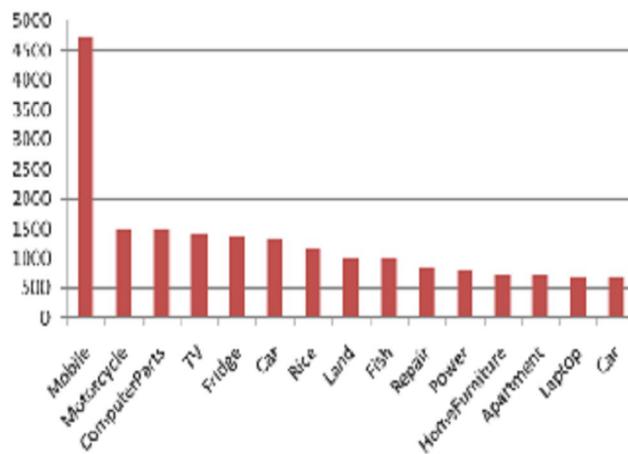


Fig. 6. Top 15 CellBazaar Product Category (April 2010).

CellBazaar offers an example of a successful mobile-based electronic marketplace in Bangladesh. It is a mobile application that brings buyers and sellers together in a mobile environment where they can publish and retrieve information on goods or services. It is a real-time collection of classified advertisements that is accessible through a mobile phone connected to Grameenphone's mobile network, or through a computer via the CellBazaar website (www.cellbazaar.com). Advertisements can be posted to the system and browsed on a mobile phone using SMS, WAP, or IVR (voice, for buyers only), and through a computer via the CellBazaar website. At present, 35,396 posts for multiple products in 141 categories are available for viewing, ranging from livestock to education services to agri-produce to

electronics (Fig. 6). Users pay standard SMS, WAP and voice rates to access the service.

7 PROPOSED UTILIZATION OF E-COMMERCE IN AUCTION OF BANGLADESH

In Bangladesh the auction is handled politically or by using power specially for public procurement. So, every bidder can-not get opportunities to submit the tender or even can-not collect the schedule. Some of the recent cases fall government in false position. So government can use e-commerce based re-verse auction to collect resources and forward auction to sell some it's resources if available. Due to the recent development in telecommunication and ICTs, internet is available to almost all the upzillas of Bangladesh or even in the rural area. The higher the number of bidders, and the greater the competition, the greater the success. Similarly, higher auction volume, ease of specification and low purchase complexity are each thought to attract more suppliers, leading to more successful e-RA out-comes. Higher auction volume may also increase success by permitting suppliers to accept lower margins, while clearer specifications and simpler products give suppliers the confidence to better price their offerings. In case of selling products, the supplier can be benefited as the number of customers in-creased due to e-commerce based forward auction system and open opportunities to all.

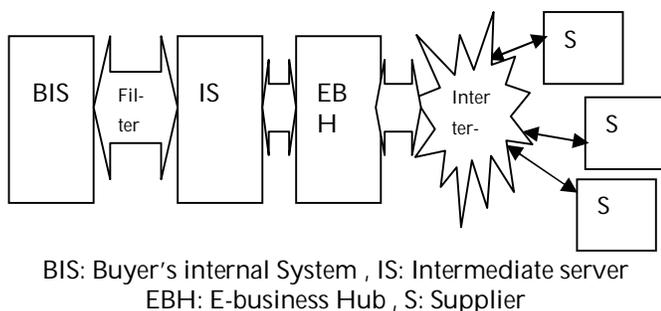


Fig. 7. Reverse auction using e-commerce.

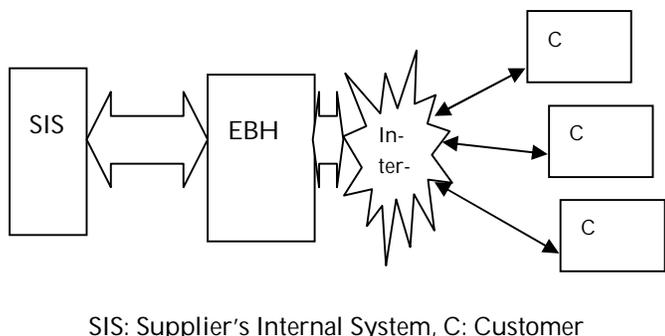


Fig. 8. Forward auction using e-commerce.

The process of reverse auction using e-commerce to col-

lect resources from the suppliers are shown in Fig. 7 and the proc-ess of forward auction using e-commerce to sell the products are shown in Fig. 8.

7.1 Challenges and Constraints

E-commerce is still at an early stage and a number of related issues are not yet resolved - security, privacy, data protection, encryption, copyright and intellectual property. The constantly evolving policies and rules governing the Internet and its operations will affect the future of global e-commerce. Given the enormous economic opportunities at stake for all companies across the world, developing countries should be involved as equal partners in the development of the growing body of Internet governance. In addition to increasing the international visibility of their products, producer firms from developing countries must overcome a multitude of supplementary obstacles to ensure the successful completion of a transaction once a potential trading partner has been identified. Obstacles include:

- Awareness: There is currently a lack of awareness and knowledge in developing countries about e-commerce. Among the private sector in particular, regional differences in the level of awareness have been observed.
- Infrastructure and access: Physical infrastructure barriers including inadequate telecommunication systems, poor Internet connectivity and lack of access to the necessary hardware and software. Indeed, the gap between in-dustrialized and developing countries in terms of infra-structure and access is huge and growing. The reach and geographic coverage of telephone services, its bandwidth, the cost of telephone services, the national policies govern-ing the telecommunica-tions sector and the number of com-puters are major determining factors to what extent devel-oping countries and their private sectors can partake in the global push for e-commerce.
- Human capacity and skills: E-commerce requires a different mix of capacities and skills, which is another major constraint in developing countries. It should become one of the priorities of developing countries to promote computer literacy and Internet-related skills among the workforce at large and especially among the SMEs. Programs to train and retain skilled IT professionals should complement this.
- Legal and regulatory framework: A proper regula-tory framework must be in place for e-commerce to prosper. Existing laws and regulations might not be applicable as some of the online services do not exist in the physical world and boundaries between services as well as indus-tries have become blurred.
- Taxation: Taxation is another issue of concern and contention. As the Declaration on global electronic commerce of 1998 stands, there is a moratorium on the im-posi-tion of customs duties on electronic transmissions. How-ever, if there is the projected dramatic shift from physical transactions, normally subject to sales and other taxes, to virtual online transactions, free from any transaction tax, the tax base of local and state govern-ments might become eroded.

- Financial institutions and intermediaries: Thus far, financial institutions and banks in developing countries are hesitant to take an active role in promoting e-commerce. However, merchants need the involvement of banks to broaden the reach and appeal of e-commerce and to help prevent fraud and potential losses attributable to credit card fraud. But beyond the credit card approach, banks and other financial service intermediaries are challenged to develop alternative modalities for secure and reliable online transactions in environments where credit cards are not commonplace.
- Inadequate transportation and distribution networks: There is need to give high priority to strengthening logistics and transport infrastructures to support time-sensitive, increasingly tightly integrated, global supply chains.
- Lack of trust and touching feelings: In developing countries, there is lack of trust on electronic money and so as to e-commerce in the mind of huge percentage of population. They want to feel the things by touch and this is a hindrance for boosting e-commerce in the region.
- Power Crisis: In Bangladesh, where electricity/power is still our main problem. So it is very difficult to expand e-commerce in every corner in Bangladesh.

8 CONCLUSION

Though there are some challenges and constraints against e-commerce in our country, it is necessary to implement internet-based e-commerce in more widespread way. The much greater attention will need to be given to the specific characteristics and positioning of the country producer firms within global value chains and to the technical, financial, and organizational structures within which these firms operate. Furthermore, there is need for policy-makers to give greater consideration to the multitude of ways in which digital applications are being used to deal with the operational challenges presented by different types of value chains. Implementing the FA in procurement process the public sector of Bangladesh can save a huge amount of budget and using RA the sector can be benefited in the similar fashion. In the same time the auction process will be transparent, response time will be low and opportunity will be equal for all regardless of the face value or power. The government of Bangladesh can rescue herself from the blame of the supporter of "Tenderbazi".

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