

**STRENGTHENING LOCAL GOVERNMENT
INSTITUTIONS OF BANGLADESH THROUGH E-
GOVERNANCE**

**A Dissertation
By
Arif Ahmed
ID 7272007**

**Submitted to the
Institute of Governance Studies
BRAC University
Dhaka**

**In Partial Fulfillment of the Requirement for the Degree of
MA in Governance and Development**



**Institute of Governance Studies
BRAC University, Dhaka
1 November, 2009**



**STRENGTHENING LOCAL GOVERNMENT
INSTITUTIONS OF BANGLADESH THROUGH E-
GOVERNANCE**

**A Dissertation
By
Arif Ahmed
ID 7272007**

Approved as to style and content by

**Dr. Shah Mohd. Sanaul Hoque
Supervisor
&
Director
Bangladesh Public Administration Training Centre (BPATC)**

**In Partial Fulfillment of the Requirement for the Degree of
MA in Governance and Development**



**Institute of Governance Studies
BRAC University, Dhaka
1 November, 2009**



28 October 2009

Course Director
Institute of Government Studies (IGS)
Brac University
Dhaka.

Subject: Submission of dissertation paper on *strengthening local government institutions of Bangladesh through e-governance* .

Dear Sir,

This is a great pleasure indeed to submit my dissertation paper on e-governance concentrating in local government of Bangladesh. I must convey my sincere thanks to your cooperation in preparing the paper in different stages of my work. In the paper I tried to make a general overview of the local government institutes and shed lights on some of the impounding challenges these institutions face.

I hope the paper fulfill the standard requirements of a dissertation and expect this will help in my working with the government.

Thank you.

Yours faithfully

Arif Ahmed

Acknowledgement

I am greatly indebted to the course guide Mr. for his continuous support and assistance in completing this work. The valuable suggestions and advice along with references of secondary resources were a great help in developing the content of the paper.

In appreciation of Mr. X I must convey my heartfelt thank and gratitude in providing me with

I am also grateful to

Finally I would like to express my sincerest thanks for to bring this research work to final stage with constructive suggestion and planning.

TABLE OF CONTENTS

List of Tables.....	iii
List of Figures.....	iii
Executive summary.....	vi

CHAPTER 1

1.1 INTRODUCTION.....	1
1.2 BACKGROUND OF THE STUDY	2
1.3 OBJECTIVES	2
1.4 METHODOLOGY OF THE STUDY	3
1.5 RATIONAL OF E-GOVERNANCE	3
1.6 SCOPE	4
1.7 REPORT PREVIEW	4

CHAPTER 2

2.0 LITERATURE REVIEW ON E-GOVERNANCE	6
2.1 CONCEPT OF E-GOVERNANCE IN CHANGING PERSPECTIVE	6
2.1.1 <i>The promise of e-governance</i>	7
2.1.2 <i>Defining e-governance</i>	7
2.1.3 <i>E-governance policy framework</i>	8
2.1.4 <i>A recipe for success for e-governance in developing countries</i>	10
2.1.5 <i>ICTs for good governance</i>	11
2.1.6 <i>Focusing on community informatics</i>	12
2.1.7 <i>Building e-governance applications for developing countries</i>	13
2.1.8 <i>Limits to e-governance</i>	16
2.1.9 <i>Differentia specifica of local e-governance</i>	18
2.1.10 <i>Future trends</i>	18
2.2 E-GOVERNANCE MODELS.....	20
2.2.1 <i>Gartner simple E-Governance model</i>	21
2.2.2 <i>E-Governance Maturity Model (Gartner)</i>	22
2.2.3 <i>Overview e-governance solutions</i>	25
2.2.4 <i>A Triangle Relationship Model</i>	26
2.2.5 <i>Administrative Processes Model</i>	27

CHAPTER 3

3.0 CAPACITY OF OUR LOCAL GOVERNMENT.....	29
3.1 ICT POLICY 2008 AND LOCAL GOVERNMENT SERVICES	29
3.1.1 <i>Vision</i>	30
3.1.2 <i>Objectives</i>	30
3.1.3 <i>E-governance services to the Local government</i>	31
3.2 GOVERNMENT ICT CAPACITY	33
3.2.1 <i>Upazila Parishad</i>	33
3.2.2 <i>District Administration</i>	33
3.2.3 <i>Municipals and City Corporation</i>	34

3.3 PRIVATE SECTOR CAPACITY	34
3.3.1 <i>Private Mobile Service Provider</i>	34
3.3.2 <i>Non-government Organizations (NGOs)</i>	35
3.3.3 <i>Internet service provider</i>	35
3.4 HUMAN RESOURCE	35
3.4.1 <i>Bangladesh Computer Council</i>	36
3.4.2 <i>ICT literacy in academic medium</i>	36
3.4.3 <i>Local and international training centers</i>	37
3.5 E-GOVERNANCE IN PRACTICE	37
3.4.1 <i>e-Governance and the Agriculture Sector of Bangladesh</i>	37
3.4.2 <i>Web portal for government service</i>	44
CHAPTER 4	
4.0 PROPOSED MODELS OF E-GOVERNANCE IN LOCAL BODIES	45
4.1 RURAL LOCAL GOVERNMENT	45
4.1.1 <i>Functions of the local government bodies</i>	46
4.1.2 <i>E-governance model for rural local government</i>	47
4.1.3 <i>Rural e-governance service model</i>	48
4.1.3.1 <i>CeCs as conduits for e-governance</i>	50
4.1.3.2 <i>E-governance application in CeC</i>	51
4.1.3.3 <i>Killer e-governance applications for CeCs</i>	52
4.1.3.4 <i>Mobile phone in E-governance</i>	56
4.1.3.5 <i>Mobile adaptable Spoke and Hub Model</i>	59
4.2.1 <i>Composition of Paurashava</i>	67
4.2.2 <i>Composition of City Corporation</i>	67
4.2.3 <i>Functions of the urban local government bodies</i>	67
4.1.4 <i>E-governance model for urban local government</i>	68
4.1.4.1 <i>Citizens' Services</i>	68
4.1.4.2 <i>Welfare Services</i>	68
4.1.4.3 <i>Grievance Redressals</i>	69
4.1.4.4 <i>Development Schemes</i>	69
4.1.4.5 <i>Departmental Functions</i>	70
4.1.4.6 <i>Citizen Request Management</i>	73
4.1.4.7 <i>Self Help</i>	74
4.1.4.8 <i>One to One Chat and Messaging</i>	75
4.1.4.9 <i>Knowledge Management</i>	75
4.1.4.10 <i>Answer Book and Document Management</i>	76
CHAPTER 5	
5.0 CHALLENGES AND OPPORTUNITIES	77
5.1 CHALLENGES	77
5.1.1 <i>Digital divide</i>	77
5.1.2 <i>Infrastructure</i>	79
5.1.3 <i>Cost</i>	80
5.1.4 <i>Breath and Depth</i>	80
5.1.5 <i>Challenges of interpretability</i>	81

5.1.6 HR issues in implementation.....	85
5.1.7 Challenge of process modification.....	88
5.1.8 Vendor driven initiatives.....	89
5.1.9 Individual led initiatives	90
5.1.10 Vested Interests	90
5.2 OPPORTUNITIES.....	91
5.2.1 Manpower planning.....	91
5.2.1 Recruitment/ selection.....	92
5.2.3 Change Management	92
5.2.4 Leadership.....	93
5.2.5 Training and Development	93
5.2.6 Performance Management.....	94
5.2.7 Reward System.....	94
CHAPTER 6	
6.0 SUMMARY OF THE FINDINGS	95

LIST OF TABLES

2.2.3 OVERVIEW E-GOVERNANCE SOLUTIONS.....	25
Table 1: Move from Steady State to Continuous Change.....	93

LIST OF FIGURES

Figure 1: E-governance development policy framework. (Anttiroiko 2005.).....	9
Figure 2: E-governance development phase scheme.....	10
Figure 3: A framework for e-governance implementation.....	15
Figure 4: Evolution of technology-assisted government model.	20
Figure 5: Interactions between main groups in e-governance.....	21
Figure 6: E-Governance Maturity Model (Gartner, 2000)	22
Figure 8: A Triangle Relationship Model.....	27
Figure 9: Maria A. Wimmer's SHEL Model for administrative processes	28
Figure 10: Rural e-governance service model	49
Figure 11: Urban model of E-governance citizen service.....	70

Glossary and Acronyms

ICT	Information and Communication Technology
AIS	Agriculture Information Service
AIS	Agriculture Information Service
B2B	Business to Business
BARI	Bangladesh Agricultural Research Institute
BIR	Bureau of Internal Revenue
BTCL	Bangladesh Telephone Company Limited
CeC	Community E-Center
CIC	Community Information Center
CRM	Customer Request Management
D.Net	Development Research Network
DAM	Department of Agriculture Management
DC	Deputy Commissioner
DRAS	Drought Assessment Framework
FLOSS	Free/Libre/Open-Source Software
GDP	Gross Domestic Product
GIC	government information center
GIS	Geographical Information System
GIS	Geographic Information System
GPL	General Public License
ICT	Information and Communication Technology
ICUM	Information Creation/Update Model
IDM	Information Dissemination Model
IS	Information System
ISP	Internet Service Provider
LAN	Local Area Networks
LDC	Least Developed Countries
MDG	Millennium Development Goal
MIS	Management Information Systems
MoA	Ministry of Agriculture
NGO	Non Government Organization
NPM	New Public Management
OSS	open source software
PDA	Personal Digital Assistance
PSO	Public Service Obligation
SMME	Small, Medium and Micro Enterprises
SRDI	Soil Resources Development Institute
SRI	System of Rice Intensification
UNDP	United Nation Development Program

UP	Union parishad
UZP	Upazial Parishad
VGd	Vulnerable Group Development
VGf	Vulnerable Group Feeding
ZP	Zila Parishad

Executive Summary

The study is aimed to put some affords on understanding the e-governance reality in the context of local government agencies of Bangladesh where these particular institutions are suffering much not because of the lack of funding but because of the proper strategic orientation to reach in an optimal level of efficiency. To conduct the study both primary and secondary data are considered and a questioner is formulated to assess the effectiveness of e-governance in Bangladeshi context.

Bangladesh is now in the beginning of the new the concept of e-governance where the ICT mechanism is thought to be a way of informing its people as a whole. This is like one-way traffic where the next phase of interaction is far away. The third phase of e-governance is transaction and finally transformation where all the processes are performed on-line.

To harness the power of ICTs, Bangladesh formulated its first National ICT Policy in 2002. The National ICT Policy 2002 could not reach the professed levels of success due to lack of appropriate plans to achieve the goals set in the policy as well as poor implementation of the underlying actions. Consequently, the Government took an initiative in May 2008 to review the national ICT Policy 2002 and formed a 17-member Review Committee.

The proposed ICT policy emphasizes on social advancement opportunities for disadvantaged groups as an immediate priority to bridge the digital divide and minimize economic disparity. Keeping that in mind an e-governance model for rural local government is proposed. In the model two types of public service delivery channels have come into being: (i) Online, and (ii) Offline. The online channels include Web, E-mail, Kiosk, Mobile, and Community e-Center. The offline channels include visit to office (face-to-face or information and facilitation counter), call centre, postal (letters), and one stop service center.

Community e-Center (CeCs) provides an invaluable starting point to introducing ICT tools; demonstrating their convenience, relevance, affordability and usefulness; making community residents comfortable in using new technologies; and initially providing, but ultimately allowing users themselves to find and make useful content to add value to the CeC.

Mobile phones are capable of providing e-Gov services to citizens at varying degrees of sophistication – that is, they can inform, interact and transact with citizens. Based on mobile phone a different type of model namely Spoke and Hub model is proposed this model tries to capture issues at rural or semi-urban level implementation.

Implementing e-governance in local government is a great challenge as digital divide is becoming evident in developing countries. Due to poor purchasing power even the same or lowered cost remains a cause for digital divide. Slow speed of internet penetration of internet and disappointing growth-rate of broadband adoption is also an important aspect of the whole scenario.

Ambiguity about the very concept of e-governance results in many government entities categorizing e-government projects such as office automation and inventory management as e-governance projects. Thus vast sums of money are spent on computerization activities without giving the e-governance related benefits to the end users.

The e-governance implementation leader should have strong conceptual and man-management skills. The leader will be required not just to direct but to also act as mentor and coach. Leaders need to change their styles and will have to adopt different approaches to manage people in new work settings in the organizations that are characterized by use of modern technologies, and continuous change.

Chapter 1

1.1 Introduction

In the era of globalization e-governance is playing instrumental role both in developed and developing countries creating and enabling environment towards accelerating process efficiency, delivering a higher level of service to citizens and business, increasing transparency and accountability. The study is aimed to put some affords on understanding the e-governance reality in the context local government agencies of Bangladesh where these particular institutions are suffering much not because of the lack of funding but because of the proper strategic orientation to reach in an optimal level of efficiency. In these reality e-governance could be a very efficient tool to transform the age old incapacity towards the value added service provider. As people will be the ultimate beneficiaries their participation is a must in every stage of a project from policy to root level implementation. To include their comments and views a number of workshops, presentation, validation workshops, seminars are proposed before introducing any change in the operation of local government system. It is understood that the most important vehicles through which the e-governance is introduced are Information and Communication Technology (ICT) and socio-technical Information System (IS) combining the technical and the human.

This is true that a number of initiatives have been taken in Bangladesh where most often these projects could not sustain and eventually fails at the end. The study here sees the positive potential of new technology, but also exposes the real obstacles. We understand that the failure we have encountered with not a waste of time and effort but they are the check posts for the up coming projects.

Another important area to be given emphasize is that the distinction between the e-Governance and e-business. We cannot simply transplant private sector ideas into public sector. This study acknowledges the differences between these sectors, and tries to draw out the particular challenges that face public sector projects.

1.2 Background of the Study

Local government in Bangladesh has a long history, steeped in the set-up of its colonial past. Beginning with the name of 'Dhaka Pourosova' in August 01, 1864 under the act of district municipal improvement act in 1878, it was originally intended to provide a sound civic service to the resident of Dhaka where this particular organization has become a service provider of more than 10 million people. Unlike the urban local government the rural local government could not flourish and still it is underdeveloped and need more peoples' participation in it. Currently the rural local government has three tiers where at the bottom is the Union Parishad, then the Upazila Parishad and the Zila Parishad at the top.

Although the urban local government is now trying to adapt the new value addition service providing system with automation and technology dependency, the rural local government is far behind where no institutional framework for e-governance exists. In this backdrop the study is trying to find a way upon which the local government institutes can make their services much easier to the people in the root level.

1.3 Objectives

Generally the study is aimed to understand and appreciate the benefits of e-governance in an emerging economy with its neophyte government system in line with the challenges it faces in changing the perception of different stakeholders.

The specific objectives of the study are

1. To fulfill the requirement of the degree of -----at BRAC University.
2. To understand the capacity of the local government of Bangladesh.
3. To appreciate the global best practice of e-governance.
4. To propose a development modality of e-governance in local government institutions of Bangladesh.
5. To enumerate the challenges faced by the central government in implementing e-governance in local government institutions.

1.4 Methodology of the study

As e-governance is a relatively new concept in Bangladesh context we hardly could expect a ready reference on this particular issue. However, recently number of study has been conducted on feasibility of ICT in government system of Bangladesh. These secondary data are used to build up the knowledge base of e-governance along with the reference of international publications.

Two models are proposed one for the urban local government and another for the rural local government. The models are built in consideration of the expected customers and their ability to interact with ICT environment. In the rural model, the community is given more preference as the formation of group is easier here compare to the urban set up. Likewise in the urban local government e-governance model the right, of the custozmers are given more preference as the education level of urban area is higher and the customers of this area are more comfortable in ICT environment.

A different type of model is proposed based on mobile network as the intensity of mobile usage in Bangladesh becomes a very good tool for government to provide e-government service to the people.

Primary data are collected from the people working with the concerned area of study were regional, age and sex bias are taken into account to minimize their interference. A questionnaire (appendix-A) has been developed which is disseminated in different regional area of local government body.

1.5 Rational of e-governance

This is certainly a question of debate for a least developed country like us where most of our central government system is still in a back foot in terms of technology and automation to take such an ambitious view to establish e-governance as far apart as in the local government body. The question here is not redundant at all as we could not yet able established a merit based leadership where peoples'

participation will be accounted for and the view of the same will be honored. Despite this entire hurdle we need to understand that every long distance of journey started with a single foot steps. We must have to think ahead as the people who are ignored all the time are now ready to help in a change in service delivery form the government bodies. We cannot ignore the vigor of our root level people as we see how they interact with enormous NGOs around the world and starting to appreciate economic liberty so much so that it becomes the engine of growth for our country. Therefore the question of empowering the local government by technology and knowledge is not a question of debate rather a necessity.

1.6 Scope

As the concept of e-governance is a new of its kind in conducting operation in every aspect of working this study could not provide a comprehensive feasibility of the new kind o f governance because of the lack of sufficient resources. In contrast the study will cover the urban local government system which included city corporations of Bangladesh.

1.7 Report preview

The report is started with an introduction where the objectives, methodology and scope are highlighted followed by a literature review where an account of the evolution of the new system of governance has been elaborated which included global best practice and success stories of some e-governance venture recently. The third chapter deals with the current capacity of our local body and hence the extent to which the e-governance policy could be matched with the resources and transformation mechanism upon which the whole system depends. Then two comprehensive models of e-governance has been proposed where one of them is taken from the urban local government agencies (city corporation) and the other one from rural local government agencies (Zila and Upazila Parishad), two of the most important type of local government bodies providing services to the significant portion of the population of Bangladesh. These models are build upon the empirical

evidence of the ground blending with the theoretical knowledge gathered from different references. This is important to mention that the models are not exhaustive in nature rather much flexible in its capability of adaptation where further area of development exists. Then after the study deals with the obstacle faces the central government in managing the process of operation and in implementation. Socio-culture, technological and political views are taken into account as these institutions are the one to make commitment for the society at large. Finally the study concludes with some major findings arranged in order of importance.

Chapter 2

2.0 Literature review on e-governance

2.1 Concept of e-governance in changing perspective

It is generally held that ICTs offer increased opportunities for economic development and plays a critical role in rapid economic change, productive capacity improvements and international competitiveness enhancement for countries of different development level. Thus, this opportunity is not the privilege of developed countries, even if they have certain undeniable advantages in the ICT utilization. As to developing countries, ICT is believed to be a powerful enabling tool to address some of the key barriers and challenges for entering the global economy and for future growth potential. It has a potential to contribute to the transformation in governance and to the creation of conditions for sustainable economic development. What is essential here is that ICTs offer the potential not just to collect, store, process and disseminate enormous quantities of information at minimal cost, but also to network, interact and communicate across the world. It is important to keep in mind that this potential can be best utilized if public sector is included in the picture, for so many supply and demand-side aspect of ICTs for development has an inherent connection to functions and operations of public sector organisations. (Ndou 2004)

Nevertheless, as pointed out by Ndou (2004), ICTs represent a high risk for developing countries, such as the risk to deepen the digital divide and to further marginalise them with the networking revolution. Countries which fail to embrace and use ICT tools for entering the global network and for addressing development needs, will suffer pivotal disadvantages in the form of information poverty that could further widen the gap in economic status and competitiveness. This is why traditional development and humanitarian aid should be complemented by tools that help to create a connection between developing countries and global flows of capital and other values.

2.1.1 The promise of e-governance

E-governance was taken to international and national development agendas since the mid-1990s due to the benefits it was expected to bring to communities and society as a whole. One overall starting point was that as the society develops towards information society or knowledge-based society, similar kind of development should take place in the governmental sector too. So, e-governance is a government that utilises the emerging opportunities of the information society. The other general aspect is that e-governance refers to a transformation in which ICTs are seen as means for restructuring and reorganising government.

2.1.2 Defining e-governance

E-governance is government's use of information and communication technologies, particularly Web-based applications, to support responsive and cost-effective government by facilitating administrative and managerial functions, providing citizens and stakeholders with convenient access to government information and services, facilitating interaction and transactions with stakeholders, and providing better opportunities to participate in democratic institutions and processes.

There are various kinds of descriptions of the benefits or promises of e-governance. To make a long story short, let us refer to two of them below.

The Promises of E-governance

- Increase efficiency of government services and operation.
- Increase quality and the number of services able to be offered.
- Increase integration of government services across different ministries, focusing on those being served.
- Help achieve targeted outcomes and broader policy objectives.
- Contribute to government reform, especially anti-corruption and waste.
- Build democratic interactions between government and its citizenry by increasing the ease of communication and feedback.

Source: dot-GOV 2008

E-governance Opportunities

1. Cost reduction and efficiency gains
2. Quality of service delivery to businesses and customers
3. Transparency, anticorruption, accountability
4. Increase the capacity of government
5. Network and community creation
6. Improve the quality of decision making
7. Promote use of ICT in other sectors of the society

Source: Ndou 2004

Realization of these opportunities is easier said than done. That is why all the aspects of e-governance policy – from policy design to implementation and evaluation – are of vital importance. This is particularly critical in developing countries with scarce resources and lack of critical mass of users and of technological expertise.

2.1.3 E-governance policy framework

E-governance development is a broad strategic issue based on a holistic and integrative approach. This connects e-governance to strategic planning, organisation structures, e-skilling, IT project management, technological design issues, and broader governance issues. This is also why e-governance is not only about managing IT projects or setting up information systems, but a strategic issue of e-transformation in government.

E-governance policy design and implementation are sensitive to societal context and community characteristics. Contextual factors that have been widely discussed in the communities of practitioners and academics are differences between developed vs. developing countries, rural vs. urban communities and levels of government:

national, regional and local governments. In this field remote rural communities are usually for understandable reason in the most disadvantageous position.

Key aspects of e-governance policy are illustrated in Figure 1.

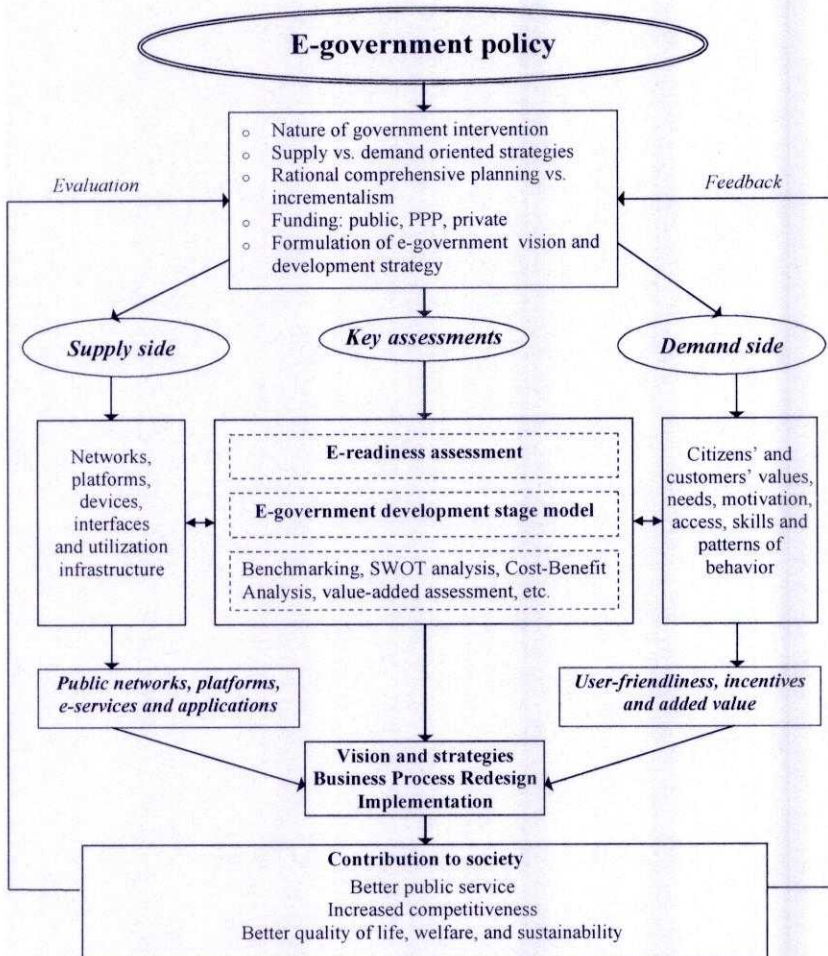


Figure 1: E-governance development policy framework. (Anttiroiko 2005.)

The most widely applied generic model that helps in defining appropriate e-governance development measures and in assessing e-governance maturity is the e-governance development stage model. A conventional development stage model describes a transition from a simple Web presence via interactive and transactional phases to a totally transformed system of government. This model is applied in most of the international benchmarking studies.

There are strategic tools that can be used to identify and assess the preconditions for e-governance, such as an e-readiness assessment scheme. Transition towards a higher level of e-governance maturity has its preconditions, ranging from technological, to political-administrative, to socio-cultural, constituting the basic elements of e-readiness. These preconditions together with development stages are presented in Figure 2.

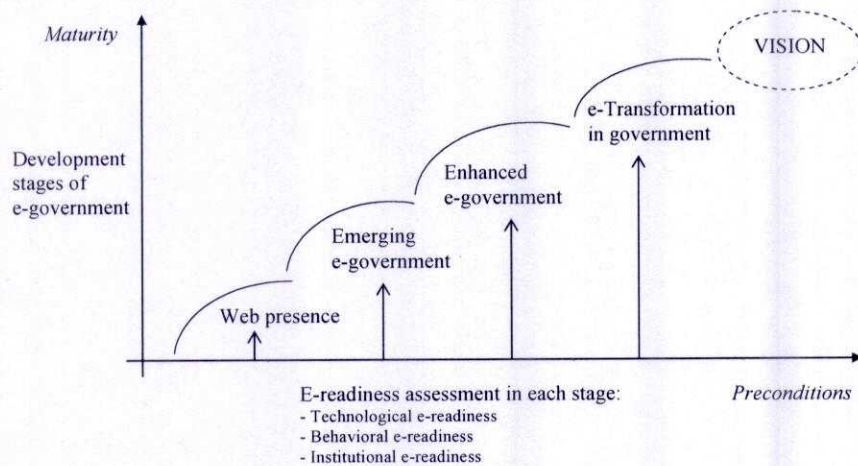


Figure 2: E-governance development phase scheme.

2.1.4 A recipe for success for e-governance in developing countries

Most of the studies on success factors of e-governance have focused mainly on developed countries as it has been difficult to deal with e-governance in developing countries that show meager development. Furthermore, even if recent development of e-governance in developing countries makes it possible to analyse its implementation and identify success and failure factors, empirical studies that examine unique requirements or conditions of e-governance in developing countries are still scanty. Shin et al. (2008) have conducted a survey on success factors of e-governance, targeting 109 ICT experts and public officers from 53 developing countries who participate in e-governance projects of their countries. On this basis they identified six core success factors of e-governance in developing countries. They are the following:

1. Changes in work process
2. Technical and human resources
3. Organisational culture and values
4. Vision, strategy and internal leadership
5. External and financial support
6. Laws, regulations and policies.

Shin and others (2008) summarise their findings as follows: *"By the factor analysis, 6 success factors are identified: changes in work process, technical/human resources, organizational culture/values, vision/strategy/internal leadership, external/financial support, and laws/regulations/policies. The multivariate regression analysis shows that 'changes in work process' and 'technical/human resources' are the important factors. 'External/financial support' and 'organizational culture/values' are also determining factors recognized as unique challenges to developing countries. In conclusion, we found that developing countries need to satisfy certain unique requirements, while fulfilling some conditions that are similarly required for developed countries to achieve successful e-governance."*

Ten questions e-governance leaders should ask themselves:

1. Why are we pursuing e-governance?
2. Do we have a clear vision and priorities for e-governance?
3. What kind of e-governance are we ready for?
4. Is there enough political will to lead the e-governance effort?
5. Are we selecting e-governance projects in the best way?
6. How should we plan and manage e-governance projects?
7. How will we overcome resistance from within the government?
8. How will we measure and communicate progress? How will we know if we are failing?
9. What should our relationship be with the private sector?
10. How can e-governance improve citizen participation in public affairs?

Source: Pacific Council on International Policy 2002.

2.1.5 ICTs for good governance

It is widely shared that e-governance is more than just a government website on the Internet. In fact, the dominant paradigm implies a shift from "e-governance" to "e-

governance” due to the fact that the greatest potential of e-governance is about supporting and improving governance relations and practices. In other words, the strategic objective of e-governance is to support and simplify governance for all parties: government, citizens and businesses. On this basis Basu (2004) concludes that in the very concept of e-governance electronic means support and stimulate *good governance*, and therefore, the objectives of e-governance are similar to the objectives of good governance.

Good governance can be seen as an exercise of economic, political, and administrative authority to better manage affairs of a country at all levels. It is easy for people in developed countries to imagine a situation in which all interaction with government can be done through one counter 24 hours a day, 7 days a week, without waiting in lines. However, to achieve this same level of efficiency and flexibility for developing countries is much more difficult for various reasons. (Basu 2004) Situation may be even more challenging with other aspects of good governance, such as transparency and accountability, as they have their roots in local political-administrative culture and may be difficult to change with the help of ICTs.

2.1.6 Focusing on community informatics

As large part of the local e-governance and e-governance projects are about information and knowledge, they are inherently connected to various aspects of community informatics. Wagner et al. (2003) have reviewed the role of virtual communities as a knowledge management mechanism to support e-governance in developing countries. They have assessed the feasibility of this and other knowledge management mechanisms in light of the financial and technological limitations of developing countries. They conclude that knowledge management is needed to facilitate information exchange and transaction processing with citizens, as well as to enable inter-governmental knowledge sharing and integration. They claim that simple knowledge management solutions, and especially virtual communities, will be

the most appropriate for developing countries, while enterprise solutions are not usually particularly suitable due to various factors that characterise communities in developing countries. They point out that their attempts to find illustrations of enterprise solutions for knowledge management in developing country e-governances were unsuccessful. (Wagner et al. 2003.)

Large part of the e-governance applications are “community sites” in some sense of the word, highlighting the importance of many-to-many communication. The cases they analysed demonstrate as a whole that virtual communities are a viable form of e-governance knowledge sharing, even for countries with low GDP and considerable resource limitations, such as India, China, or Peru. The picture is not black-and-white, though. For example, while some projects like AfriKTownCrier are based on many-to-many interaction, there was an implicit tendency to control idea sharing by filtering and centralising all the incoming information from its members. As a result, the general public tends to get less freedom of information and knowledge sharing. (Wagner et al. 2003)

2.1.7 Building e-governance applications for developing countries

Bhatnagar (2002) has reviewed e-governance applications from a large number of developing countries. According to his comparisons, service delivery through conveniently located service centres where citizens are served by operators working online seems to be emerging as a popular model in countries with low penetration of Internet.

Even if a long-term commitment to development projects is a must as well as actions that are needed to guarantee sustainability, Bhatnagar (2002) claims that trial through a few quick strike projects is important, as the benefits of ICT utilisation in administration and governance need to be demonstrated to citizens and civil servants. Such pilots also help in understanding the key step of reengineering processes and managing change in the local context.

Based on the examples of successful implementations from different countries, Bhatnagar (2002) highlights *critical success factors* in building e-governance applications. First, departmental ownership of e-governance projects is seen to be critical even when the agenda is being driven centrally. Also strong project management skills are needed within the department. Project managers need to clearly identify goals and benefits in concrete terms. Adoption of established standards and protocols can benefit the organisation by minimising a need for customisation or tailoring. As a rule, if off the shelf software is available, it should be used instead of reinventing the wheel. Systems analysis, which provides the necessary cues for reengineering, should be done internally. Design, software development, data preparation and training can be outsourced more easily. Lastly, building partnership with private sector is considered critical as the private sector has significant experience in developing IT applications. (Some examples of e-governance projects are presented in Appendix 1.)

Weerakkody et al. (2007) analysed the preconditions for e-governance implementation in Zambia. They have concluded that even if the importance of e-governance has been recognised in Zambia, its benefits are yet to be realised. Situation is much similar in most of the developing countries. On the basis of their results Weerakkody and others have built a framework for e-governance implementation, which is presented in Figure 3.

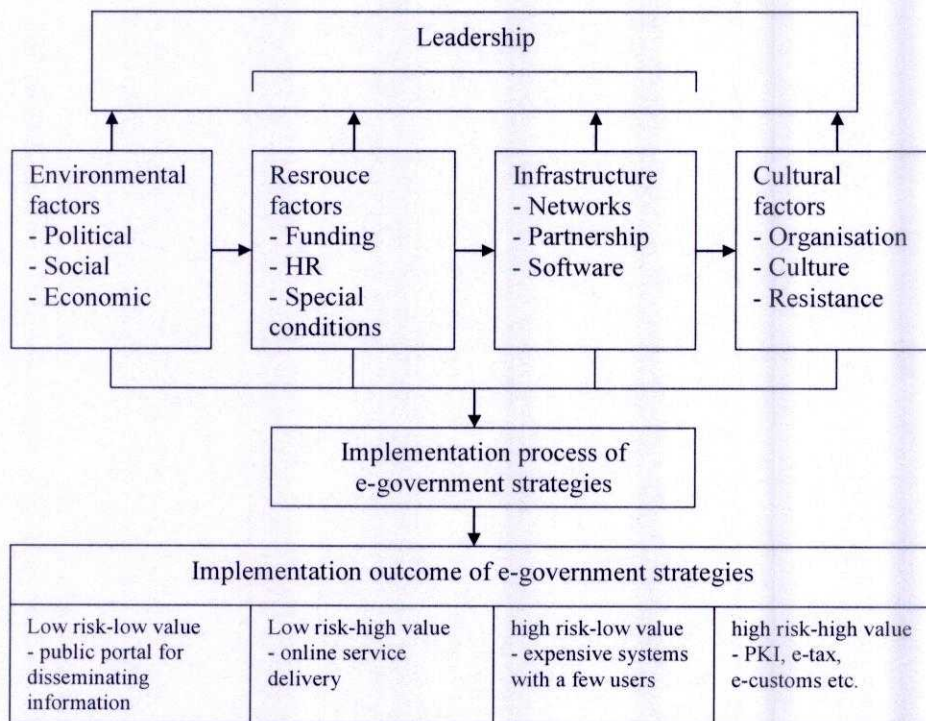


Figure 3: A framework for e-governance implementation

This model together with e-governance development stage model imply that it is best to start e-governance projects from Web presence, emphasis being on information sharing, and then to proceed towards value adding ("low risk – high value") e-services with a strong focus on citizen and community involvement.

E-governance challenges to developing countries include the following (Ndou 2004; Weerakkody et al. 2007):

1. Technological infrastructure: e-readiness, computer literacy, equipment
2. Leadership role: motivation, involvement, influence, support
3. Strategy and vision
4. Change management
5. Institutional environment and legal framework
6. Human capital development and life long learning: skills, capabilities, education, learning
7. Partnership and collaboration: public-private partnership, community governance and networking.

2.1.8 Limits to e-governance

It goes without saying that e-governance is not a panacea. It has been emphasised in many occasions by experts that ICTs does not change organisation culture and hierarchical institutions overnight, and it does not make any organisation “smarter” as such, as there may be significant barriers to harnessing the potential of ICTs. Even if increased use of ICTs by institutions and citizens increases overall plurality in society and thus tends to increase pressure to democratisation, this process is much too slow when assessed against the potential of ICTs.

It is a generally applied rule that in any e-governance project the “social” objectives should be given priority over “technological” ones. This is also why in e-readiness assessments it is important to assess various non-technological constraints and preconditions, as they are key to the successful implementation of e-governance projects. Indeed, the focus on e-governance has shifted from the technical and infrastructure aspects to strategy, process change, organisational adaptability, leadership and the ability for citizens to access government services and businesses to interact with government (Weerakkody et al. 2007).

McNamara (2003) has emphasised that ICTs as such do not change organizational cultures and practices. The social organisation of work, particularly in tradition-bound and highly hierarchical institutions such as government ministries, can significantly impede the takeup and effective use of ICTs. In many bureaucratic cultures using a computer is viewed as a clerical function, “typing,” to be done by secretaries and clerks. Similarly, the ability of ICTs to make governments smarter both in the formation and implementation of policy is limited by the fact that policy making and implementation are complex and often highly political processes. Here again, introduction of ICTs should be based on political objectives that aim at improving policy, governance and democratic processes.

One of the areas that is important in this respect is to rely on citizen-centric solutions whenever possible. This is how e-governance relates to the ideas of good governance as well as new forms of democracy, including e-democracy. It is particularly useful to focus on projects that increase the transparency and accountability of government officials by increasing public information and voice. As explained by McNamara (2003), *"[t]he ability of government officials at all levels to exercise undue discretion or profit personally in the making and implementation of policies and the provision of government services can be diminished if more citizens know what services they are entitled to, what procedures are normal, and what resources government has committed to spend on public services in their community. It can also enable citizens to band together to seek redress of grievances, push for the removal of corrupt or incompetent officials, and work for equal rights for minorities and disadvantaged groups."*

Here again ICTs by themselves do not create change. If broader structures of power and privilege are resistant, and if community social capital and trust among citizens are weak, the empowering potential of ICTs is not likely to be realised. It is also important to recognise that those who most urgently need government services and who are most likely to be discriminated against in the provision of those services — the poor and minority groups — are also those least likely to be able to use ICTs effectively unless the ICTs are specifically designed for their needs or unless there are strong intermediary organisations helping to press their interests. (McNamara 2003.)

Lastly, there is need to remember that even if there is widespread commitment to bureaucratic reform, the task can be very challenging and expensive. Converting handwritten records, rescaling staff, installing computers and networks, and retooling procedures can require enormous commitments of money and manpower. And since the costs are more immediate and visible than the benefits, resistance can easily mount given other pressures and priorities. (McNamara 2003.)

2.1.9 Differentia specifica of local e-governance

What is said about e-governance in developing countries in general is to a large extent applicable to “local” e-governance in the developing country context as well. What is specific in “local” aspect in this regard is the context-specificity of local e-governance: every local community has its own characteristics in socio-economic and political terms, implying that the application of local e-governance must be sensitive to these community characteristics.

As we are talking about local communities in developing countries, these contexts are often characterised by low income level, inadequate housing, poor health conditions, high illiteracy rate, low life expectancy, and in many cases, a general sense of hopelessness. Whether we are talking about urban or rural context makes also a big difference, as preconditions for local e-governance vary significantly depending on population density and the size of the community.

There is need to assess carefully how to bring tangible benefits and added value to citizens and local communities by the introduction of ICTs in local government or in local governance processes.

2.1.10 Future trends

As to the trends in the public sector, there is a continuous tendency towards streamlining administrative machinery. Public organisations are becoming nodal points and coordinators in the multi-sectoral governance field. ICTs can be used in making the transition towards more competitive and contractual models of public governance and service delivery. Yet at the same time there is constant pressure to increase transparency, inclusiveness and responsiveness in government, which, together with civic movements and community-oriented governance strategies, constitute a counterforce to neo-liberal or NPM-oriented e-governance trend.

Trends apparently affecting e-governance include the increased importance of knowledge sharing and interoperability, service transformation and integration, flexible organisation, and ubiquity. These trends are likely to affect the major application areas of e-governance, i.e. e-administration, e-services, e-democracy and e-governance (cf. Centeno et al. 2005).

A trend that may profoundly affect e-governance in the long run is open source revolution. At the heart of this change is the availability of source code of software subject to General Public License (GPL) or other license agreements. Freely available open source software (OSS) is sometimes referred to as Free/Libre/Open-Source Software (FLOSS). The idea is to allow users to create user-generated software content through incremental individual effort or through collaboration, contributing to cost savings, standards compliance, and transparency to validation. An increasing number of national and local governments are adopting open source solutions – notably uptake of the Linux operating system by governments – in different parts of the world as an affordable alternative to proprietary or “closed” software. (See e.g. Berry, 2007.) This is not a black and white issue, though, for in many cases the lack of expertise increases a temptation to use proprietary software.

From a technological point of view the most radical change to be experienced in the public sector in the foreseeable future is likely to be a gradual transition towards ubiquitous society. A simplified evolutionary view of this transition is presented in Figure 4, which depicts the big picture of the transition from separate walk-in offices towards integrated ubiquity.

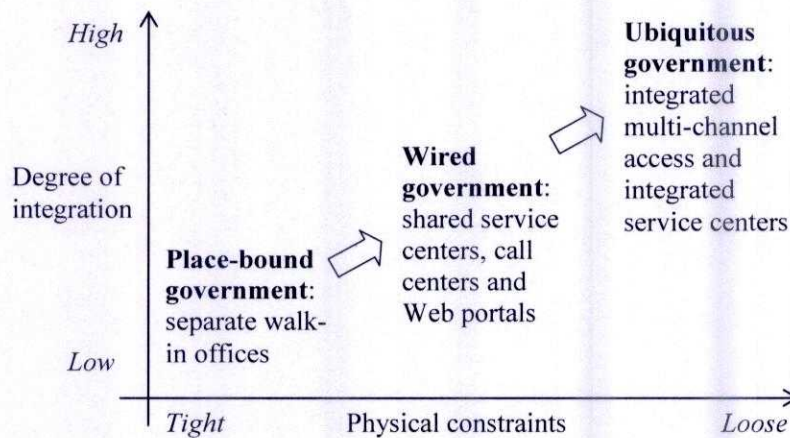


Figure 4: Evolution of technology-assisted government model.

The ubiquity of network access and connections has become one of the key drivers of change in e-governance (Sharma & Gupta, 2004). This relates to a paradigm shift usually associated with the third-generation Internet and with a critical mass of users having always-on high-speed Internet access. This trend is currently most apparent in the strategies of East Asian developmentalist governments such as South Korea, Taiwan, and Japan, but in some forms also in such leading e-governances as the US, Singapore, and the UK, and in Nordic countries like Finland and Sweden. Similar developments are also taking place in developing countries on all continents (eGovernment for Development 2008). It is assumed that developed countries are in some cases able to leapfrog technology by the cost-effective use of innovative technology without necessarily having experience of the previous generations of technologies. Especially mobile technology has attracted a lot of attention due to the quick penetration of mobile phones in many developing countries.

2.2 E-governance Models

Different scholars put a number of models among which the Gartner simple model of the interactions between the government, business and customers and four-stage maturity model are widely accepted propose a number of models. In addition, triangular relationship model and administrative process model are also discussed here.

2.2.1 Gartner simple E-Governance model

According to Gartner the three main target groups that can be distinguished in e-governance concepts are government, citizens and businesses/interest groups. The external strategic objectives focus on citizens and businesses and interest groups, the internal objectives focus on government itself. Abbreviations such as B2B (business to business) and B2C (business to consumer) are used, like in e-commerce, to shortly describe which of the main groups are interacting. The most common group interactions in e-governance are presented schematically in Figure 3. The three abbreviations in the figure, G2C, G2B and G2G are explained in Figure 2.

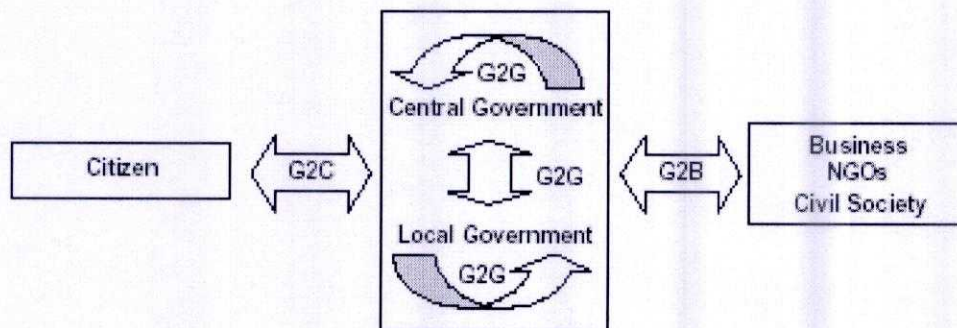


Figure 5: Interactions between main groups in e-governance

As mentioned before, e-governance is more than a government website on the Internet. What are the opportunities and possibilities of e-governance in the future, and what services are delivered at this moment? Gartner, an international e-business research consultancy firm, has formulated a four-phase e-governance model. This e-governance model can serve as a reference for governments to position where a project fits in the overall evolution of an e-governance strategy. In most cases, governments start with the delivery of online information, but soon public demand and internal efficiency ask for more complex services. Of course this change will take effect gradually, some services will be online earlier than other services. In some cases the public demand is the driving force, in other cases cost saving aspects for the government are leading.

According to Gartner, e-governance will mature according the four-phase e-governance maturity model. These phases have been defined based on experiences with e-commerce and e-governance in Europe and other Western regions.

2.2.2 E-Governance Maturity Model (Gartner)

Early 90's	Information	Presence
Mid 90's	Interaction	Intake process
Present	Transaction	Complete transaction
Future	Transformation	Integration and organisational changes

In each of the four phases, the delivery of online services and use of ICTs in government operations serve one or more of the aspects of e-governance: democracy, government, business.

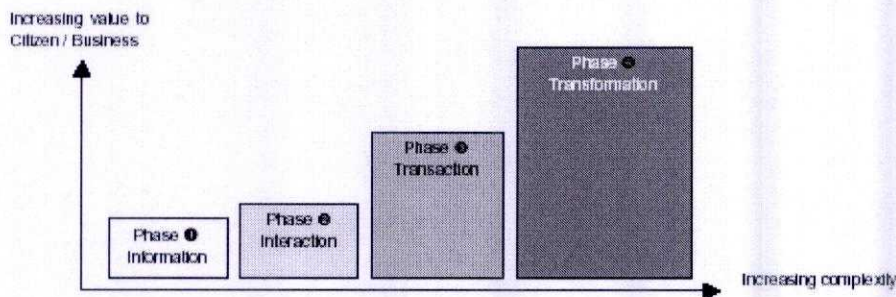


Figure 6: E-Governance Maturity Model (Gartner, 2000)

The model does not mean that all institutions have to go through all phases and all at the same time. On the contrary, in the Western world government institutions are in phase 1, 2 or 3. The differences can be huge: the tax department can be in phase 3, while the department of public works is just in an early stage of phase one. It all depends on where the advantages are highest.

Another remark must be made. This model shows four phases for different e-governance (edemocracy and e-government) solutions. The assumption is made

that the government has already defined an overall vision and e-policy. In the chapter "Implementation of e-governance", this remark will be further explained.

Phase 1: Information

In the first phase e-governance means being present on the web, providing the external public (G2C and G2B) with relevant information. The format of the first government websites is similar to that of a brochure or leaflet. The value to the public is that government information is publicly accessible; processes are described and thus become more transparent, which improves democracy and service. Internally (G2G) the government can also disseminate information with static electronic means, such as the Internet. This phase it is all about information. From a 1-page presence website to a site with all relevant government information available to the public, in order to improve transparency in democracy.

Phase 2: Interaction

In the second phase the interaction between government and the public (G2C and G2B) is stimulated with various applications. People can ask questions via e-mail, use search engines for information and are able to download all sorts of forms and documents. These functionalities save time. In fact the complete intake of (simple) applications can be done online 24/7. Normally this would have only been possible at a counter during opening hours. Internally (G2G) government organisations use Local Area Networks (LAN), intranets and e-mail to communicate and exchange data. The bottom line is that more efficiency and effectiveness is achieved because a large part of the intake process is done online. However, you still have to go to the office to finalise the transaction, by paying a fee, handing over evidence or signing papers. The use of electronic communications tools speed up the internal government processes.

Phase 3: Transaction

With phase three the complexity of the technology is increasing, but customer (G2C and G2B) value will also be higher. Complete transactions can be done without going to an office. Examples of online services are filing income tax, filing property tax, extending/renewal of licenses, visa and passports and online voting. Phase

three is mainly complex because of security and personalization issues – e.g., digital (electronic) signatures are necessary to enable legal transfer of services. On the business side the government is starting with e-procurement applications. In this phase, internal (G2G) processes have to be redesigned to provide good service. Government needs to create new laws and legislation that will enable paperless transactions with legal certification. The bottom line is that now the complete process is online, including payments, digital signatures etc. This saves time, paper and money.

Phase 4: Transformation

The fourth phase is the transformation phase in which all information systems are integrated and the public can get G2C and G2B services at one (virtual) counter. One single point of contact for all services is the ultimate goal. With phase three the complexity of the technology is increasing, but customer (G2C and G2B) value will also be higher. Complete transactions can be done without going to an office. Examples of online services are filing income tax, filing property tax, extending/renewal of licenses, visa and passports and online voting. Phase three is mainly complex because of security and personalization issues – e.g., digital (electronic) signatures are necessary to enable legal transfer of services. On the business side the government is starting with e-procurement applications.

In this phase, internal (G2G) processes have to be redesigned to provide good service. Government needs to create new laws and legislation that will enable paperless transactions with legal certification. The bottom line is that now the complete process is online, including payments, digital signatures etc. This saves time, paper and money.

2.2.3 Overview e-governance solutions

	External: G2C	External: G2B	Internal: G2G
Phase information	Local / Departmental / National information (mission statements and organisational structure Addresses, opening hours, employees, telephone numbers Laws, rules and regulations Petitions Government glossary News	Business information Addresses, opening hours, employees, telephone numbers Laws, rules and regulations	Knowledge base (static intranet) Knowledge management (LAN)
Phase interaction	Downloading forms on websites Submitting forms Online help with filling in forms (permits, birth / death certificates) Intake processes for permits etc. E-mail Newsletters Discussion groups (edemocracy) Polls and questionnaires Personalised web pages Notification	Downloading forms on websites Submitting forms Online help with filling in forms (permits) Intake processes for permits etc. E-mail Notification	E-mail Interactive knowledge databases Complaint handling tools
Phase transaction	License applications / renewals Renewing car tags, vehicle registration Personal accounts (mytax, myfines, mylicenses etc.) Payment of (property) taxes Payment of tickets and fines Paying utility bills Registering and voting online	License applications and renewals via website Payment of taxes Procurement	Inter-governmental transactions
Phase Transformation	Personalised website with integrated personal account for all services	Personalised website with integrated business account for all services	Database integration

2.2.4 A Triangle Relationship Model

View from the definition of E-governance we can get a triangle relationship model among government, business and citizens as follows:

1) E-Government focus aspect in E-Government partnership

The process and structure that define the relationship between central government and local governments; the processes and structures that define the relationship between organizations and departments or agencies; the processes and structures that define the relationship between government and the employees; the processes and structures that define the relationship between Legislature and the Executive.

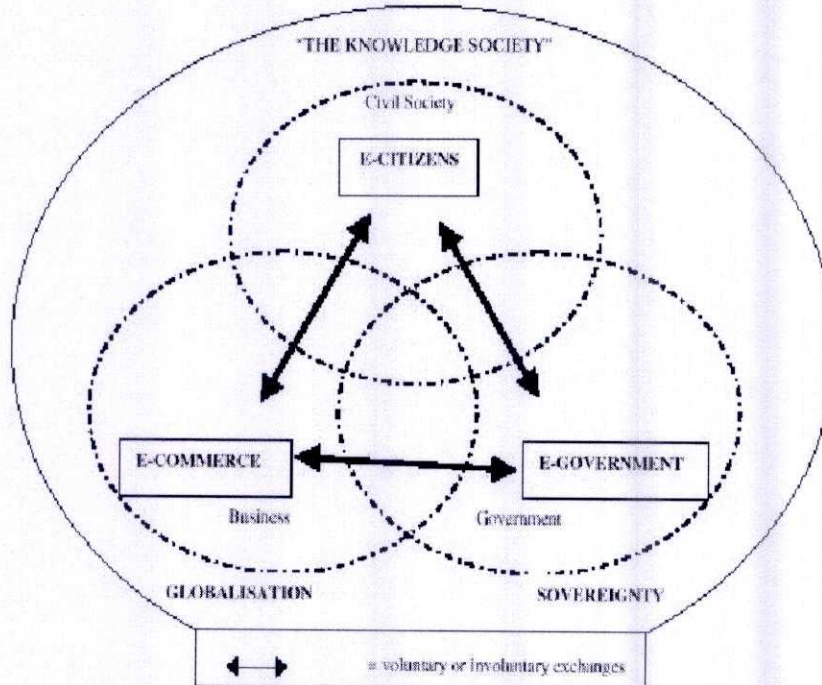
2) E-Business focus aspect in E-Government partnership

The process and structures that define the relationship between governments and the markets; the process and structures that define the relationship between governments and the private sector.

3) E-Citizens focus aspect in E-Government partnership

The process and structures that define the relationship between governments and citizens; The process and structures that define the relationship between Government service delivery and citizens' need; and The process and structures that define the relationship between countries and international institutions.

The following diagram illustrates the relationship among E-Government, E-Business, and E-Citizens in the context of the emergence of the so called "knowledge society", globalization, and sovereignty:



Source: *Chief Executives Group on Information Management and Technology*, 1999.

Figure 8: A Triangle Relationship Model

2.2.5 Administrative Processes Model

Maria A. Wimmer's SHEL Model for administrative processes may be a good point for understand and further studies on these issues (See Figure 4.3).

Administrative issue related to E-government may be complicated but can be managed so long as the issues are treated in a fair and realistic way to be key issues in E-government.

A holistic view on administration's processes, communication and information resources may think like this way:

- electronically mediated communication
- improving communication with the citizen
- merging external and internal processes
- improving co-operation between agencies
- supporting administration and governance processes on different levels and in different stages
- Innovative organisational design

- cooperation over distances, across organisational boundaries, across hierarchical echelons (Maria A. Wimmer, 2001)

Administrative Processes in the View of the SHEL Model

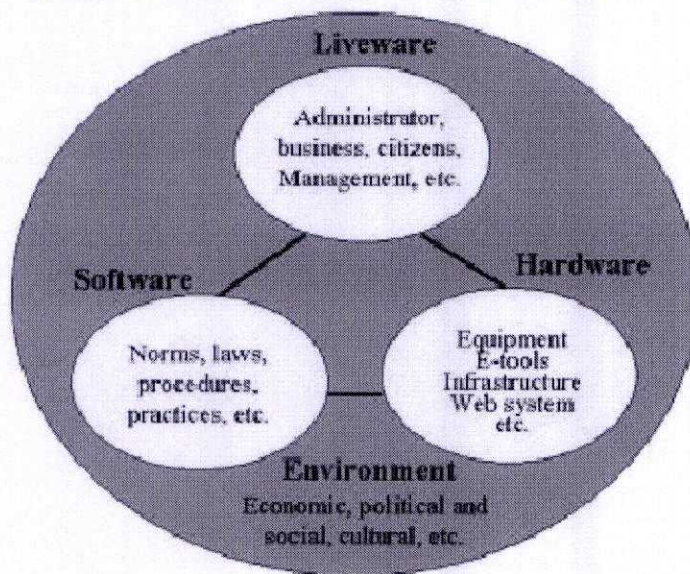


Figure 9: Maria A. Wimmer's SHEL Model for administrative processes

Chapter 3

3.0 Capacity of our local government

Local government is the bottom layer through which the services of e-governance are supposed to be rendered. Keeping the key role in service providing point currently the government has identified the local government institutions as a one-stop service desk where the government will meet (G2C) the citizen with her aura of service products. Before introducing an ideal model for the e-governance in the local bodies we need to assess the policy stands of the central government along with the current capacity in terms of physical infrastructure, human resource capacity, potential of private and NGO initiatives and possibilities of public private partnership.

3.1 ICT Policy 2008 and local government services

Introducing e-governance in local government body will not be possible unless the central government introduce proper policy guidelines and allocate resources after proper assessment. Understanding the trust of the sector and the sub-sectors government always provide support and assistance for the development of the sector. For this reason the government of Bangladesh has formulated a policy namely ICT Policy 2008 where the concept of e-governance has been given priority. To effectively harness the power of ICTs, Bangladesh formulated its first National ICT Policy in 2002. The National ICT Policy 2002 could not reach the professed levels of success due to lack of appropriate plans to achieve the goals set in the policy as well as poor implementation of the underlying actions. Consequently, the Government took an initiative in May 2008 to review the national ICT Policy 2002 and formed a 17-member Review Committee. The committee and its working group met all together 15 times over a period of four months to complete the task. During this period, about 70 representatives from different sectors representing academia and public and private sectors invested over 1000 man-hours to review the existing

National ICT Policy and related documents to prepare recommendations befitting the current and foreseeable future needs of the nation.

3.1.1 Vision

Expand and diversify the use of ICTs to establish a transparent, responsive and accountable government; develop skilled human resources; enhance social equity; ensure cost-effective delivery of citizen-services through public-private partnerships; and support the national goal of becoming a middle-income country within ten years and join the ranks of the developed countries of the world within thirty years.

3.1.2 Objectives

Social Equity: Ensure social equity, gender parity, equal opportunity and equitable participation in nation-building through access to ICTs for all, including persons with disabilities and special needs.

Productivity: Achieve higher productivity across all economic sectors including agriculture and SMME (small, medium and micro enterprises) through the use of ICTs.

Integrity: Achieve transparency, accountability, responsiveness and higher efficiency in the delivery of citizen-services.

Education and Research: Expand the reach and quality of education to all parts of the country using ICTs, ensure computer literacy at all levels of education and public service and facilitate innovation, creation of intellectual property and adoption of ICTs through appropriate research and development.

Employment Generation: Enlarge the pool of world-class ICT professionals to cater to the local and overseas employment opportunities.

Strengthening Exports: Ensure a thriving software, ITES and IT manufacturing industry to meet domestic and global demands and thereby increase foreign exchange earnings, attract foreign direct investments and reduce dependence on imports.

Healthcare: Ensure quality healthcare to all citizens by innovative application of ICTs.

Universal Access: Ensure connectivity to all as a public service obligation (PSO).

Environment, Climate and Disaster Management: Enhance creation and adoption of environment-friendly green technologies, ensure safe disposal of toxic wastes, minimize disaster response times and enable effective climate change management programmes through use of ICTs as Bangladesh is facing the dual scourge of environmental pollution due to rising industrial and consumer wastes and also global-warming-induced climate-change due to excessive carbon emissions of the industrialized countries.

Supports to ICTs: Develop appropriate infrastructure including power, and regulatory framework for effective adoption and use of ICTs throughout the country.

3.1.3 E-governance services to the Local government

Mainstream social advancement opportunities for disadvantaged groups as an immediate priority to bridge the digital divide and minimize economic disparity for (a) lower income groups,

(b) Ethnic minorities,

(c) Women, and

d) Persons with disabilities and special needs

Public private partnership in establishing e-service centres

Establish Community e-Centres (telecentres) initiated and operated by the private sector to facilitate access to computers, Internet and e-citizen services. Provide relevant content, pricing structure, and incentive through nominal bandwidth charges for underdeveloped areas and marginalized populations. The govt. may also provide hosting in public and local government facilities by charging nominal rent. As a result citizens will be able to access critical services from their doorstep with reduced cost, time, and hassle. Establish Community e-Centres in City Corporations, Upazila Parishads, Pourashavas and Union Parishads Provide access to critical services within easy reach to minimize time, cost, and hassle to citizens.

Public helpdesk

Launch Citizens Helpdesk in public organisations. The host is not mandated to be physically located at the relevant public organisation. Telecom operators will have to provide low-toll/toll-free numbers for these call centres. Provide access to critical information through phone to minimize cost, time and hassle to citizens.

Ensuring connectivity

Modify ISP licenses to ensure rural connectivity through extending network and provide a mechanism such as USO fund whereby govt. can provide cash and tax incentives to ISPs providing services in rural areas. Ensure affordable and reliable rural connectivity.

Using National ID platform

Expand the voter ID to National ID platform to be used for all citizens' services such as birth registration, passport, bank account, school enrollment, healthcare, vaccination, VGF/VGD and other social safety net programmes. Ensure that the broad foundation created by the voter ID database is reused for other critical social services, thus lowering cost and time for implementation of these services. Ensure that databases are interoperable so that policy decisions have deeper integration and cross-agency services are more effectively designed.

Developing mobile enable e-governance

Develop web and mobile enabled e-commerce platforms indigenous ethnic minorities Websites featuring work of remote artisans will enable buyers to contact them or buy products online, thus increasing income earning opportunities, allowing them to form effective cooperatives to market their products, and creating new job

Developing e-commerce centre

Establish women's e-commerce centre to expand market access to promote women-led micro enterprises Increase income earning opportunities for women without

leaving their localities, enable them to form effective cooperatives to market their products and services, and create new job opportunities.

3.2 Government ICT capacity

Although currently most of the typing work in the local government bodies is computerized, the policy of the central government is not yet formulated to provide with sufficient computing and networking facilities. This is why the officials of these institutions arrange local fund to automate their office. So when we talk about the ICT capacity of the local bodies we mean only existence of the computing facilities. Before we want to implement any projects of e-governance in local government we need to have proper knowledge about the ICT capacity of the government.

3.2.1 Upazila Parishad

Upazila Parishad is the lower tier of the government body where most of the government fund are allocated and disbursed. This unit of the government coordinates and controls more than 20 different government departments in its local setting. A first class or second-class officers of the government head most of the departments and most of them have minimum capacity in ICT. They may be an important human resource input in the processes of the e-government services. As for the physical infrastructure, this entire department has at least one personal computer with internet facilities in some cases. Additionally Bangladesh Telephone Company Limited (BTCL) provides telephone services in these remote areas and every unit of the government has one wireless telephone exchange tower which can be an essential part of the data transmission process of the e-governance system in the local bodies.

3.2.2 District Administration

District administration is the direct representing agents of the central government empowered to coordinate all the activities of the government. Headed by Deputy

Commissioner (DC) this institution is very rich in the human resource capacity. Most of the officials in the line management are first class civil servant selected by a very competitive examination. All of them are equipped with the modern knowledge of ICT and capable in oversees any ICT projects. Financial strength of this institution is strong as it can utilize the local resource for any project. Recently every department of the district administration are using personal computer with or without network with low speed internet connection in some cases. Most of the district administrations do not have a web site and there are no scopes to provide service electronically.

3.2.3 Municipals and City Corporation

Headed by a Mayor, Municipals or City Corporations are the urban service providers of the city areas. This institution is the one, which has the opportunities to provide e-governance service in most effective manner. As the percentages of literate people in urban area are generally high the digital divide will not be prominent in providing e-governance services. However, this particular institution is lacking automation severely because of competent human resource and internal physical infrastructure. If we want to provide efficient e-governance service through this channel the whole administration of the municipal or City Corporation has to be restructured.

3.3 Private Sector capacity

Private sector ICT of Bangladesh has boomed enormously in early 90s with the infusion of huge foreign capital in the telecommunication services sector. Most of the private organization from bank to corporate house is now nearly fully automated. Different NGOs are now using their huge work force to provide service in ICT sector. With the increase in demand a number of internet service providers are providing dial-up to broad band internet services.

3.3.1 Private Mobile Service Provider

Mobile phone service becomes so pervasive that almost all the literate people of Bangladesh are using this device. Started in early 90s one-fourth of the population of the country are under the mobile service. This phenomenal growth of the mobile

phone open an window in providing the people in the remote area with the service of the government and private organization in a different format. Meanwhile the government in conveying the message regarding the policy of the government time to time to time to time is now using this network. Again in the time of natural disaster we got the caution message from NGOs and Government alike. The convenience of mobile network is that it is covered nearly every part of the physical geography of the country.

3.3.2 Non-government Organizations (NGOs)

Like the mobile network, the network of NGOs is under the coverage of the whole area of the country. The institutional capacity of more than 100 thousand local and international NGOs can be a great resource for the government in providing e-governance service to the people of every corner. The group formation of NGOs can be used as a channel of information dissemination whereas the work force of NGOs can train the people about the benefit of ICT in their life. Meanwhile many NGOs are now stabilizing Community Information Center (CIC) to provide different on-line facilities.

3.3.3 Internet service provider

Both government and private internet service providers are now providing broad band and dial-up internet service basically in urban areas. Bangladesh is now connected with the international cyber optics backbone run under the Bay of Bengal. Additionally, there are options of wireless connection through satellite. Bangladesh government-owned telephone company provides internet service through the telephone line. Owing to the increasing internet service provider the cost of using internet become lower and a number of cyber cafe now become available in the city area.

3.4 Human Resource

An ICT literate population is critical on the way of success of e-governance. In recent years ICT literacy become a buzzword and people especially the young generation are giving much emphasis on it. There are different affords from government and

private sectors are on the ground to make ICT known to others. Still the ICT literacy rate is very poor compare to the neighboring countries.

3.4.1 Bangladesh Computer Council

The main objective of establishing BCC is to ensure the effective application and expansion of the use of information technology. In view of this BCC has been formulating appropriate policies and implementing them since its inception. The description and the lists depicting the steps taken and other activities are presented in the following sections.

Advisory Services

BCC as the organization of the government entrusted with the responsibility to deal with matters related to computerization, renders advisory services to different government departments, organizations and autonomous bodies. It has contributed in computerization of about one hundred and forty organizations during the period of 1990-91 to 2005-06. The list of organizations includes the ministries, directorates, projects, autonomous bodies, schools, colleges, and many other types of organizations.

IT- Based Training Courses

Computer related training is important in developing skilled manpower in information technology. Training has an important place among the activities of BCC. During the year 1990-91 to 1996-97 a total of three hundred and sixty one trainee has been trained under the training program. A large part of this group is the officials and staffs from government and autonomous bodies. Besides, the teachers of different schools, colleges and other educational institutions and private candidates took part in the training program.

3.4.2 ICT literacy in academic medium

In the school level computer literacy has been made compulsory from primary to higher secondary level. Numbers of technical and vocational institutes are

established giving more priority on ICT learning. More than sixty private universities are now offering graduate and under graduate courses on ICT and Computer Science and Engineering. Our national curriculum has given the most priority on ICT learning. With all these effort we expect our next generation to be fully equipped for e-governance.

3.4.3 Local and international training centers

Training on ICT in urban area is thriving as both local international training service providers are establishing training centers. This centers provides training on application, hardware, software development and database. Domestically the outsourcing in database and software development is increasing. Government is providing different incentive to make the outsourcing business more convenient for the domestic entrepreneurs.

3.5 E-governance in practice

3.4.1 e-Governance and the Agriculture Sector of Bangladesh

During the past decade, one of the global hallmarks of the ICT revolution has been to leverage its potential in achieving good governance and deepening democracy. The strategic tool for this is e-governance which may be defined as the public sector's use of ICTs with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective. Given the reality of Bangladesh, where a majority of the population is primary producers, e-governance is a solution to enhance access to information for all stakeholders and thereby contribute to a better agriculture society.

In contrast to the subsistence based farming about a mere decade back, agriculture, in Bangladesh, is now gradually becoming commercialized and as such knowledge intensive. With this service delivery sector, in the status quo, roping in more that 50% of the nation's labor force and contributing around 25% to the GDP, the upliftment of Bangladesh Agriculture, is expected to have considerable positive

repercussions in terms of higher economic gain and constitute a substantial step towards poverty reduction- one of our MDGs.

The bottleneck in Agro-service

However, the major obstacle for the sector to becoming knowledge intensive is the knowledge gap that exists. Such gap results because the existing system fails to provide the right kind of information at the right time in the right way. Having said that, we may well ask ourselves what current problems will e-governance address and mitigate. The government, in an effort to efficiently distribute agriculture resources such as fertilizers and pesticides, often staggers the process based on the requirements of various crops. However, from the farmers' perspectives, they, in most cases, reside in the dark regarding the amount of fertilizer allocated, the time frame of distribution for a particular crop and the amount of subsidy to be had.

Lack of proper service delivery channels also render farmers unable to benefit from the new varieties of high-yield hybrid seeds and agri-technologies being developed both home and abroad. Particularly, Bangladesh Agriculture Research Center, an organization under the ministry of Agriculture and itself consisting of 10 research institutes, develops new technologies aimed at increasing production in the country. Field level extension personnel often labor under outdated knowledge and are not aware of the plethora of opportunities and research outcomes related to the same target group. Studies show that only about 10%- 15% of hybrid seeds that come out of research are actually used by the farmers. The reasons are simple: no awareness about research outcomes, inefficient distribution and fear of the unknown. The fear of trying out new seed variety is further compounded by information unavailability of how exactly to follow up in terms of the levels of water and the types of fertilizers needed.

Knowledge of current market prices may help mitigate the well-known 'middleman' problem by enabling farmers to have proper bargaining power against the first tier intermediaries, better known as the 'syndicate', that control the market places. The

fields of agri-knowledge have essentially become islands of knowledge with various organizations holding onto considerable amounts of information with absolutely no coordination either among them or with the extension personnel. Moreover, there is little or no information flow from the field that would enable academics and research organization to undertake directed research.

Public and private initiatives

From the government's side, it is important to know exactly how much 'in-country' production is expected or already exist so that import may be regulated. Inaccurate estimate cause markets to be flooded with lower-priced imported crop forcing local farmers to fold, often at profit loss. Moreover, information from the field regarding previous year's crop statistics complete with production, import and pricing will enable them to better plan for the upcoming season in terms of overall fertilizer requirements, regulating price of diesel and making credit facilities available.

E-governance through ICTs addresses these issues, offering a communication platform circumventing traditional barriers and backwardness and adopting the means to bring all the players of the agribusiness together. It is expected that innovations in ICT can help ease up this trickle of knowledge and ensure a broad platform of sharing. Through telecenters, facilitation and resource centers, village level information kiosks and web portals, ICT can provide an effective communication platform and facilitate knowledge dissemination in all directions within the entire agri-community and among all stakeholders.

Other countries particularly India, have taken steps to incorporate ICT within its agriculture sector. At national level the Government of India has been undertaking a number of initiatives. Of them, some of the popular public service models are the Kisan Call Centres (www.kisancallcenter.net) and the web portal initiatives Agriwatch <http://www.agriwatch.com> and Agriculture Gateway <http://www.aces.uiuc.edu/aim/diglib/india> that brings together information from all the relevant fields like engineering, extension, sustainable agriculture etc.

In Bangladesh some similar initiatives include a recent e-governance initiative undertaken by the Department of Agriculture Management (DAM), under the Ministry of Agriculture (MoA). It has launched a website for monitoring and disseminating the market price information of several products across the country (www.dam.gov.bd). As for Agriculture Information Service (AIS), also under MoA, it currently publishes the monthly "Krishi Kotha" and the "Shomprosharon Brata" and the yearly Agriculture Diary. It also has about 5 hours of radio time daily and is working closely with ATN (private channel) on a weekly agriculture show. It has about 10 regional centers which are used to disseminate information and educate people on various agricultural issues.

Among the private sector, Grameen has set up about 500+ information centers while D.Net (Development Research Network, Bangladesh) has established the "Pallitathya Help Center" which basically uses cell phones as an effective 'last mile solution' to improve access to livelihood information for the rural people.

E-governance in fertilizer distribution

Soil Resources Development Institute (SRDI) in collaboration with CEGIS, a not-for-profit Geographical Information System (GIS) based research organizations, developed a massive 2GB database that stores soil data using primary information from Upazila Nirdeshika. The system is called 'The Soil and Land Resource Information System' or SOLARIS. Customized GIS software SOLARIS-GIS is also developed to map soil data based on classification (Soil Texture, Land type, Landform, Drainage, Slope, Surface Water Recession) and condition (Crop Suitability, Land Zoning, Nutrient Status and Fertilizer Recommendation). The system can analyze data at the Upazilla, District, and national level.

Given the current context of Bangladesh, the system has a wide range of potential use and benefits. These satellite based precision maps can assist the farmers to determine the optimal use of fertilizer for each type of crops in each season and

thereby reducing the cost for the farmer and limit environmental hazards from unplanned usage. Additionally, the system can be used to assess drought for each soil map units and the associated 'Drought Assessment Framework' (DRAS) can be used for assessing the irrigation water requirements (when and how much).

To harness these potential uses of the system, the department identified two critical hurdles- a) ensuring that the data reaches the beneficiary and b) ensuring that the beneficiary can comprehend and use the data. These were presented in a meeting held in 18th September 2007, where the honourable Advisor for Agriculture, Secretary of the ministry of Agriculture, other high government officials and representatives from relevant public and private organizations were present.

The UNDP representatives who were present in that meeting informed the honorable advisor that currently there are more than 700 community centers operating in the country. Additionally, there are ongoing initiatives that can potentially increase the number drastically. The honourable advisor was also given a brief summary of UNDP Bangladesh's initiatives in this regard to research on and pilot sustainable community e-centres.

UNDP Bangladesh's ongoing activities to explore e-governance for the grassroots are also explained. Convinced by the prospect, the honourable advisor quickly asked the respective agencies to explore this possibility further along with the relevant UNDP Bangladesh assisted projects and initiatives. Already a strategy is developed to formalize this particular collaboration. e-Governance and Development Cluster of UNDP is working collaboratively to materialize it.

E-governance in daily information dissemination

We should not criminalize the middlemen until we can offer a better alternative as the middle-men play a vital role in getting the market information to the farmers and products to the consumers. As for example, many women in a village prepares bio-compost and sells it to the local market. Through these women drove hunger and

unemployment out by diversifying income and earning through intensified vegetable production, poultry raising and fisheries. Due to inadequate marketing support, despite the high demand of biocompost, the villagers are unable to sell their products outside the village. Moreover, the farmers often take a loss in selling their crops and produce to the market due to limited logistic support, inaccessibility to market price and other adverse conditions. It is the mandate of the "Department of Agricultural Marketing (DAM)" to collect and disseminate market data. The DAM database currently collects market price information on 15 different commodities from 42 districts and uploads those to the database everyday. This database, however, is only one of the methods of information dissemination. A visit to the local market would reveal a more farmer-friendly approach to information dissemination. A quick look at the display board at the entrance of the market leaves no room for confusion about the market price of the different commodities. This certainly improves the capacity of a farmer to identify trading opportunities in particular markets in short supply and to respond rapidly to those opportunities.

Timely and relevant agricultural technology information also ranks high in the farmers' list of dire needs. Agricultural information needs are always time-bound and seasonal. Failure in timely delivery of particular information on crops, livestock, poultry or fisheries can devastate the farmers.

At present, radio is one of the most popular and effective media in technology transfer. Agriculture Information Service (AIS) plans to develop a platform for a two-way communication with the farmers and the service providers through Radio and TV programmes. Mati-o-Manush is a popular farm programme on Radio today. This national programme is broadcast for 25 minutes every morning. A call center through this radio programme where farmers can call in and receive solutions to their problems instantly may not be too far away.

Documentary films and video projection by the mobile vans in the rural areas also may have positive impacts in transferring technology. Officials from Department of

Agriculture Extension, Department of Livestock Service, Department of Fisheries, Bangladesh Agricultural Development Corporation, DAM, Department of Forests and Non-Government Organizations (NGOs) including scientists from different Research Organizations like Bangladesh Agricultural Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), Soil Resources Development Institute (SRDI), System of Rice Intensification (SRI) also act as the broadcaster at times from the national or regional Radio centre. Therefore, it is necessary to develop script writing, presenting and other skills of those broadcasters.

Steps to empower the farmers

1. Strengthening of existing electronic media system including rural broadcast and farm telecast programme for technology dissemination towards farming community.
2. Global and local network in relation to information communication technology development for information sharing and exchange of knowledge among the resource personnel of GO, NGO stakeholders, entrepreneurs and farmers.
3. Development of printing capacity both in quality and quantity for timely production and distribution among farming community.
4. Establishment of archives and library for the preservation of print and electronic media production related to agriculture for ensuring maximum use.
5. Capacity building of AIS personnel as professional media-men to deliberate information in mass media and the community.
6. Strengthening regional stations as well as national level networking.

To sum up, recent information and communication technology revolution provides an opportunity to build a cost-effective and scalable agricultural expert advice delivery system for the farmers, both in a timely and personalized manner. There is room to increase the accessibility of timely expert information for the farmers using ICTs. Farmers then will be able to make more informed, market based decisions about what to produce, when to grow it and when to sell it, thus maximizing rural returns.

3.4.2 Web portal for government service

It is obvious in terms of e-governance initiative Bangladesh is in the first phases of the four-phase model Grant where the websites are only provide information. These are called static web site used to inform people about different government policy and actions. Nearly every ministry has websites and they are updated regularly. One thing we need to remember that unless the internal administration is came under automation and digitization the quality of the service will never be time based or on - line. This is unfortunate other than the planning commissions no other ministry has an internal software system.

Chapter 4

4.0 Proposed models of e-governance in local bodies

There are two type of local governments are in Bangladesh namely a) Rural local government and b) Urban local government. A significant portion of the government services is rendered through these two local government bodies. The important part of the services goes to the people of the bottom layer of our social class. In this chapter we are going to propose two simple e-governance models for these local bodies, which maybe implemented in a pilot project to evaluate the adaptability and feasibility of the models in our local government.

4.1 Rural local government

Although 80% of the population of Bangladesh live in rural area the local government in rural area was never be full functioning. Lack of proper planning from the central government part and the bargaining capacity of the rural people maybe blamed for not functioning these institute as pro-people. Currently Bangladesh has four layers of local government bodies as following:

- a) Union parishad (UP)
- b) Upazial Parishad (UZP)
- c) Zila Parishad (ZP)

According to the government declaration the Union, Upazila (sub-district) and Zila (district) as administrative units for the purpose of the constitution of the People Republic of Bangladesh. Each local government parishad (i.e UP, UZP and ZP) is a body corporate having perpetual succession and a common seal with power to acquire and hold both movable and immovable property in accordance with the provision of the acts/ordinances and rules made hereunder. The local government parishd can sue and can be sued.

According to the latest amendments of the Local Government a Union Parishad (UP) is divided into nine wards. Each UP consist of a Chairman and nine members in the

general seats-one from each ward. In addition, three seats have been exclusively reserved for women members, who are elected by the votes of the concerned three wards. The voters of the entire union directly elect the UP Chairman, and the voters of the concerned ward on the basis of adult franchise elect the nine members in the general seats. The Chairman is considered a member of the Parishad and both Chairman and members are paid an honorarium by the government.

According to the Upazila Parishad the Upazila Parishad (UZP) consists of a) a Chairman, b) Vice Chairman c) Woman Vice Chairman. All of members of the Upazila Parishad are elected by direct vote of the concerned area for a period of five years.

According to the Zila Parishad Act, 2000, a Zila Parishad (ZP) comprises of a) Chairman, b) fifteen members and c) five women members in the reserved seats. The ZP Chairman and members, including women members in the reserved seats, will be elected by the members of an electoral college consisting of the City Corporation Mayor and Commissioners, UZP Chairman, Paurashava Chairmen and Commissioners and UP Chairmen and members within the jurisdiction of a district. The ZP Chairman and members including women members in the reserved seats will be entitled to receive an honorarium, special privileges, leave and other facilities by the government.

4.1.1 Functions of the local government bodies

Union Parishad

As the bottom layer of the local government body the UP has the following functions:

- Law and order function
- Public service
- Regulatory function
- Judicial function
- Development function

Upazial Parishad (UZP)

Acting as a coordinating and executing agents of the UP the major area of functionalities of UZP are as follows:

- Five years planning and development
- Coordination of the local government departments
- Interacting with the central government
- Public utility planning
- Collaboration with NGOs and development partners
- Assessing program implementation and feedback
- Public awareness buildings etc.

Zila Parishad (ZP)

Zila Parishad consist of a number of Upazials and coordinates the functions of the Upazila. The functions of ZP are as follows:

- Communication
- Health and sanitation
- Water supply
- Education
- Coordination

4.1.2 E-governance model for rural local government

Citizens increasingly expect the same level of services from government as they do from other organizations in private bodies. Businesses transforming their operations for the virtual world are unwilling to go for form-filling and standing in line for government. The distinctions between agencies of government, business and civil society – and the functions they perform – are becoming blurred as power is distributed and the access costs to connectivity fall.

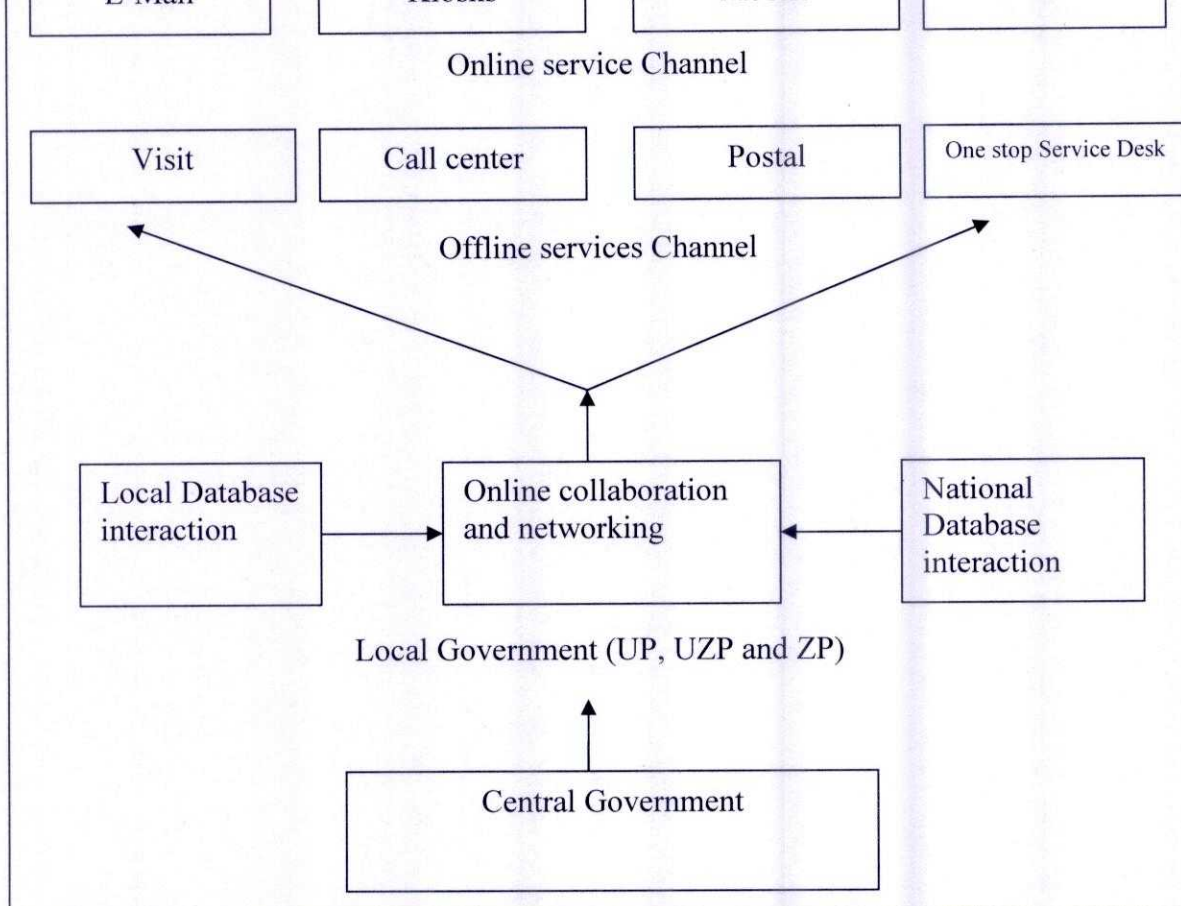
Thus, throughout the world, we see governments, businesses and NGOs working together to adopt e-Governance – from Singapore to South Africa, Hong Kong to Washington State, Chile to Estonia. These are not just experiments in new modes of service delivery. E-Governance inevitably also embraces – and is driven by – new

models of policy formulation, new forms of citizenship, new patterns of relationship and power, new options for economic development, and the search for new ways to connect people with the political process.

The forces of globalization are gaining momentum with the new technological innovations facilitating the process. With the development of e-Commerce applications around the globe, many countries have transitioned into electronic delivery of services at all levels of government activities. This involves changes to existing systems, procedures and processes; that affect the way in which public and business communities deal with the government. The rapid adoption of e-Governance is facilitated by dynamic technological and telecommunication innovations. In many countries, Information and Communication Technologies (ICTs) are seen as a catalysing tool for e-Governance. It is expected that e-Governance will result in transparency, speedy information dissemination and improved service in public administration. In the era of informed citizens, e-Governance is also seen as a vehicle for cost-effective and efficient way of public service delivery. These developments pose fundamental questions about how governments can act effectively in this new environment in the interests of their citizens and to promote their well-being. It also raises questions about the role and capacity of government, its relationship with its citizens and with other actors. At an even more fundamental level, the connected world raises questions about the boundaries of community, and therefore of representation and citizenship, that go to the heart of democratic theory.

4.1.3 Rural e-governance service model

E-governance for rural bottom of Bangladesh is seemed to be a distance dream where the privileged group of the country still in dark as to availing the technological driven service. Still with the innovation in telecommunication the e-governance service to the rural people maybe a reality.



*CeC- Community e-Center

Figure 10: Rural e-governance service model

In our rural service model two types of public service delivery channels have come into being: (i) Online, and (ii) Offline. The online channels include Web, E-mail, Kiosk, Mobile, and Community e-Center. The offline channels include visit to office (face-to-face or information and facilitation counter), call centre, postal (letters), and one stop service center (Figure). The term “citizen” is deceptive in its simplicity as it is an umbrella term covering a wide variety of citizens in terms of age, gender, education, income and familiarity with new technology. E-government has to meet the needs of these different types of citizens through multiple channels. Two things have to be ensured: first, these different channels do not offer different “levels” of service but are mutually consistent in content. This can be ensured by joining these

A very important consequence of emergence of e-government has been the birth of a new entity- the e-citizen, how may be defined as a citizen who accesses the state and its services and interacts with its decision-making processes through the Internet. Like the citizen, who has rights and duties, e-citizen too as e-rights and e-duties, which however are required to be spelled out and statutorily recognized. And like the citizen charter, an e-citizen charter has also been developed (Poelmans 2007). A new phenomenon, called e-democracy, has also emerged. However, e-democracy is being defined in a wide variety of ways creating confusion rather than clarity. Denn (2004) suggests the following definition: "... we will define e-democracy very broadly to encompass any of the myriad ways that citizens and governments communicate with one another, whether that be for the purposes of information gathering, information dissemination, service transactions, governance decisions, or other types of interaction. It also encompasses various kinds of intra-governmental communications." E-citizen and e-democracy both are required to be promoted.

4.1.3.1 CeCs as conduits for e-governance

One of the ICT development strategies used by a number of developing countries is a shared ICT resource model called the community telecentre or e-centre. CeCs are seen as effective and affordable tools for bridging the digital divide and harnessing the full potential of ICT on a shared basis rather than through individual household connections. They provide new opportunities for social and economic integration and can serve as a catalyst for synergies between development goals and good governance.

CeC Program can provide the general public with meaningful and affordable access to voice and data services, e-commerce, and distance learning, among others, through CeCs. They can be conduits for e-governance at the local level. By making

delivery for industry and businesses, and more importantly, modernize and ensure the efficient delivery of services to the citizens. Equally important, e-governance applications and content can also provide citizens with additional incentives to use CeC services, thereby contributing to their sustainability.

4.1.3.2 E-governance application in CeC

From a sustainability standpoint, it is important to remember that the effort to identify and successfully deploy e-governance applications – which generally are relatively advanced tools – is best pursued only when the foundations for such deployment and use are already in place.

In many parts of the world especially rural and remote areas, the challenges facing CeCs are much more basic. Many constituents could be seeing computers for the first time. They could be intimidated or uncomfortable with new technologies, or might not have a good grasp of how ICTs can tangibly affect their daily lives.

The community concerned should ideally have access to, and be familiar with basic applications and services such as Internet browsing, and key productivity software (for word processing, spreadsheet applications and presentation, among others), before deploying e-governance applications in the respective CeCs. e-Governance applications can of course be deployed even without such 'basic' applications and services in place. For instance, CeCs can certainly be outlets for obtaining birth certificates or police clearances.

But e-governance applications, by themselves, will not ensure CeC sustainability, or, more importantly, necessarily increase individuals' awareness on the potential of ICTs. CeCs need to provide basic and more frequently/regularly-used services to ensure their viability and sustainability, as well as increased relevance in the community.

advanced applications and services. Moreover, basic training should be provided on how to manage and run the CeC effectively, in order to ensure its sustainability.

How will the CeCs be funded? What is the business model? How will it pay for set up and recurring costs? These should be addressed by CeCs first, before they can truly be used as conduits for e-governance on an effective and sustained basis. These basic components should be considered as preconditions for more advanced CeC uses such as e-governance, and will provide the foundations for the use and appreciation of e-governance applications by community residents. Rather than e-governance applications per se, it is the demand for these basic applications that are more likely to drive the set up and development of CeCs throughout the Philippines.

4.1.3.3 Killer e-governance applications for CeCs

Killer e-governance applications can loosely be defined as applications and/or uses of the CeC in a particular community that: build on the delivery of e- governance services; create a high and pro-poor developmental impact that measurably benefits residents; and encourage replication as best practice models in other similarly situated communities.

The effort to provide killer applications and best practice models can come from: (a) above as government pushes applications and models throughout the CeCs; and (b) below as innovations and best practices that emerge from the experience of the communities themselves. Depending on the flow (top-down or bottom-up), what factors and issues need to be clarified to ensure the successful deployment of such killer applications?

Choosing to push or promote a particular service, model or application inevitably requires investments and costs that government – whether at the national or local level – must be able to justify. If government is to push, or if a local government is to

perceived needs and capabilities existing within the community, what applications or models will yield the greatest benefit for the constituents? E-Governance applications, like all other applications to be deployed through CeCs, should be evaluated based on its value, impact and replicability. As a framework of analysis, potential application, model or service is considered in the context of broader social goals that are intended to be met through e-governance:

Citizen Empowerment

- Does it provide citizens with more tools to participate in the global economy?
- Does it help citizens identify new opportunities, challenges, useful information, etc. that will improve their quality of life?

Citizen Participation

- Does it encourage and increase citizens' involvement in and awareness of government policies, goals, programmes and services?
- Does it make it easier for citizens to transact with government and provide government with feedback, comments, suggestions and criticisms?

Government Accountability and Transparency

- Does it promote greater transparency in the delivery of government services?
- Does it deter, if not prevent, corruption and fraud in government transactions?

Government Efficiency and Effectiveness

- Does it help government deliver services more effectively and efficiently?
- Is it more responsive, both in substance and in time of delivery?

The result of the process flow should be a narrowed down list of potential high impact e-governance applications to be pilot tested in CeCs. These applications can

Government Push: the issues to consider

Government can proactively push certain models and applications as part of its implementation of strategic plans to promote, deploy and use ICT for development. Through its agencies, such as the CICT, the Philippine Government can and does deploy tools for e-governance, such as ICT tools to facilitate business registration and real property tax collections, or simply requiring government agencies to have an online presence that allows for web-based transactions.

In this top-down approach, government starts by identifying the priority needs to respond to, and that can be addressed by using ICT and particularly, CeCs. Data can come from sector needs identified by the government, aggregated needs from CeCs, or government thrusts based on consultations with various stakeholders. Additional data can be sourced from national and regional plans, as well as relevant information on population and ICT literacy, international best practices, and through the conduct of surveys and need assessments.

Once these needs are identified, a broad list of applications can be made based on innovative ideas from government and other stakeholders, international best practices, and CeC experiences on what works. It is therefore important to develop a databank of local best practices of CeCs to serve as repositories of ideas for benchmarking and formulation of innovative ideas.

Each of the potential applications can then be evaluated against the government's goals and objectives, and their capacity to actually implement them.

- Does it support existing national/local development plans and goals?
 - How much investment is needed, and how will this investment be sourced (grants, loans, savings)?
 - Is this something government should push, or is it better left to the private sector?
- Are there openings for public-private partnerships?

Government Push: the issues to consider

The bottom-up approach or a demand-driven approach recognizes and celebrates the fact that many, if not most, of the truly transformative innovations are unanticipated, serendipitous and emerge in the communities. Such practices result from the new-found ability of people to explore and push the applications of ICT that they can now access through CeCs.

CeCs provide an invaluable starting point to introducing ICT tools; demonstrating their convenience, relevance, affordability and usefulness; making community residents comfortable in using new technologies; and initially providing, but ultimately allowing users themselves to find and make useful content to add value to the CeC.

Using this approach, the starting point is to make CeCs relevant and immediately useful to community residents, believing that with repeated and collective use, the community will eventually call for, identify or even discover the e-governance applications that will best address their needs and the needs of different stakeholders the CeC is serving.

Proactively, a needs assessment of the citizens and different stakeholders can be undertaken by the CeC as the initial step in identifying high impact e-governance applications. ICT needs can be obtained from consultations with various sectors, surveys, group discussions and client exit interviews.

Government's role is to put into place a programme that encourages the development of community-based innovation; enables communities to learn from

The proposed framework outlined above (p. 3) can be used to evaluate such community-discovered models, and for classifying them as 'killer applications' or best practice models.

It should be emphasized that there is no single CeC model or set of e-governance applications that can be considered as the most effective, efficient or the one that provides the greatest impact. Each community would have to determine for itself what needs and opportunities their respective facilities will seek to tap. The word 'community' needs to be stressed, as the success of the endeavor will be greatly enhanced if everyone in the community – from government, the private sector, civil society, and the residents – truly consider themselves as stakeholders in the CeC. In this light, it is important to realize that killer e-governance applications, like all other applications, should be understood in the context of specific community needs.

Government must therefore actively and consciously play its role, not only in replicating and deploying killer applications, but also in ensuring that an effective system for documenting and sharing of these best practices and lessons exists – precisely to ensure that communities are able to sift through as many options as possible, as they move to enhance the relevance, use and capabilities of their respective CeCs.

4.1.3.4 Mobile phone in E-governance

Mobile government, also labeled as mobile e-Government or "m-Government", emerges as a significant area of intervention for administrative and government-linked actions. It involves altogether research; experiments and traditional administrative operations' level towards a positive transformation of the relationships between public services and their users thanks to the use of mobile forms of information and communication technologies (ICTs). More broadly, it appears to be re-enforcing e-Government claims towards more efficient, effective and open

Government, the expression nowadays used for overall productivity and innovation moves in the area of public administration, supported by ICTs. E-government has become a relatively consensual perspective progressing towards the triple goal of 1) providing better services to the citizen, 2) empowering the private economy both in terms of private-public partnerships or interenterprise capabilities at all levels and 3) reinforcing process flexibilisation intra- and interadministrative and government-wise. m- Government, as for itself, aims at leveraging additional forms of empowerment and service delivery, which we shall present in the continuation. After a few years of existence, however, this concept needs to be assessed, not in ideal terms, but on the basis of real-life achievements, as to where it leads us (and what overall dynamics it is part of) and what kind of specific field productivity it can actually convey.

In our contemporary society, being mobile, or simply capable of playing with mobility options, thanks to adequate infrastructure, devices, skills and knowledge, is generally associated with a positive, dynamic and seemingly indispensable form of lifestyle as well as productive behaviour. This was already a perceivable trend prior to the emergence of m-Government; or rather, one should say that m-Government developed as a natural spin-off expression of e-Government in the wake of a generic technological deployment (the supporting “mobile” systems) and its societal evolution (being mobile as a must). Today, however, the m-Government domain of meaning

Providing for a full range of e-Gov sophistication

Mobile phones are capable of providing e-Gov services to citizens at varying degrees of sophistication – that is, they can inform, interact and transact with citizens. Examples can already be found, as shown below:

Inform

which forms must be completed to apply for a national identity card, what supporting documents must accompany the application, where to submit the application, phone number of relevant official at the government department, etc). Data from just 6 months of operation show that citizens with phones did use the GIC's services – the provinces with the highest number of household phones originated the highest number of calls² [21]. At present, the GIC is arguably the most “used” citizen service in the e-Sri Lanka e-Gov portfolio. The other G2C projects depend on Internet access or on counter service.

Interact

The state of Gujarat in India, in partnership with mobile operator Hutch, offers an SMS based service to citizens who apply for an Indian passport. According to Mukherjee [17] previously over 900 citizens queued outside the Regional Passport office each day. About 300 of them are simply accompanying individuals. Of the remaining 600, about 250 come from different corners of the state to simply inquire about the state of their passport. Through the new SMS-based service, a citizen who sends an SMS containing the file number is kept informed about the progress (or lack thereof) of the passport application at each of the seven stages.

Transact

The g-Cash PayBIR service is supported by the Philippine government's Bureau of Internal Revenue (BIR) and enables the payment of taxes using mobile phones. Payments of up to P10,000 (approximately USD 180) towards a citizen's income tax, fines or penalties or regular documentary stamp taxes can be paid with a simple SMS. An SMS “receipt” sent by the BIR provides confirmation that the payment was recorded/received.

The vast numbers of commercial mobile-finance solutions from across the world targeting the un-banked and those at the BOP is well documented, and are

just two in a series of emerging product offerings combining financial transactions and the mobile phone. However, very few examples are found of government financial transactions involving mobile phones (the g-Cash PayBIR example above being a rare one). This is ironic, since phones can achieve many of the social objectives of e-Government easier and faster than the alternatives available to governments in developing Asia.

Telecenters and payments via the Internet have only been successful for e-Government initiatives in the developed world, where most people have bank accounts and credit cards. But the total number of credit card users in India is 45 million [20]. In Sri Lanka less than 830,000 credit cards have been issued [4], with the number of actual credit-card owners likely to be even less (due to multiple cards per person). In both countries, that is less than 4% of the population, none of them at the BOP. The relevant comparison is the 0% at the BOP with access to credit cards or other online payment mechanisms with the 85 million at the BOP who already have or will have a transaction-capable mobile phone by 2008 in these two countries, or the 168 million in the 5 countries studies.

4.1.3.5 Mobile adaptable Spoke and Hub Model

As it is obvious from the name the model requires search for the appropriate spoke and its suitability for the application in the concern. Also definition of hubs in terms of their functionality and domain need to be refined in the proper context. To adequately define the spoke and hub model we sub-divide our model in two sub-models based on the traditional characteristics of hub and spoke. Defining spoke and hub in terms of the process of e- governance services will be suitable for the boundary delineation. It would be apt to discuss two stark natures of processes in the e-governance services. We describe them as the Information Dissemination Model (IDM) and the Information Creation/Update Model (ICUM). The IDM is the spoke part of our model while the ICUM is the hub for our model. This model tries to

Information Dissemination Model (IDM)

The model is at variance with the traditional broadcasting models which focus on providing useful government information (already available) to the wider public domain through the use of ICT and convergent media. (www.digitalgovernance.org). the information may not be necessarily the information available in the public domain. In this paper, the Information Dissemination model is concerned with the information which is aiming at providing citizen's information only. The variance from traditional model is the nature of information. Information about the government scheme may come in the broadcasting model but the information about particular plot of land belonging to somebody is private in nature. It should be available to people who are stakeholder in the process and have consent of the owner of the plot. For example land records which need to be produced frequently for different reasons in the developing countries. Though registration for land record happens only once in a while the need for reproduction of the land record is more frequent. This requirement is only information retrieval subject to confirmation of the identity of the citizen demanding the information. As we have seen in mobile banking, most of the initial services are read-only or non-transaction in nature is started first, similarly the model with a twist can be applied here.

Here are few illustrative steps which may lead to development of the IDM

- Establishment of e-governance service
- Identification of information suitable for distribution on mobile platform
- Establishment of authenticity identification
- Laying down of trigger process and consequent process
- Collaboration with mobile service providers
- Awareness drive and training for self-service
- Information distribution process refinement

many a times the mechanism is very much built as fixed module to a particular location thus raising the issue of scalability. Different states in federal structure do try to have their own land record system or some other healthcare system and so on. It leads to lack of standard as well as problems in scalability. Hence a standard format needs to be developed for the segregation model. At the same time it must be ensured that it should not become too generic hence compromising on the efficiency and cost structure. Also the need to customize the service according the relevant personal details is necessary. For example, in some areas almost all eligible people might be holding the voter ID (Identification) card or relevant government identification document thus facilitating a single unique identification technique, at the same time there may be few areas with absence of a common document prevailing among majority of the population. Hence the built-in flexibility in the e-governance service is necessary for the customized deployment according to particular area.

Though collaboration with mobile service provider may look a very obvious step it is not necessarily a non-serious step. As the process heavily depends on the mobile operators, the credibility and reliability is also in the hands of the mobile operators. Two important aspects need to be considered here is the transfer of request from the citizen to request capturing platform and also billing the citizen for the service via mobile operators. For capturing the information one need to have proper software, effective request transfer mechanism from the citizen to the mobile operator and from operator to the e-governance service platform. The development of software itself is a complex process, as it requires collaborative effort even at the local level for the proper user interface and other required functionalities (such as dedicated number for e-governance services, standard format for navigation which remains suitable across varying mobiles and mobile operators). Afterwards the request transfer from mobile operator to e-governance service requires development of standard for communication. Apart from this the billing is also an important aspect.

obviating any need for a particular and dedicated cash/money transfer channel, which might further complicate the issue. The revenue sharing procedures and conditions need to be laid down for the same.

Information distribution refinement needs to be done as how the information needs to be provided so that it remains usable. For example providing land records on mobile phone will be futile as it will be useless for all practical purposes however at the same time tracking the application for license may be very much relevant at the mobile phone level. Once the mode of information delivery is finalized a better understanding may require to be developed with channel partner, say post office, for providing the record or information.

Internet connection and dedicated terminals. The need for this model arises from the relatively higher fixed cost of the system. And operating cost can go high due to training, linguistic differences, requirement of power and good environment for keeping the system. Also the last mile connection for internet is not available in many developing countries. The aim is to keep this model to the lowest extent possible hence eliminating major cost segments. However, this step requires a substantial level of planning. As the ICU is supposed to be part of larger e-governance plan hence conformity with the objectives of the latter needs to be looked into with greater detail. The presence of this model is necessary at the lower level (though less in numbers) due to limitations of the spoke model which is also being called Information

Dissemination Model (IDM). In following sections; major factors which need to be looked into while considering for ICUM have been discussed.

- Alignment with national e-governance objective
- Flexibility of interoperability with peer-services
- Collaborative platform for the synchronization with channel partners
- Appreciation of local aspirations and needs
- Elimination of physical interaction at lower level

Though service may start at experimental level in any limited geography or constrained by any other parameters in concern; ultimate goal of the alignment with the national e-governance objective should be the focus. The existence of several objectively incompatible services operating in different domains and geographies has left little scope for flow of national objective in a structured way. Initial ad-hoc efforts, consequential popularity of service and the presence of individual champion (instead of national ones) at the local level as well as absence of guidelines at the central level has lead to dispersion of services in several directions thus militating against the a holistic objective of national e-government.

lack of national standard and adherence to any particular pattern leaves all systems going in their own direction thus negating the concept of national e-governance plan. The issue of isolation of services, repeated similar efforts for similar objectives and involved cost (direct, indirect) for almost all stakeholders renders the aim of universal consolidation of a country's e-governance services a mere statement. The openness in formulation of objective of a particular service with consideration of a mutually exhaustive and collaborative framework with peer services will multifold the acceptance as well as hasten the process of realization of the objective.

Effective rendering of services to the citizen by e-governance is largely governed by other channel partners in the service. For example in some cases governmental postal services are channel partner.

In some cases other partners may be supposed to take necessary action on the request (e.g. an enquiry for the status of passport will require generation of trigger for seeking of status-report from different department (Home, Police, other local authorities)) so there is a requirement of a cordial and harmonious relationship building at the ground level is must and acceptance of the system in its format is necessary. The best could be the case where in all stakeholder embraces the new system as their own; however this has not been the case in majority of situations where a natural resistances have been observed. Hence provision for a collaborative platform seeking for a cordial and effective relationship is necessary for the success of system in particular and e-governance as a whole.

Appreciation of local needs and aspiration is necessary for the better understanding of requirements of system. The acceptability of system also depends on the customization of system for catering to the needs at the lower level. The emergence of various e-governance services seeking to reach the same objective in different manner is a testimony of the same. It will be apt to say that the appreciation and

development of system should be portrayed in a way to give the message of alignment with local values and needs. Inclusion of senior, respected people from the society in the initial phase itself will remove a large amount of barrier in the acceptance of the service. The communication rather than alienation is a major factor deciding the fates of different initiatives in different domains and at different levels. E-governance also aims for efficiency though this is not the only one paradigm to which one need to subscribe. Still efficiency has been perceived to be sole factor by many.

Sometimes elimination of physical interaction has supposedly been proposed as a measure of efficiency. It still may be the case but in this paper the intention is elimination of inconvenience to the citizen. To put it into the context; it is observable that our model proposes lesser number of ICUM because of cost consideration and achievement of better standards. Further given the context of developing world and in particular rural areas the distance becomes prohibitively demotivating for the people to avail the service hence the emphasis on lesser physical interaction. At the same time removing the hassle of frequent visits prompts faster acceptance because of ease of use.

Integration of Both Models

ICUM and IDM are complementary to each other. Major part of ICUM is handled by IDM and IDM cannot exist without ICUM. The integration of both models is a simple step as the development of the ICUM and IDM itself was from the joint framework. The ICUM is established in accordance with the national e-governance objectives. One of the secondary issues of consideration is the extensibility and synchronization with other e-governance services. ICUM is supposed to have relatively lower user interaction as data creation and update are not very frequent in nature. The output from ICUM, in case of read request or any other information request, gets delivered

public (Narayan and Nerunkal, 2000) will remain higher due to wider acceptance and higher anticipated uses.

Poor penetration of internet in Bangladesh and her rural area is a cause of concern for dissemination of e-governance services traditionally perceived to be empowered by internet. In case of availability of internet among few countries, the connections are not reliable, speed is pathetic and costs are still high on both fronts: fixed costs and operational costs. Hence effectiveness and impact of e-governance services may be jeopardized due to connectivity issues. Hence there is a need for supplementary model which can provide support for breadth and depth of e-governance services. So, in view of higher mobile penetration, governance services delivered via mobile becomes a choice. Due to its inherent nature m-governance cannot be substitute of e-governance but abodes well in short terms for debut in unexplored, unconnected areas.

4.2 Urban local government

In Bangladesh, rapid population growth, coupled with the limited availability of the agricultural land, has resulted in a steady shift of population from the rural to the urban areas. The country is still characteristics by a low level of urbanization with nearly 35% of the total population living in the urban area. At present there are 298 Paurashavas (urban local government body) and 6 City Corporations (local government in large city). The Paurashavas provide municipal services to towns with populations of above fifteen thousands. These are at present operating under the legal framework of the Paurashava Ordinance, 1977. City Corporation (Municipal) was created for Dhaka, Chittagong, Khulna, Rajshahi, Sylhet and Barishal in order to cope with the increasing demand for municipal services in these large cities.

According to the existing legislation, an urban area must fulfill three characteristics before its declaration as such. First, three-fourth of the adult male population of the area must be employed mainly in non-agriculture occupation, second, such and area

4.2.1 Composition of Paurashava

A Paurashava consists of a Chairman, a number of commissioners in general seats and one-third of the total number of commissioners are kept as reserved seats exclusively for women commissioners. The women commissioners of the reserved seats will represent one from every three wards. The Chairman and commissioners and women commissioners of a Paurashava are elected by direct election on the basis of adult franchise. The Chairman of a Paurashava is to be considered a commissioner of the Paurashava. The Chairman and commissioners are paid an honorarium fixed by the government.

4.2.2 Composition of City Corporation

The Municipal Corporations were renamed as City Corporations in 1990. According to City Corporation (Amendment) Acts, the Mayors and Commissioners are to be elected by direct election on the basis of adult franchise. Dhaka City Corporation is composed of a Mayor, Commissioners in general seats and women commissioners in the reserved seats, the latter being one for every three wards. There are also five official commissioners.

4.2.3 Functions of the urban local government bodies

The functions of Paurashava and Municipal Corporations are nearly the same. Generally they perform the following functions:

- Construction and maintenance of roads, bridges, culverts, etc,
- Removal, collection and disposal of refuse, wastes, rubbish, etc,
- Provision and maintenance of street lighting;
- Provision of water supply;
- Construction and maintenance of community and shopping corners;
- Maintenance of graveyards and cremation grounds;
- Eradication of mosquitoes;
- Registration of births, deaths and marriages;
- Maintenance of slaughterhouses;

- Naming of the roads and numbering of the house,
- Provision of public toilets.

4.1.4 E-governance model for urban local government

We try to discuss a simple model of typical municipal where the fruits of ICT is expected to be bifacial equally both to the IT literate and illiterate. We try to keep in mind that the digital divide in our country is a basic problem in establishing e-governance services. In this model we first describe the category of services that are expected to deliver by the municipal corporation. Then the mechanism of delivering services are elaborate with the problem of addressing the building process of the services.

4.1.4.1 Citizens' Services

Among the various kinds of e-governance functions, the one that deserves highest priority is Citizens' Services intended to benefit vast populations who would otherwise have to face serious hardships for getting essential services. Convenient delivery of these services using the facilities of Information Technology would help to propagate among the people the advantages of investing in I.T., which would otherwise be treated as an elitist endeavour. Availability of these services in local language would enhance confidence in their government and reduce the level of skepticism in the functioning of the government offices.

4.1.4.2 Welfare Services

There are many services offered to specific groups of citizens as a privilege under special circumstances. Concessionary loans, special grants, subsidies of various kinds fall under this category. Those who are eligible for such benefits should be able to obtain them expeditiously. This is an area, which offers temptation for even higher levels of corruption and cheating. The beneficiaries must have the information relating to the entitlement in their own language to avoid dependence on interpreters.

satisfactory measures for the redressal. This is a complaint handling system, which offers an easy outlet for their agonies and enables serious consideration beyond proforma responses will enhance the citizens' respect for the administration. This also will provide an opportunity to government for assessment of people's problems and encourage official accountability

4.1.4.4 Development Schemes

Every State undertakes great many development schemes at various levels of investments that are geographically distributed. Every development ministry each year launches many such schemes. At the local level these add upto a large number. Most citizens are not fully aware of these schemes beyond word of the mouth or sketchy news reports. In a transparent administration, it will benefit both the administration and the people at large if the essential details of the schemes, their progress or the reasons for lack of it and the benefits to be derived are available in the local language and made easily accessible as an essential part of e-governance. This will help to offset rumors of misadministration and even help to eliminate chances of misappropriation.

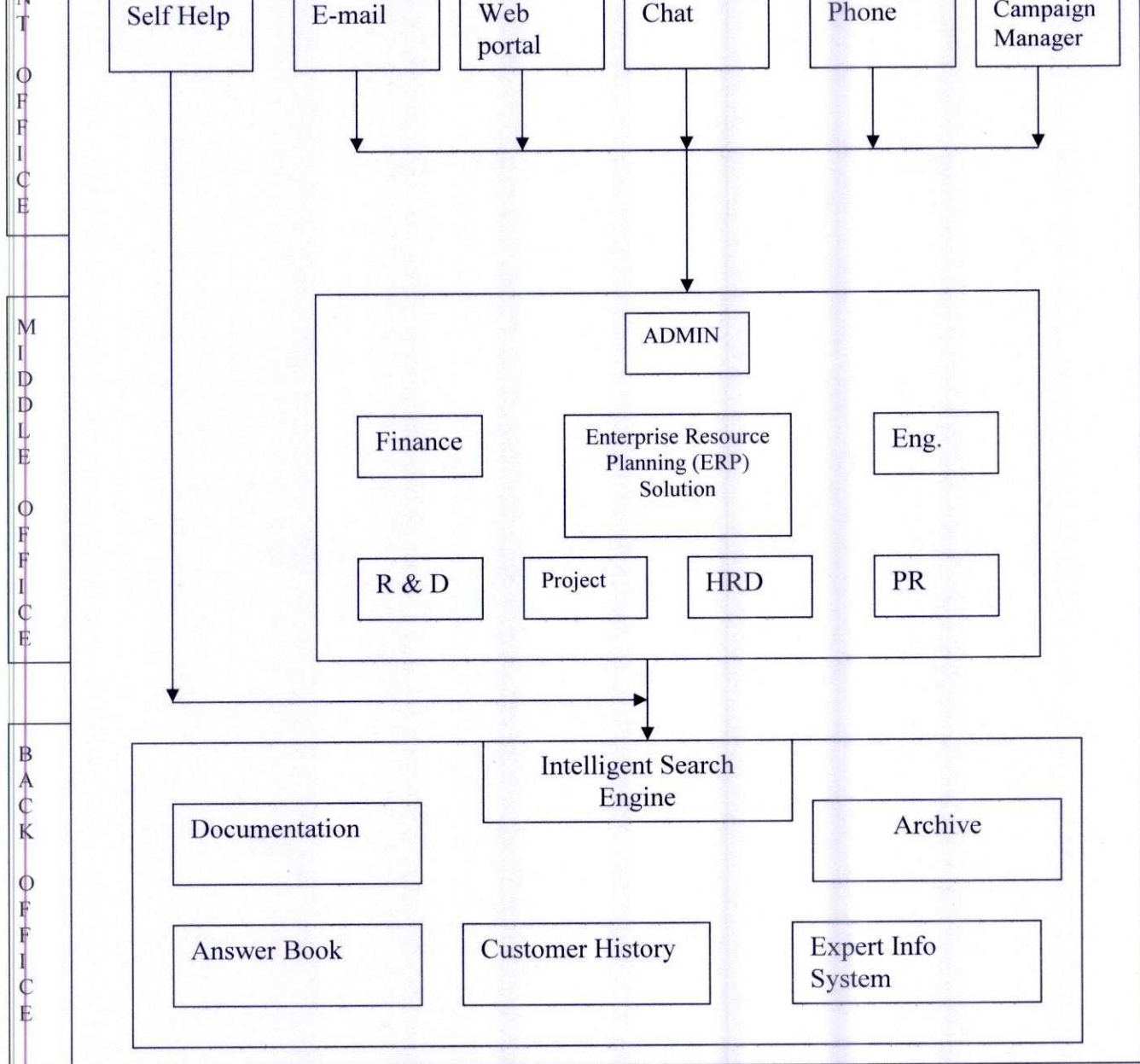


Figure 11: Urban model of E-governance citizen service

4.1.4.5 Departmental Functions

The departments which have embarked upon IT initiatives include Revenue, Commercial Taxes, Registration, Transport, Municipal Administration and Water Supply, Electricity Board, Civil Supplies and Public Distribution System, Medical

The functions relating to internal administration need to be computerised are: File Monitoring System, Payroll Accounts, Leave related information, financial management, Personnel Information System, Provident Fund Accounts, audit objections etc. There is considerable scope for using Tamil in these operations for greater efficiency and transparency.

Planning and Forecasting

A large variety of reliable data and information is required for planning and forecasting. Considering the diversity of sources, the efforts required for their generation, collection and maintenance, the need for using powerful methods for managing them is obvious. Very many modern tools, techniques and procedures have been evolved in recent years, which go by the name of Geographic Information System (GIS). Whichever level of GIS is used, the benefits to the planning process should be assessed in terms of objectives. The spatial data, socioeconomic data, natural resources data, geological data, infrastructure data, agricultural data, etc can all be combined into one or more convenient formats. The use of available maps, field measurement data, scientific exploration, demographic and economic information, aerial photos, satellite imaging, global positioning system, etc. along with various communication networks is now possible for development and use of GIS. The current initiatives in GIS should deliberately include local language versions of the databases and outputs.

Content Management

Citizen portals are constructed on a project basis starting with a standard Content Management Engine. Typically, the layout and design of citizen portals are reworked to reflect the specific requirements of the customer. Content Management Engine offers plethora of services like content engine, template based designs, news posting capabilities, event calendar, chat, picture gallery, discussion boards, multilingual capabilities etc. One just needs to choose between these services and create a new portal or portals in a matter of few days.

portals. Portals provide role-based, personalized access to information, services, and functions. The public sector also needs special content management, because city portals can also provide access to a full range of the local and regional offerings, including vendors, service providers, clubs, associations, and other organizations. These numerous offerings are organized for the citizen according to life event.

The life event concept starts from the proposition that people seldom visit a government portal on pure surfing trips. Generally, they visit for a particular reason. The typical reasons for visiting the portal are called "life-events" Examples of life events are building a home, getting married, the birth of a child, or starting school. The portal offers the citizen help with such life events on three levels: The portal contains checklists for each life event, enumerating all of the actions to think about and all there is to know. This is the first level.

The second level offers instructions for the critical activities and suggests how to go about them and what not to forget. The third level contains relevant electronic services for certain items in the checklist so that citizens can take the required action right there on-screen. Naturally, the life event concept draws in information and services not offered by the government organization itself, but by companies and other organizations. Portals, therefore, provide a very good way for local and regional companies to win new customers. The offerings are focused, citizens do not need to search the entire web to find the solution for their particular problem. This can make a portal an excellent economic stimulant. Some situations, such as moving from one city to another, require help from more than one government organization. There are generally two possible scenarios. In one, a government organization could offer a service that informs the other involved agencies without further action on the part of the citizen.

build integrated electronic services. The web request processing system you need to create electronic services, including web forms and the associated activities for processing them. Activities forming part of the government organization's internal processing of the request are defined as actions. Examples of actions include:

- Completing the web form (Correcting the citizen's data and adding employee-only data)
- Making any formal decisions and sending them to the appropriate office
- Closing the file

Generally, different employees are responsible for different activities and must perform them in a set order. You define these aspects in customizing where you determine rules for an action, such as predecessor actions, subsequent actions, and responsibilities. In Customizing, you can also stipulate that an action can only be performed once. Actions are a very flexible way of realizing specific requirements in relation to how services are processed. The main components of Citizen Request Manager are:

Request Assignment and Routing

- Citizen service requests can be automatically routed based on user configurable rules such as representative skills, last representative contacted, named representative, bulk group etc.
- Requests can also be manually assigned and reassigned or transferred
- Work items associated with any request may be assigned or transferred to others, while maintaining the ownership of the request itself

Request Escalation

- Automatically escalate service request based on business rules
- Manually select priority and status of a request and escalate to the next level.
- Time based escalations based on service level agreements or warranty expiration

Response Tracker

- Create and track activities for each request, across media channel and individual representative
- View history for all requests open/closed against each contact

Response Reporter

- Select from a list of pre-configured reports to display the activities against a request, tracked through an account, a contact or a product
- Patterns of problem being reported
- Create new reports and categories

Contact Management

- Define new contacts from any screen
- Search for contacts based on account, service case etc.
- Track citizen profiles based on demographics
- Synchronize contacts with MS Outlook. Import contact information from many other contact managers.
- Maintain a log of all interactions across communications channels (phone, web, fax, email) against a contact for service call requests
- Obtain contact activity history from the account or product perspective

4.1.4.7 Self Help

Specifically, e-Government scenarios give rise to new requirements. Citizens expect their business to be dealt with promptly. Availability of assistance with their inquiries and applications via a choice of media, such as the Internet, telephone, floppy disk, or letter constitute an important organization service. Citizens wish to be able to find and understand the reason for decisions via these diverse communications channels or to determine the current status of their application in the organization's processes. For example, a citizen application system on the Web can offer a service where you complete your tax return by working through the steps of a dialog. The system can immediately feed the steps into the organization's workflow.

Here are some examples of possible Internet self-services:

- Retrieving information offerings
- Web form services
- Registration for events
- Information area on the law and how it is interpreted
- Subscription tools
- Simulation of tax calculations

4.1.4.8 One to One Chat and Messaging

One-to-one chat and messaging is citizen service tool for website and organization wide internal communication giving citizens a virtual face-to-face experience. Some of the features are given below:

Text Chat. Web site visitors simply click a button on website or e-mail messages to instantly join a text chat.

Push Pages. Instantly sends visitors directly to the pages they are looking for Real Time Traffic Monitoring. Representatives have the ability to see visitors enter site, track what pages they visit, and proactively offer them help

Pull. Proactively offer users help with the click of a button.

Workflow Manager. Divide representatives into categories allowing calls to be routed to the most appropriate person. Calls are intelligently routed based on group, status and call volume allowing representative to be used as efficiently as possible.

Answer Book. Saves time and ensure consistency by storing common responses for fast access. It includes HTML elements and formatting in text chats.

Messaging. Representative can either transfer a request or chat with any other representative or manager logged in, even if the representative is logged in from another office or a remote location.

4.1.4.9 Knowledge Management

The built-in knowledge base leverages time previously invested in solving difficult customer problems by storing solutions in an easy-to-retrieve format. Consequently, knowledge gained by individuals can be rapidly disseminated to other

are prioritized based on frequency of use and can also be categorized by topic, source, and request type. The knowledge base also helps maintain “institutional knowledge”, and helps newer employee more productive becoming more quickly.

Chat Transcripts – Review the transcripts of any chat that takes place on site

Visitor Profile Analysis – Stores advance statistics information about both visitors and representatives.

4.1.4.10 Answer Book and Document Management

Up to date documents are critical to the CRM process. Whether it's a forms, sales brochure, product manual, parts diagram, purchase contract or even press releases and white papers – it's not always convenient or affordable for webmasters or agencies to put new documents on your website all the time.

The Document Library helps organizations to lower costs and move the sales and service process faster. Documents can be uploaded in several formats: Text, Word, PowerPoint, Excel and PDF files. Well-drafted answers are stored in the document manager.

5.0 Challenges and opportunities

It can be assessed from the outcome from several pilot projects taken in different parts of Bangladesh. The prime challenge in implementing and operating of e-governance is the ignorance of the service receivers as most of them do not have ICT literacy. It is supposed to be easy to train those who have minimum writing skill either in Bangla or English. It is to be mentioned here that almost half of the total population of Bangladesh can be brought under the umbrella of internet penetration by providing short intensive training to them. However things will remain out of reach if the price of laptop/desktop is as it is and cost of internet penetration is not reconsidered.

5.1 Challenges

5.1.1 Digital divide

Arrival of internet has a positive impact on different facets of life including business, personal and also at government level. Information and Communication Technologies (ICT) has played a major role in late 20th century and will continue their role in 21st century as well. However technology perceptions at the lower level have not been as drastic as improvement in technology itself. Hot debates on digital divide remain a testimony for this. The level of access to internet has remained at poles apart in different parts of the world.

As obvious from charts 1 & 2; the digital divide is very large to say the least. Among bottom level internet penetration, last 10 countries do not have even a 0.25% penetration while those in better part of digital divide boast of a penetration rate in excess of 60%. Even among poorly penetrated countries (largely from Least Developed Countries (LDC) the access is more or less concentrated in relatively developed cities.

level, poor educational level, social class and nationality. This is a major problem. In studies ITU (2002) it has been found out that there is a strong positive correlation between wealth of nation (measured by Gross Domestic Product (GDP)) and internet penetration level.

So with lower penetration level, least developed countries are unable to exploit their existing resources in better way which leads to inefficient use and hence poor level of wealth which in turn prevents expense on relatively sophisticated services like internet as their existing resources are already tied up with social welfare, debt and interest payment and worst in some case purchase of weapons. From the same study it has been seen that the gap between developing countries and least developed countries is increasing in terms of access of internet. So, it is obvious that the large part of the world remains unconnected and mainly those countries are desperately in need of e-governance to address poverty and rampant corruption. While Asia has almost 61% population of the world and Africa 14%, their share of internet penetration is very low.

Digital divide is becoming evident (Devraj, 2000) in developing countries. Due to poor purchasing power even the same or lowered cost remains a cause for digital divide. [problem]

Slow speed of internet penetration of internet and disappointing growth-rate of broadband adoption is also an important aspect of the whole scenario.

Modeling the causes of lower penetration of internet; four prominent obvious but mutually dependent causes can be cited as cost, infrastructure, breadth & depth and social issues.

Using internet is fashionable in developing countries. Also even in developed world it is dominated by male users in current as well as prospective user's categories. (Katz and Aspden, 1997). In many developing countries and LDC, surfing internet requires

primitive fixed cost and operational cost keep the lower strata of the society out of the loop, which restricts the purpose of social inclusion. Learning process on internet is slow for want of localized contents in many cases. In addition to this, the various options provided by internet and computer make the user more confused than confident. Perception of computer as a highly sophisticated machine (mainly due to poor penetration of computers) is still lingering in many parts of the society hence an inherent fear while using it.

5.1.2 Infrastructure

Except few parts of most developed nations, a good wireless internet infrastructure is present only in few of rest of the world. Hence this necessitates the need of connectivity for accessing the internet. It has been case of many developing countries that the internet connectivity in wired form is not present everywhere. Though mobile/telephone connection is relatively higher; the cost of wireless infrastructure is very high and in most of the cases it is only in capability demonstration phase. The connectivity with the world is a great advantage of the internet, however at the same time it is also one of the biggest factor responsible for poor growth of internet. Putting cables in surrounding area where there is significantly less demand in near foreseeable future, it doesn't make economic sense for most of the players in private sector.

Where there is lack of basic infrastructure (fixed telephone lines) rolling out internet facility is tough (Bazar and Boalch, 1997). Further, cost of computer hasn't gone down much drastically to justify such a kind of investment at the individual level. Expenditure in tune of \$1,000 per person or a small group of people is almost impossible in most of the developing countries. Some breakthrough were made in this sector by few player who tried to provide desktop at the entry price level of \$200 in India however efforts were not fruitful as the thin wafer margin required huge demand for sustainability.

connection-drops and pathetic electricity supply has buttressed the cause for no use of internet even in the areas which are advanced in relative terms. Taking into consideration these factor economic costs of satisfactory internet use comes out to be prohibitively high.

5.1.4 Breath and Depth

Though it may seem a derivative of above-mentioned factors, the dominos effect cannot be ignored. With breadth, we mean reach and access to the significant geographical area of particular country while depth may deal with the penetration at the local level in the strata of the society. It may be noticed that given any country some parts are financially and socially affluent than the other part. Also in most of the developing countries the concentration of good services is in few particular geographical areas. Though reasons may be hundreds e.g. economies of scale; the last word is same 'the accessibility remains poor'. Similar to other expansive services internet also started penetrating through the higher class of the society(mainly technology savvy, academia, industry and high income individuals) after certain time, as and when prices went down, it included more people in its fold. Hence this spread in depth gave greater acceptability of the internet to the different strata of the society.

In the context of developing countries and in particular in rural areas we will discuss the service dissemination parameters to understand the model in a broader sense. Table 3 captures this comparison in brief. The four parameters are Infrastructure, Breadth and depth of services, Cost and Social Issues. Mobile penetration in the world is higher than the internet connectivity. There are several reasons for higher connection. Firstly the need to be in touch has increased considerably. A physiological shift about connectivity has increased the penetration. This fact might have been overlooked earlier due to higher cost of maintaining a mobile but in recent years the drop in cost of calls and mobile connection has made things easier.

has come down sharply in recent times hence there is possibility to generate revenue.

Despite so much advances in computer technology the minimum cost of a computer is still in '00s of US\$. Also in developing countries there is no infrastructure like accessibility to computers or stable power supply which is required for internet connectivity. The poor narrowband speed has only worsened the situation. Also computers require greater degree of effort to be well versed but on the other hand due to smaller features learning basics of mobile is easier. On this discussion we can see the Table 3, which has captured all aspects.

5.1.5 Challenges of interpretability

We all know about the meter-gauge and broad-gauge in the railway system. Most of our eastern railway tracks (meter-gauge) are not the same as our western railway tracks (broad-gauge). A train cannot move from meter-gauge to broad-gauge, since these are not inter-operable. For an east-west train journey, one has to board another train.

Similar are the issues with the different brands of cell or mobile phone chargers, which are not inter-operable. The same goes for other incompatible ICT (Information and Communications Technology) systems. Interoperability issues create inconveniences; which increase cost, decrease effectiveness, and blur transparency.

e-Governance, the electronic services provided by the public administration, facilitating citizen participation, is no longer a dream or luxury for our country. Our government has taken several initiatives to introduce e-governance.

The government has started using ICT services and software wherever it can. Now each ministry/division has its own website. These websites are intended to provide information and services to our citizens and businesses.

interoperability problems since they did not take any communication issues in mind.

Most of the e-governance initiatives so far have created islands of information, difficulties in data interchange, and inefficient communication among the government, the businesses and the citizens. Technology incompatibility is only a piece of this "Interoperability Issues Puzzle" in e-governance initiatives in Bangladesh.

Incompatibilities in government processes, diverse and distributed working groups, people, teams, multiple interest perspectives, and interest groups, all create much larger issues for interoperability than the technology alone. We have hardly noticed any re-usability of elements like government processes, architectures, designs, and technology components in e-governance applications developed so far.

To address the e-governance interoperability issues, the PMO/CAO (with technical assistance from UNDP) has initiated the formation of the BD-eGIF (Bangladesh eGovernance Interoperability Framework) team very recently. This team will create a national interoperability framework after consulting all the relevant stakeholders in the process. The framework will set out the Bangladesh government's overall processes, interoperability policy and scope, technical policies, standards and guidelines, and management processes for achieving interoperability and information systems coherence across the public sector.

It will contain descriptions and recommendations of selected processes, standards, technologies and protocols, which will serve as the underlying fabric for designing and implementing e-governance applications in Bangladesh.

e-Government is essentially about government serving the needs of the citizen in a better way. The BD-eGIF will be an enabling framework for delivering the services seamlessly and coherently. The primary objective of e-governance is to provide client-centric, comprehensive government services to the public. However, within this objective the goals should be efficiency, improved levels of services, and cost effectiveness.

This cannot be achieved through initiatives spread across the public sector; and so far, the e-governance initiatives in Bangladesh have resulted in "islands of information, incompatible data standards and ineffective communication among the government, businesses and citizens."

To provide one-stop comprehensive services, we must enable the seamless/flawless flow of information across the diverse and distributed public bodies and services. The BDeGIF aims to be an important step towards harmonizing the use of ICT across the government.

Thus, the benefits of the BD-eGIF will be:

- Allow easier and more comprehensive access to public services
- Provide a way for citizens and other stakeholders to avail services and, thus, reduce effort in dealing with the government online.
- Enable better and more efficient management of e-governance products and services by reducing redundancies and overlaps.
- Help government agencies work closely together electronically.
- Make systems, knowledge and experience reusable from one agency to another.

and integrative processes to develop a single global technology standards and specifications for eGIF, we won't be able to implement those without active support from all the relevant stakeholders. And that is the greatest challenge for BD-eGIF, meeting which will require advocacy, time, energy, passion, persuasion, and executive leadership from the top.

To start with, BD-eGIF will make standards/guidelines in the following areas:

- User interfaces/look and feel for the government web sites/portals.
- Content navigation for the government web sites/portals.
- Content management system framework for the BD e-governance portal.
- Document and data interchange/unicode Bangla font, keyboard.
- Network and system development.
- Project management/system operations and monitoring.

BD-eGIF will recommend using open standards and the redesign of administrative processes, taking advantage of available technology. According to BD-eGIF, government policies should be focused on the following high-level principles:

Effectiveness:

e-government should not be limited to putting existing services online; it should also enable the delivery of entirely new services. We now have passport forms on the web; we could also have the new police verification service and status checking associated with that, and more.

Efficiency:

Integrating local, regional, and national administrations should cut costs and improve access to information. A police inspector at Natore can query the Satkhira police station and records for a fugitive criminal in that area at anytime. And many more.

on 3 different days and times, including holidays, they all should be able to access the e-government services almost equally.

Transparency:

E-government services should be easy to find and to use. Access to information should be the right of the citizens, to create a free and fair government. Say, you have a file in the AG office for approval; you will be able to track the file's progress from their website and portal.

Bangladesh, as a developing nation, cannot afford to incur the huge costs of ineffectiveness, inefficiency, inflexibility, and non-transparency of its governance anymore.

Many countries in the world have been reaping great benefits from e-governance by harnessing their government processes with a solid framework of technology policies and their phased implementation.

Although we are late-entrants into this interoperable e-governance arena, we can learn from the experience of other eGIF initiatives in the world. We may need to organise and solidify our grounds based on the ground-realities. But with a strong set of core values, clearly articulated vision, and proper strategy, we shall overcome someday soon!

5.1.6 HR issues in implementation

There are many hindrances in implementing E-governance. These are inadequacy of funds, infrastructural issues, inadequate manpower, citizen readiness, data backlog, legal framework readiness, maintenance and so on (Jayaradha and Shanthakumar, 2003). A NASSCOM report puts e-Governance in India as a rapidly

operational, economic, personnel, planning and implementation issues, which are the bottlenecks to effective implementation of e-Governance (Rao, 2003). The scope of the paper is limited to those hindrances that arise due to employee related factors.

Modern technologies demand a new way of thinking about service and business process design, new ways of working, the development of new skills, the application of traditional skills more effectively and a more flexible approach to working patterns and practices. According to Robbins (1998) Structural inertia (built-in mechanisms) is a big hindrance to any change process. Another impediment is people's resistance to any change. It becomes very essential to design such employee-oriented Human Resource policies as would enable the organisation to prepare employees for change and also help them absorb rather than adsorb the changed systems.

There are cultural barriers which refer to values, beliefs, mindset, practices and customs of people, which pose the biggest challenge in installing a new system. Cultural barriers exist at employee level, officers' level and political level (Sharma and Palvia, 2004). The need is to create a rich and adaptable culture that encourages values such as team work, empowerment, trust, and sharing which is opposed to closed, rigid and mechanistic bureaucratic structure of the government organizations.

The shift from being an 'organisation' to becoming 'e-organisation' affects organisation structure and management styles as it results into re-distribution of power and control. It also changes the orientation of the organisation. An e-organisation needs to focus on the following aspects (www.fareham.gov.uk):

- manage customer relationships;
- streamline processes;
- communicate better;
- organise information;
- work more flexibly;
- make better decisions.
- coordinate activities better

Keeping the above requirements in view, the key issues that need to be addressed in the context of personnel include: Doing job analysis again to redefine job responsibilities and other job dimensions of various jobs affected by the change.

- Redesigning the recruitment and selection process in view of the changing manpower needs.
- The identification of competencies of technological environment to enable all employees to operate effectively in a fully electronic working environment;
- Developing a performance management program that would incorporate changes in job responsibilities and requirements and which is development oriented.
- Educating employees about their new legal and corporate responsibilities and obligations;
- Developing knowledge workers capable of multi-tasking (Riley 2003)
- Evolving an environment that would encourage and reinforce the any positive behaviour exhibited by employees.
- Focus on better coordination of efforts between various government agencies as it will affect program effectiveness and efficiency.
- In addition, effective implementation necessitates changes in decision making processes, involving faster decision mechanisms, less red-tapism, changes in organisation structure making it flatter and higher delegation of authority (Garg and Khataokar, 2003)

best results. The problem faced may be also due to the fact that one or more than one of the four of these dimensions are not complementary with other dimensions.

5.1.7 Challenge of process modification

In many well meaning projects, and duplication of the manual processes in the IT environment was seen as major reasons for the end users/citizens not associating any value addition with the projects and looked upon e governance as an unwelcome addition to the hurdles to be crossed before getting 'the work done'. For example in departments which maintain land records especially in rural areas the details regarding land ownership, cropping patterns etc were computerized but no legal sanctity was given to the output generated by such systems in absence of a commensurate change in the statutes.

Similarly lack of horizontal integration also means that e governance projects would continue to deliver services in a fragmented and unsatisfactory fashion resulting in the end users having to approach a multitude of government agencies thus defeating the promise of 'less government in your life'.

Moreover an ambiguity about the very concept of e governance results in many government entities categorizing e government projects such as office automation and inventory management as e governance projects. Thus vast sums of money are spent on computerization activities without giving the e governance related benefits to the end users.

given to implement such schemes.

- However a close scrutiny reveals, startlingly, that the preference for IT components such as the hardware and software such as operating systems and RDBMS change dramatically for similar projects within the same country in the same period of time. This is sometimes reflected in a kind of a secular trend resulting from an unstated agenda or a conscious shift. While there may be only limited objections to choosing one technology over the other but auditors need to monitor and examine the trends.
- It is also seen that often the Acquisition and implementation processes are not monitored in an effective fashion and deliverables are often less than the specifications. However due to a hurry to 'get things going' the projects may be operationalised even when they are not fully ready.
- Moreover it is not only in the Acquisition and Implementation but also in the Delivery and Support areas that excessive dependence on the developer(s)/vendors is seen resulting in large outgo on revenue expenditure while the untrained work force of the government entities sit idle.
- Additionally there is often poor control over outsourcing. The benchmarks for evaluating performance of the service provider are not set out in a transparent fashion and are often biased towards it. For example a penalty clause for deficient services and extended liability is often absent or extremely poorly drafted to be legally enforceable.

This completes the chain which started from lack of transparency in selection of technology/vendor then goes through to less than adequate receipt of deliverables

5.1.9 Individual led initiatives

In many projects at the system development stages, especially when the user requirements were being made, there was no effective communication between the users to share the domain knowledge with the system developer(s). This was particularly true of projects which were being implemented as a result of individual initiatives emanating from the top of the management hierarchy. In such cases the developers also felt answerable to none except the management at the very top. This soon caused even the enthusiasts at the operational level to loose interest and the projects were implemented by 'going though the motions'. This led to the development of systems which were inherently deficient and soon ran to the ground after the change of guard at the top management level. Even where the systems become operational and were hailed as success stories poor change management controls meant that over a period of time they completely stopped doing what they had set out to achieve.

5.1.10 Vested Interests

It was often seen that there was clearly stated commitment from the Political establishment but continuous resistance by a section of the executive and other stakeholders adversely affected by transparency brought in by e-Governance. E-governance is a catchy slogan which translates into 'power to the people' and paints a picture where the omnipotent computer(s) would take over all those functions of the state which entail an 'unnecessary' interaction of the common man with a government official. This immediately attracts the fancy of the citizens who are also potential voters, and look forward to a corruption and discretion free system where each individual is treated according to transparent rules. This enthusiasm for IT enabled e governance allows the governments to announce and lunch mega e governance schemes which often translate into large scale expenditure on hardware and software. These are often associated with lack of transparency in acquisition

However there are also strong vested lobbies, which feel threatened by this transparent governance and many a times they were seen to do anything to either discredit a new project or not allow it to take off at all. Though the bogey of unemployment resulting from computerization is long dead but the resistance continues as it has been realized that automation of backend procedures would eventually result in e governance.

5.2 Opportunities

The changes in various internal systems of organizations as a consequence of the implementation of information and communication technology need to be supported by proper strategies for handling the above mentioned issues. The need is to initiate the development of appropriate ICT skills and culture change in addition to providing appropriate technologies to support to employees to achieve the objectives.

The performance of public sector (read government agencies) in delivering service to the people depends on the performance of its employees. A highly motivated and satisfied workforce will perform much better than a demoralized and dissatisfied workforce (Prasad). Following strategies are suggested to tackle problems in various areas of human resource management in the changed environment:

5.2.1 Manpower planning

Total job analysis, comprising job description and job specification, needs to be reviewed. New responsibilities, tools, changed relationships etc. have to be determined. Restructuring and redefining job responsibilities would also necessitate determination of additional skills and qualifications required for the job. Number of employees required must be determined to avoid work overload/underload. Re-allocation of existing manpower to the new organization structure is a challenge. Reshuffling of workforce can be done on the basis of their skills and competences. This process needs to be supported by a good career planning and performance

5.2.1 Recruitment/ selection

On the basis of the new profile of employees required for e-governance, new sources of their availability need to be tapped. One of these sources could be college campuses, a source which has been well utilized by private organisations. Feasibility of other sources like HR consultancies, may also be explored. The existing manpower may not be ready to be deployed into e-governance projects. Training costs might be high due to geographical spread. 'Generalist' manpower which can be relocated, or re-trained to other functions may be preferred. Designing a selection process that would objectively and correctly measure the skills and competences required to handle the changed work style and job responsibilities is required. Such a process should incorporate methods that would objectively assess the knowledge and skills required to handle the redesigned job. For quick decision making de-layering of the decision making levels leading to re-engineering and appropriate sizing of the decision making machinery is essential (Agenda Paper For Discussion On E-Governance Workshop). Quick decision-making also necessitates employee empowerment. If governing processes were directed by flexible guidelines than the minute rules, and if those on the frontline were permitted to respond to unforeseeable particulars in a creative way, the larger aim of policy and program improvement may be more favorably achieved (Riley, 2003 p14).

5.2.3 Change Management

More than technical issues it is management of change that is of prime concern. Organizations, by their very nature are conservative (Hall, 1987). They actively resist change. The reasons for resistance to change amongst employees could be threat to established power relationships, threat to expertise, threat to established resource allocations (Robbins, 1998), possibility of redistribution of authority, expected changes in work schedules requiring change in habits, fear of unknown or resistance to computerization due to 'retrenchment fear'. These apprehensions may be allayed by educating the employees about the reasons for change, where possible involving

internalized, adopted and improved to enable full advantages of the technology being adopted as a part of Smart Governance (Agenda Paper For Discussion On E-Governance Workshop).

5.2.4 Leadership

The e-governance implementation leader should have strong conceptual and management skills. The leader will be required not just to direct but to also act as mentor and coach. Leaders need to change their styles and will have to adopt different approaches to manage people in new work settings in the organizations that are characterized by use of modern technologies, and continuous change (Table 1).

Table 1: Move from Steady State to Continuous Change

From	To
Continual Change	Transformation
Quality Improvement	Process Engineering
Matrix	Network
Performance Appraisal	Performance Management
Technophobia	Application of Technology
Functions	Process
Control	Empowerment
Employment	Employability

(Source: Marquardt, MJ (2003): Building the Learning Organization: Mastering the 5 elements of Corporate Learning, Jaico Publishing House, p113)

5.2.5 Training and Development

Training and acclimatization of the personnel at all levels more so at the lower rung of Government management organizations is required. It is essential to train all employees in basic computer usage. There should be workshops and seminars for all levels. The new as well as the existing employees need to be trained regularly for

5.2.6 Performance Management

The performance management system should be modified to incorporate new Key Result Areas and also the new competences and skills expected from employees. On-going feedback should be given to employees. Nadler (1977) makes a strong case for feedback in helping to improve the effectiveness of organization. Periodic reviews of employee performance must be conducted to get desired results. Technology that has restructured work will force those who are responsible for employee development to create ever more flexible and responsive learning and performance solutions (Van Buren, 2001).

5.2.7 Reward System

HR managers need to be creative in designing a reward system for employees who are new to the use of ICT to motivate them. Any positive behaviour that is in consonance with the requirements the new job must be reinforced. Any outstanding efforts, suggestions and innovations can be rewarded/recognized to boost morale of employees.

The issue of e-government is comparatively new to Bangladesh and the government is still in a dilemma in adopting a proper model on the e-governance in local government bodies such as city corporation and district administration. According to the Gartner four-stage maturity model of e-governance, Bangladesh is in its first stage of information presentation only, because nearly all the government institutions have some sort of static web presence in the information super highway. The next three advanced stages are interaction, transaction and transformation of organization, which required completing the full process of e-governance.

In the paper we find out that the national policy on ICT has spelt out a number of initiatives such as eradicating the digital divide through social equity, increasing productivity and reaching in the root level to the social disadvantageous groups. It emphasizes on the lower income groups, ethnic minorities, women and persons with disabilities and special needs.

It is observed that the strength of the local government bodies such as Upazila Parishad, District Administration and City Corporation lies in educated employees, who need some basic training to adapt the essence of e-governance. The presence of state run telephone can be used for data transfer in the remote end of the local government.

In private sector the ubiquitous presence of mobile network across the country help in timely access of information in the remote area. In the same way the NGOs can be an integral part of the process of e-governance service providing in the social disadvantageous group.

economy. Agriculture Information Service (AIS) are planning to develop a platform for a two-way communication with the farmers regarding ongoing agri-technology, cropping and sowing.

Two different models are proposed for rural and urban local government respectively where the citizen services delivery are given foremost importance. In the rural e-governance model much emphasis has been put on establishing of telecentre or Community e-center which will be the touching points of the government service with the general people. People of different ICT capabilities may get service from on-line and off-line facilities. The model empowers the citizen with information, ensures mass participation, making an enabling environment through government pull and push strategies to make the process more dynamics.

Understanding the pervasive role of mobile and its adaptability in the common people, a new idea has been put forwarded where the mobile platform will be used as a medium of information delivery channel for e-governance services. This is because by this particular device a full range of e-governance sophistication such as inform, interact and transect services can be performed.

In the urban local government e-governance model, much of emphasis goes on the citizen services, welfare services, grievance redressals and on-line services. As the urban population general educated people the service delivery has to be very prompt and reliable. As a result the internal administration of City Corporation or Municipal Corporation has to be automated.

Among the various challenges of the local government faces in implementing e-governance, the digital divide is the one that marginalize the fruits of the automation towards the ICT enabled population which eventually increase the socially inequality.

speed of the net is pathetic. If we want to fulfill the dream of our digital Bangladesh, we need to address the problem of connectivity, ensure a pull of ICT educated people and the commitment has to come from the higher leaderships.

2. Bangladesh Law Commission. (2002). *Final Report on the Law of Information Technology*. Retrieved June 10, 2006, from <http://www.lawcommissionbangladesh.org/wpllit.pdf>
3. Barker, G. 2002, July 13. Stolen identity: The hidden cost. *The Age*. Retrieved June 22, 2006.
4. Basu, S. (2004). E-Government and developing countries: an overview. *International Review of Law Computers*, 18(1), pp. 109-132.
5. Baum, C., & A. D. Maio. 2000. *Gartner's four phases of e-government model*. Gartner Group Inc., Stamford.
6. BCS (Bangladesh Computer Samity). 2006. Industry profile and statistics: Bangladesh. Retrieved June 12, 2006, from <http://www.asocio.org/resources/profiles/Bangladesh-Profile.pdf>
7. Bhatnagar, S. 2004. *E-government: from vision to implementation: A practical guide with case studies*. New Delhi: Sage Publications.
8. BTRC (Bangladesh Telecommunication Regulatory Commission). 2001. *The Bangladesh Telecommunication Act 2001*. Dhaka: Bangladesh Telecommunication Regulatory Commission.
9. Burkert, H. 2004. The mechanics of public sector information. In G. Aichholzer & H.
10. Burkert (Eds.), *Public Sector Information in the Digital Age: Between Markets, Public Management and Citizens' Rights*. Edward Elgar Publishing Limited, Cheltenham.
11. Cabinet okays draft of ICT act 2005. *The Daily Star*. 2005, February 15. Retrieved June 10, 2006, from <http://www.thedailystar.net/2005/02/15/d50215061187>
12. Caine, A. 2004. *E-government: Legal and administrative obstacles to sharing data held by Australian government agencies*. Canberra: Australian Government Information Management Office.
13. Dave, K. 2005. *Cyber laws for implementing e-governance initiatives and impediments therein*. Paper presented at the Conflux 2005: The e-Government Conference, October 17-19, New Delhi.
14. Galindo, F. 2002. E-government trust providers. In A. Grönlund (Ed.), *Electronic government: Design, applications and management*. Idea Group Publishing, Hershey/London.
15. Grönlund, A. 2002. Electronic government – Efficiency, service quality and democracy. In A. Grönlund (Ed.), *Electronic government: Design, applications and management*, Idea Group Publishing, Hershey/London.
16. Heeks, R. 2006. *Implementing and Managing eGovernment: An International Text*. Sage Publications Limited, London.
17. Hewitt, S. 2003, July 13. New fraud laws plan: Bid to protect identities. *Sunday Herald Sun*. Retrieved June 22, 2006.
18. IIPA (International Intellectual Property Alliance). 2003. Special 301 Report: Bangladesh. Retrieved June 20, 2006, from

<http://www.iipa.com/rbc/2003/2003SPEC301BANGLADESH.pdf>

18. Islam, M. A. (2006, May 28). Bangladesh can now join ICT revolution. *The New Nation*. Retrieved June 19, 2006, from http://nation.ittefaq.com/artman/publish/article_28177.shtml
19. Jamil, I. 2002. Administrative culture in Bangladesh: Tensions between tradition and modernity. *International Review of Sociology*, 12(1), pp. 93-125.
20. Karim, H. N. 2006. IT industry take-off that never happened. Retrieved June 10, 2006, from http://www.bangla2000.com/Columns/Habibullah_N_Karim.shtm
21. Kubicek, H. (2004). Third-generation freedom of information in the context of e-government: The case of Bremen, Germany. In G. Aichholzer & H. Burkert
22. MOSICT (Ministry of Science and ICT). 2002. Information and communication technology (ICT) policy - 2002. Retrieved June 15, 2006, from <http://www.bccbd.org/html/itpolicy.pdf>
23. MOSICT (Ministry of Science and ICT). 2006. E-governance activities. Retrieved June 10, 2006, from http://www.mosict.gov.bd/what_new.htm
24. Taifur, S., & M. Chowdhury 2003, June 30. *Problems of e-governance in Bangladesh and possible steps towards solution*. Paper presented at the Seminar on Road Map for ICT Development in Bangladesh, Dhaka.