

**Inaugural Ceremony of National Seminar on
'Vision 2021 : Challenges for Engineering Profession'**

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DIGITAL BANGLADESH BANK



Abstract

The paper focuses on the importance of Information and Communication Technology (ICT) and the role of engineering profession in achieving an efficient digital Central bank as well as the financial sector in Bangladesh; required for pushing the country on course to the targeted vision of digital Bangladesh by 2021; the year of Golden Jubilee of our independence. Bangladesh Bank (BB) has adopted advanced ICT to be digitized in all spheres of its functions including monetary policy, banking supervision and internal management. BB has already introduced e-commerce, e-banking, automated clearing house etc.; a historic move towards achieving higher productivity across all economic sectors including agriculture and SME through use of ICTs. Engineers could be pioneer innovating new applications of ICT, and provide them to the doorstep of the common people.

1. Introduction

The universal role of Information and Communication Technology (ICT) is vital for socio-economic development of a developing country like Bangladesh. Availability of information helps increase productivity; ensure fair and competitive market; empower marginal people. Digital technology makes things easy getting at any place, mobile phone as the medium of money transfer and payment of utility bills, for example. A village person can download his/her passport application form in a local e-centre.

The term 'Digital' comes from Latin word 'digitus' ('finger' in English), as fingers are used for discrete counting. A digital system uses discrete (discontinuous) values to represent information. Indeed, it can be either discrete, such as numbers, letters or icons, or continuous, such as sounds, images etc. Digital or electronic technology generates and processes data or information, which is primarily used in communications and fiber optic transmission. And in all these activities, engineering knowledge can be strategically useful. In particular, the young generation with adequate engineering education can indeed be a demographic bonus. This has happened in our neighbouring country India, and I am sure we too will probably move in the same direction in the coming days.

Digital society means knowledge based society. Therefore, present Government has placed the vision of 2021; the year of Golden Jubilee of our independence. The vision envisages a digital Bangladesh with an excellence in information and communication technology and high-performing inclusive economic growth.

A country like Bangladesh goes digital means it will be an e-state combined with e-governance, e-banking and e-commerce, e-learning, e-agriculture, e-health and so on. However, the vision encompasses much more; there is a strong correlation between economic and social development of a country and its proficiency in science and technology; we need knowledge based society, efficient management and skilled human resources as well.

We need to extend ICT facility in each and every village in Bangladesh, so that even farmers can get access to internet connectivity; acquire related information regarding his/her crop/product development, pricing etc. In this connection, present government has already taken initiative to connect Bangladesh with the second Submarine Cable Network to have secured connectivity with the information super highway. Realizing the potential of ICTs for national development, government has already approved the 'National ICT Policy 2009' on priority basis.

It is expected that by 2021, Bangladesh will have a countrywide ICT network; ensure high speed information flow between centre and periphery; instructions will be transmitted electronically; accelerate the national decision-making process; monitor the performance of all agencies.

High level of internet penetration is a must for the development of ICT where engineers also have a strategic role to play. However, we stand on a low level of internet diffusion. The

latest statistics (ITU 2007) revealed that internet penetration is only 0.3 percent in Bangladesh, whereas the rate is 7.3 and 5.3 percent respectively in India and Pakistan.¹ However, we too are getting ready to experience higher level of internet penetration particularly with high density of wireless infrastructure. Bangladesh Bank which is indeed the nerve centre of financial world cannot remain behind in this race of digitization.

The remainder of the paper is organized as follows: Section 2 illustrates ICT adoption stages towards digitization of Bangladesh Bank and the financial sector as a whole. Section 3 explains the role of engineers especially skilled in ICT. Section 4 contains the challenges likely to be encountered in achieving the targeted vision of digital Bangladesh. Finally, section 5 concludes.

2. Digital Bangladesh Bank

Bangladesh Bank, being the monetary authority of the country, is at the forefront of government's firm commitment to be digitized. We have already formulated a 5-year strategic plan for the financial sector based on advanced technological applications to deliver services with utmost efficiency. The ultimate goal is to make Bangladesh Bank a world class Central Bank with high applications of technologies. This should, in fact, transform itself into a paperless organization within this plan period.

Bangladesh Bank has achieved a historic milestone in trade and business arena, departing from conventional banking with the introduction of e-commerce recently; a giant stride towards digital Bangladesh. Banks have been allowed to make online money transactions; payment of utility bills through internet, transfer of funds (account to account), payments for trading goods and services, and facilitate online credit card payments in local currency. Indeed, the electronic payments will be considered as cash transactions, which will be regulated under the 'Anti-Money laundering Act' as well as other relevant rules and regulations. A national payment gateway, connecting all banks for inter-bank transactions (e-banking) is expected to be established soon. Electronic Fund Transfer will also be possible in near future.

Installation of 'Bangladesh Automated Clearing House (BACH)' is another remarkable event in the history of financial sector in Bangladesh; will ease the remittance channel and payment system, and therefore, bring dynamism in business activities. The system has been started in early November 2009 on experimental basis, participated by some well prepared banks; will be inaugurated formally soon. Applying sophisticated technological method, the system needs only images and corresponding information of the submitted cheque leaves instead of physical one; will send them to the BACPS (Bangladesh Automated Cheque Processing System) using a secured communication link. New cheques/clearing instruments

¹ (<http://www.mukto-mona.com>, accessed 31/11/2009)

(standardized) will contain Magnetic Ink Character Recognition (MICR) line that encompasses information regarding the amount, transaction code, clients account details, routing number (numeric code assigned to bank branches for easy identification of origin and destination of the instrument), cheque leaf's serial number and so on. The system will support both intra-regional and inter-regional clearings based on a centralized processing centre in Dhaka and designated clearing regions; conforms to the international best practices, cost effective solution for cheque processing.

Therefore, after getting customers' cheques for collection in the bank-branch, collecting banks will check the prima facie information of the submitted cheques, capture images and information, and send them to BACPS electronically. BACPS will then process and send the images and information to the paying banks for validation. Paying banks will examine the pertinent images and information, and send back to the BACPS for payment (further examination if any inconsistency like fund insufficiency or mismatch of signature etc.) Then BACPS will accumulate all the information; workout a single net amount for each bank, and send back to the collecting banks. As such, cheque clearing time is expected to be turned down to a single day for countrywide payment. In other cases, this will be a matter of couple of hours only. Disaster centre for retrieving data.

Mobile banking, using cell phone as a tool, extends banking services to the door of the mass people. An account holder can check account history/statement, status on cheques, payment order or stop payment and so forth. However, initially three commercial banks have been allowed mobile banking to accelerate inward remittance transfer with the help of the outlets of mobile companies. Recently, Bangladesh Bank has strengthened its monitoring and supervision activities on agricultural and SME loan with the help of the existing countrywide mobile network, keeping record of cell phone numbers of farmers and small entrepreneurs.

Online CIB² report, a pivotal component of risk management measure, is expected to be launched by October 2010. Banks and financial institutions will be able to access the CIB data base online, and get the credit report of the concerned borrower. The database consists of detailed information of individual borrowers, owners and guarantors.

Meantime, a project 'online credit bureau' has been started using advanced technology to establish online connectivity between CIB (Credit Information Bureau) of Bangladesh Bank and Head offices of all banks and financial institutions. It becomes crucial to upgrade the capacity of CIB to respond the policy priority accorded to financial inclusion; expansion of SME and agricultural lending, and overall increasing growth of trade and business. Online CIB will minimize the extent of default loan by facilitating the banks and financial institutions with credit reports of the loan applicants very quickly, and therefore, lending institutions would not encounter any credit risk while extending lending or rescheduling facility.

² Credit information bureau

Good health is desirable, and also a fundamental right. Therefore, a modern and technology based health care system has been developed in the Central Bank keeping electronic record of medical information including disease and medicine history of the patients, digital prescription, stock of medicine etc.

Central Bank reform program initiated ICT packages; includes Networking, Banking application, Enterprise Resources Planning Solution, Enterprise Data Warehouse etc.; with a view to ensuring efficient management of assets including human resources.

Under networking program, all the departments of Bangladesh Bank Head Office and its nine branch offices have already been brought under computer network (LAN/WAN) connecting almost 3100 PCs. Therefore, any official sitting elsewhere in Bangladesh Bank (Head office or branches) has access to the same kind of resources; sharing knowledge and information; ensure knowledge based management.

Enterprise Resources Planning (ERP) solution covers digitization of procurement (e-procurement), cash management, access control etc. Meanwhile, recruitment process under Bangladesh Bank has been digitized (online application, sorting, validation etc.).

Banking application includes automation of all the accounts with Bangladesh Bank (banks, financial institutions and government), Foreign Exchange Management, Currency Management, Treasury and Securities Systems/Module, Public Debt Management Module, and also establishment of a Central Depository System (CDS) to build a platform for secondary trading of treasury bills and bonds.

Enterprise Data Warehouse (EDW) creates an electronic data bank, which will provide all information and statistics of monetary, trade and fiscal areas of the national economy, where all the concerned people of BB will have access to use it for further policy analyses.

Bangladesh Bank is going to commence web based e-tendering system which covers announcement of tender, distribute schedules, bidding etc. to ensure simplicity and transparency of tendering process. Already no paper application is accepted for employment.

These are only a few examples of how fast the Bangladesh Bank is progressing in the process of digitization of its activities. In addition, it is also taking other banks and government agencies on board to ensure speedy, credible, user-friendly financial services to all. Moreover, Bangladesh Bank has been encouraging green engineering by installing solar panels on its own premise and providing re-financing windows to support speedy development of solar energy, biogas and effluent treatment plants all around the country. And in all these activities the role of green engineers will be vital. This is yet another step towards Digital Bangladesh.

3. Role of Engineers

Engineers, deserving enormous potentials in ICT and related technology are playing a key role in materializing the digital Bangladesh Bank including the entire financial sector; required for pushing the country on course to the targeted vision of digital Bangladesh. ICT engineers of Bangladesh Bank have already developed 68 different applications which are in operation, and another 18 applications are in progress. Besides, maintenance of entire system, ICT equipments and applications are carried out by other engineers.

4. Challenges

The major challenges for Bangladesh are poverty reduction and sustainable development, but neither of these are possible without a strong science and technology base underpinned by excellence in education at all levels and a well-trained work force in ICT. There needs to be infrastructural development and technology transfer throughout the country to disseminate knowledge to even remote areas of the country. However, present government has taken initiatives to promote ICT among all spheres of people, including the hard-to-reach areas; tax and duty cut on computers; promoting ISP services etc.

A broad band infrastructure is needed with access for every Bangladeshi from their homes, work places, schools, tele centers with Wimax and 3G network; a digitally literate population and workforce; digital business development; a legal frame work that assures freedom of expression while protecting the rights of creators and innovators towards building an indigenous knowledge and technological base.

At the beginning, we must concentrate on the development of infrastructure in terms of hardware, software and manpower. Skilled manpower from local market must be available to keep the system running without depending on foreign “experts”. Sustainability of Digital Bangladesh depends on our enhanced ability to maintain, repair and expand once the system is installed. In order to manage a sustainable digitized Bangladesh, we need a long-term plan to produce adequate number of scientists, computer and communication engineers, software engineers; technology management experts etc. for further development of our ICT sector keeping pace with the technological advancement in the developed world. Otherwise, Digital Bangladesh would be highly vulnerable and dependent on foreign manufacturers and experts. Simultaneously, we must encourage our young engineers to move towards civilization of less or no fossil fuels. This green engineering will have to be one of the strategic components of Digital Bangladesh. Certainly, we will opt for technology based economy. But that economy must also be socially responsive to the needs of the disadvantaged. In other words, we pledge to build a more inclusive Digital Bangladesh where engineers too will play the desired strategic role.

5. Conclusion

This vision is to see Bangladesh Bank paperless within the shortest possible time; all correspondence (both internal and external) will be online; achieve higher productivity across all economic sectors including agriculture and SME through use of ICTs. Steps have been taken already to bring overall functions and activities of Bangladesh Bank under automation. Its supervisory functions have been further strengthened applying advanced banking techniques with innovative technology.

It can be noted that technology-driven business models, followed by the banks and financial intuitions ensure better and faster services to the clients. A recent study of Bangladesh Bank revealed that banks that adopt technology are more profitable and reduce risks as they gain maturity in offering such services.

Bangladesh Bank has already engaged banks in major programs of upgrading their IT platforms with ample processing powers and online connectivity; to enable efficient data management, processing and analyses in banks for own risk management purposes and reporting to BB.

A holistic approach needs to be taken by all the stakeholders to reach the ICT facilities to the doorstep of the common people. Engineers could be pioneers in this regard innovating new applications of ICT, and thus move forward the nation towards digital Bangladesh. Simultaneously, they should also be responsive to the challenges of climate change, and hence move towards green engineering. Bangladesh Bank is well aware of its responsibility in promoting green finance for greener Bangladesh. I am sure engineers too will play their desired role in this fight for a greener energy based Digital Bangladesh.

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