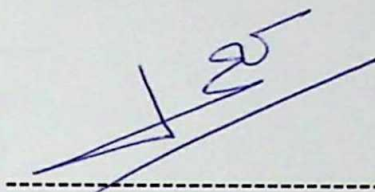


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A COMPERATIVE APPROACH**

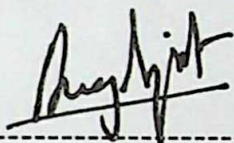
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at the Department of Economics
Yangon University of Economics**

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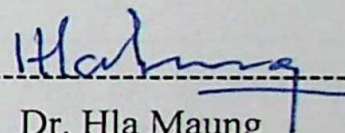
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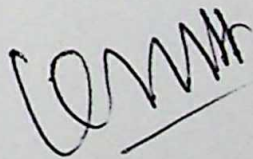
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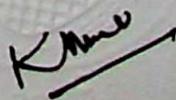
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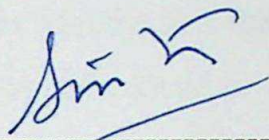


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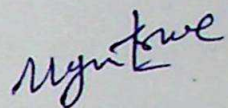


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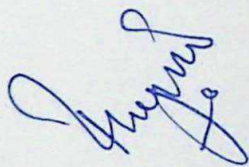




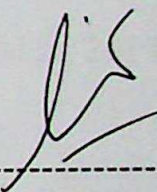
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CERTIFICATION

I hereby certify that the content of this dissertation is wholly my own work unless otherwise referenced or acknowledged information from sources is referenced with original comments and ideas from the writer him/herself.

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4 Ph.D (Thu) Ba-5

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Abstract

E-Government is the use of information and communications technologies (ICT) to transform government by making it more accessible, effective and accountable. It is a must to every government sooner or later with appropriate approaches. Its paradigm is different from traditional paradigm. Countries need to pass through different stages of e-Government, at the same time they face barriers and benefits by implementing it. The objective of this study is to analyze the current status of Myanmar e-Government in reality by examining the experiences of successfully accomplished countries and taking the lessons learned in order to explore and propose comprehensive model for future e-Government development in Myanmar. Countries may encounter with success and failure in implementing e-Government. The main factors for e-Government success and failure are explored in this research. Myanmar e-Government delivery model is not people-centric. The main factors for Myanmar e-Government failure are lack of skill, lack of infrastructure, lack of commitment of leaders, blame game culture and procedure loopholes, gap to fill the user's needs, lack of change management skill, lack of rules and regulations and too much centralization. Therefore addressing all these factors is essential for future e-Government development. Myanmar needs to create enabling environment such as designating e-Government as a major national agenda, setting legal and regulatory framework and effective monitoring mechanism, allocating sufficient budget, disseminating ICT education at all levels, and clearly defined mandate for CIO. Myanmar at present is badly in need of active involvement of high level authorities and effective and dynamic Central Steering Committee or Coordinating Agency for future e-Government development. In brief, Myanmar e-Government strategy should be reform-oriented.

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List of Abbreviations

AII	ASEAN information infrastructure
APCICT	Asian and Pacific Training Centre for Information and Communication Technology for Development
ASPA	American Society for Public Administration
B2G	Business to Government
BPR	Business Process Reengineering
C2G	Citizen to Government
CCP	Chinese Communist Party
CIO	Chief Information Officers
CSCP	Civil Service Computerization Programme
CSDL	Computer Science Development Law
CSF	Critical Success Factor
DDoS	Distributed Denial of Service Attacks
DNPM	Digital New Public Management
DPEPA	Division for Public Economics and Public Administration
EDCF	Economic Development Cooperation Fund
EDMS	Electronic Document Management System
EGDI	E-government development index
EPB	Economy Planning Board
G2B	Government to Business
G2C	Government to Citizen
G2G	Government to government
Gbps	Giga bit per second
GDP	Gross Domestic Products
GDT	Geometric Dimensioning and Tolerancing
GIS	Geographical Information System
GPMS	Government Personnel Management System

List of Abbreviations (Continued)

GPS	Global Positioning System
HR	Human Resources
HRD	Human Resource Development
ICT	Information and Communication Technology
ITU	International Telecommunication Union
KEDCF	Korean Economic Development Cooperation Fund
KPI	Key Performance Indicators
KRA	Key Result Areas
KSF	Key Success Factor
LBS	Location-Based Service
MCDC	Mandalay City Development Committee
MCF	Myanmar Computer Federation
MCIT	Ministry of Communications and Information Technology
MCPA	Myanmar Computer Professionals Association
MCPT	Ministry of Communication Posts & Telegraphs
MCSDC	Myanmar Computer Science and Development Council
MIS	Management Information System
MMPs	Mission Mode Projects
MOE	Ministry of Education
MOGAHA	Ministry of General and Home Affairs
MOPAS	Ministry of Public Administration and Security
MOST	Ministry of Science and Technology
NCDC	Naypyitaw City Development Committee
NeGP	The National e-Governance Plan
NIC	Network Information Center
NPM	New public management
OECD	Organization for Economic Co-operation and Development

List of Abbreviations (Continued)

OMB	White House Office of Management and Budget
PPP	Public Private Partnership
PTD	Posts and Telecommunications Department
R&D	Research and Development
SS-SF	Start Small, Scale Fast
UNPAN	United Nations Public Administration Network
WAN	Wide Area Network
YCDC	Yangon City Development Committee
YTP	Yatanarpon Teleport

CHAPTER 1

INTRODUCTION

1.1 Rationale of the Study

The institution of government touches the lives of more people worldwide than any other institution in the history of mankind.¹ Government's policies and programs impact numerous facets of individual and organizational development and growth. The public sector is the single largest source of employment in most countries. Government led strategies and spending play a pivotal role in determining the growth or decline of entire industry sectors within the nation. Indeed, government has become a pervasive influence on everyday life.

The definition of government is often phrased in terms of key requirements that society places on its government. The New Oxford English dictionary defines government as *"the system by which a state or community is governed"* or *"the action or manner of controlling and regulating a state, organization or people"*.² Government can also be defined as: *"the complex of political institutions, laws, and customs through which the function of governing is carried out"*.³ Other common definitions include *"the exercise of political authority over the actions or affairs of a political unit, people, etc, as well as the policy making body of a political unit, community, etc"*.⁴

Government is the mechanism of using to make communal decisions. It is the way of providing services that benefit all our people. It is the way of solving all our collective problems. Government is the instrument that the people used.

The difference between government and governance is often raised. Governance, according to New Oxford English Dictionary, is defined as *"the action or manner of governing"*. In fact, *governance is the process* by which people

¹ S.L Young. "E-Government in Asia: enabling public service innovation in the 21st Century", Singapore: Times Editions 2003, 3

http://www.egov-in-asia.com/egov-2/cms_data/chapter1.pdf Accessed on 7 March 2008

² http://www.oxforddictionaries.com/us/definition/american_english/government
Accessed on 19 September 2008

³ <http://www.merriam-webster.com/dictionary/government> Accessed on 19 September 2008

⁴ <http://www.thefreedictionary.com/government> Accessed on 19 September 2008

collectively solve their problems, and meet their society's needs. Governance can also be defined as: "*relations between the state and other institutions, including private business and civil society. It represents the relationship between the government and the governed, encompassing issues of accountability and empowerment, particularly of those normally marginalized*".⁵

Since governance is the process of decision-making and the process by which decisions are implemented, an analysis of governance focuses on the formal and informal actors involved in decision-making and implementing the decisions made and the formal and informal structures set in place to arrive at and implement the decision. (Good governance is an ideal which is difficult to achieve in its totality. Very few countries and societies have come close to achieving good governance in its totality.) Government is one of the actors in governance. The primary purpose of government is about "*obtaining the greatest goods for the greatest number*" or "*resolving conflict between people living in societal groups*".

The traditional portrait of many governments is massive bureaucratic machinery operating at high cost, agencies delivering inefficiently, unresponsive official shirking accountability.⁶ That portrait is fading now. Over the past three decades, a series of initiatives to transform government process, "*reinvent the government*", create the "*new public management (NPM)*" or set up "*Government 2.0*" has been widely discussed and selectively adopted.⁷ It can be regarded as an attempt to address perceived shortcomings and generally make government "*work better*".

The basic point, however, is that if government is to be able to overcome the discontent and distrust of its citizens, it must find ways to become more efficient and effective. It should be practiced in the processes of making and implementing policy. Moreover, there is pressure for the government more responsive to the public and to be more transparent in which it makes decisions.

Some reforms have been radical while others are more incremental. The degree of change may vary, but obviously there has been change. The concept of

⁵ "*Governing our cities, Will people power work?*"

<http://unpan1.un.org/intradoc/groups/public/documents/un/unpan010173.pdf>

Accessed on 7 March 2008

⁶ http://www.egov-in-asia.com/egov-2/cms_data/chapter1.pdf Accessed on 7 March 2008

⁷ "*E-Government*"

<http://www.itu.int/ITU-D/treg/Events/Seminars/2004/Bangkok/modules/Module6-EGovernance.pdf>
Accessed on 5 March 2008

"new public management (NPM)" has caught attention. It gained momentum across governments, nations, continents and cultures.

The ideas and principles behind the government reform movement are such as market alignment, productivity enhancement, service orientation, and decentralization, separation of policy making and service delivery, and accountability. These reforms seek to replace traditional rule-based, authority-driven process with market-based, competition-driven tactics. At one period, NPM or public sector reform trend was seen to be geared towards downgrading or downsizing government. Subsequently the focus shifted more towards government transformation and on re-affirming and revitalizing the role of the state and public sector.

Different nations have chosen different paths for implementing public sector reform. Some of the broad principles for reinventing government are steering, empowering, injecting competition,-transforming rule-driven organizations, funding outcomes, meeting the need of the customers, earning rather than spending, prevention, from hierarchy to participation and team work; and lastly leveraging change through the market.

There is the perennial question of whether NPM as a new administrative paradigm has achieved its claims and intentions to bring about a better and more efficient government. Answering these questions involves debates on how to define and measure performance and productivity in public sector. Empirical studies of reform implementations are still needed to provide analytical tools and perspectives to facilitate such debates.

After some years of public sector reform it was observed that progress has been much more limited than originally envisaged. It was due to lack of enabler to achieve significant leaps needed to effect reform. One such enabler came in the form of Information and Communication Technology (ICT). Globalization and the advent of Information age has resulted in important transformation in many facets of life. Rapid advances in ICT and connectivity have forever changed the way people live and work, the way companies carry out business and the way government serve the customers. Public sector witnessed the speed at which the private sector exploited emerging technologies to create new business models, services and delivery channels. Then in the early 1990s the public sector begun to experiment and explore in depth how new technology could be leveraged on to enhance efficiency and public services.

There are three bodies within the society such as government, citizen and society. Government, citizen and society are the physical world. E-Government, e-commerce and e-society are the digital world. It is very much necessary to map the physical world into digital world in this age of globalization where ICT plays a very important role.

There are three different perspectives with which developing countries have viewed ICT. The dominant perspective has been one of promoting growth of ICTs as one of the key sectors of a country's economy.

A second perspective that has emerged in the last decades is the deployment of ICT for delivering government services. Improvements in delivery of government services are an important issue for many developing countries as the largest cost of inefficiency is borne by the poor. Electronic delivery can improve efficiency, cut delays for citizens, lessen corruption, and increase transparency. Applications that focus on online delivery of services to citizens, to businesses, and to different arms of government are covered within the broad definition of electronic government.

The third perspective defines the role of electronic media and communication within a society. Within the ambit of this view, governments have to deal with issues such as convergence of different technologies, private control over media, and censorship.

Increase exposure to ICT and internet also redefine citizens' expectation of their expectations and its services. Citizen demanded for delivery of more and better services efficiently and effectively of similar quality as in the private sector. Consequently, public sector and government leaders grappled with how to deliver their services.

The use of technology by government to enhance access to and delivery of public service to benefit citizens, business partners and employees has been labeled as "*Electronic Government*" or "*e-Government*" for short. (*E-Government, digital government, internetworked government and government online* are synonymous.)

There are five areas of e-Government such as G2G (Government to government), G2B (Government to Business), G2C (Government to Citizen), B2G (Business to Government) and C2G (Citizen to Government).

G2G (Government to Government) includes interactions between central and local governments; interactions between departments and agencies of a government; interactions between government and its employees.

G2B (Government to Business) consists of information services: policies, orders, decrees, rules and regulations, etc.; Business services: various licenses, inspections, certifications, etc.; Assistance in business development, in particular, minor enterprises.

G2C (Government to Citizen) contains information services: policies, rules and regulations, guidelines, etc.; Registration services: birth & death, marriage & divorce, driver's licenses, cars, etc.; Public schools, hospitals, libraries, parks, etc.

B2G (Business to Government) is known as various taxes, forms and statistics; tendering for government projects and procurement, goods and services, etc.; public private partnership building.

C2G (Citizen to Government) can be defined as taxes, fees, forms, census information, penalties, etc.; participation into government policy formulation & decision-making processes, etc.; alarm (thief, robber, fire, ambulance, etc.).

E-Government is being developed around the five areas above-mentioned. By means of ICT and other technologies, the ultimate goal of e government is to continuously improve the interactions of the three bodies: government, business and citizens, so as to stimulate political, economic and social progress of the society.

E-Government creates new paradigm for public service. The traditional administrative focus of government service has shifted gradually to become customer-focused, serving citizens and business partner directly. Governments are providing integrated and seamless services, information and transactions. More and more governments are coming to the realization that in order to ensure the best service to their constituents, they are trying to look at their e-Government activities from a user perspective, and people-centered approach.

Governments have different strategies to build e-Government. Some have created comprehensive long-term plans. Others have opted to identify just a few key areas as the focus of early projects. In all cases, however, the countries identified as most successful have begun with smaller projects in phases on which to build a structure. E-Government, i.e.; public service delivery through the internet, affects every aspect of a public organization.

Direct effects of e-Government include cost effectiveness in government and public operations, significant savings in areas such as public procurement, tax collection and customs operations, with better and continuous contacts with citizens, especially those living in remote or less densely populated areas. Indirect effects are

no less important, and include greater transparency and accountability in public decisions, powerful ways to fight corruption, the ability to stimulate the emergence of local e-cultures, and the strengthening of democracy.

Almost all of the countries, except some least developed countries, are trying to implement e-Government and Myanmar is no exception in this regard. It is not just about the technology, infrastructure, business process or human resources. It is all these areas (and more) combined and integrated. Delivering integrated services require inter-agency coordination, cooperation and collaborating between different departments and level of government. In essence, it provides a new way forward, fundamentally reshaping workflows and innovating new processes.

E-Government is the use of information and communications technologies (ICT) to transform government by making it more accessible, effective and accountable. E-Government includes providing greater access to government information, promoting civic engagement by enabling the public to interact with government officials, making government more accountable by making its operations more transparent and thus reducing the opportunities for corruption, and providing development opportunities, especially benefiting rural and traditionally underserved communities.

The objectives of e-Government are as follows

- To bring government closer to citizens by providing them with easier access to information through personal computers, kiosks, and telephones, and other resources.
- To modernize public services in which ``joined-up government`` institutions communicate and work more effectively and efficiently.
- To reduce opportunities for petty corruption at the point of service delivery.
- To increase and capture revenue more efficiently (e.g. taxes, fines, and license fees).
- To increase mechanisms to create more accountability and transparency in the public sector.

Thus, E-Government is a kind of government which can improve efficiency, services and helps achieve specific policy outcomes and also contribute to economic policy objectives. It can also be a major contributor to reform. It can also build trust between government and citizens.

E-Government is not a tool limited to the richer countries. Indeed, some of the most innovative uses of the internet in governance are appearing in the developing world, as ICTs are being used to streamline government and connect it more closely with the people it is supposed to serve.⁸

E-Government is not simply a matter of giving government officials computers or automating old practices.⁹ Neither the use of computers nor the automation of complex procedures can bring about greater effectiveness in government or promote civic participation. Focusing solely on technological solutions will not change the mentality of bureaucrats who view the citizen as neither a customer of government nor a participant in decision-making.

E-Government utilizes technology to accomplish reform by fostering transparency, eliminating distance and other divides, and empowering people to participate in the political processes that affect their lives.

E-Government can be regarded as *the government's use of ICT, especially internet, applications to enhance access and delivery of government services to citizens, business partners, employees and other government entities*. The adoption of ICT has enabled government to embrace a citizen-centric approach to service delivery. Public services are more and more becoming to operate on "one-stop" and "non-stop" approach.

The ultimate goal of e-Government is to continuously improve the interaction of the government, business and citizens so as to stimulate political, economic and social progress of the entire society and nation. Developing a successful e-Government provides the benefits such as delivering electronic and integrated public services, bridging the digital divide, achieving lifelong learning, rebuilding government-customer relationship, fostering economic development and creating a more participative form of government.

The purpose of governance is actually good governance using any means of ensuring stakeholder participation in public administration. Governance is a

⁸ "The E-Government handbook for developing countries" A Project for InfoDev and The Centre for Democracy and Technology, 2002 : 1-41,
<http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan007462.pdf>
Accessed on 6 May 2009.

⁹ Asma Al-Hashmi and Abdul Basit Dare, " *Understanding Phases of E-Government Project, Emerging Technologies in E-Government*" Department of Information Management, University of Mysore, Mysore, India
http://www.iceg.net/2008/books/2/17_152-157.pdf Accessed on 20 May 2009.

mechanism by which citizens, individuals, institutions, employees, consumers and commercial entities can be empowered to participate in the government processes.

Good governance has 8 major characteristics.¹⁰ It is participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. It assures that corruption is minimized, the views of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making.

This concept has widened to include electronic government as a key component. Increasingly good governance requires access of government services to the public through participation and privatization. This process is crippled by rather bureaucratic, arduous and lengthy processes which are cumbersome for an ordinary citizen or entity. Good governance requires stakeholder participation at all levels. The legislative environment is the shell which protects the interests of the vulnerable and precious societal systems. Absence of effective legislation is the absence of effective governance, such a system would be no less than a façade; unable to sustain itself.

One of the most important aspects of e-Government is how it brings citizens and businesses closer to their governments. E-Government is suited for a well-informed, educated citizen and such a resource needs to be deployed across the urban and rural divide to reach out to the stakeholders through awareness. The legislative environment is embedded in the 'e' capsule which acts as a stimulant to provide better services in a secure and effective manner thereby cultivating trust.

In short, existing traditional government structure is the outcomes of the industrial society. By means of ICT, government can be reconstructed to adapt to the information age, i.e., constructing government of the information society. E-Government is a must to every government. The only question is sooner, later, and via what approaches.

In an address to his newly formed government on 31st March 2011 (Thursday), Myanmar's new president, U Thein Sein called for cooperation in fighting corruption and urged the country's authorities to respect the rights of citizens. "The most important task of the new administration is to work together to create good governance and clean government". To achieve this, the President said, "all levels of

¹⁰ <http://www.governancepro.com/news/> Accessed on 1 June 2009

government must be transparent, accountable and consistent with the constitution and the existing laws.¹¹

Good governance always focuses on the organization's purpose and on outcomes for citizens and service users. It also means performing effectively in clearly defined functions and roles and promoting values for the whole organization and demonstrating the values of good governance through behavior.

Good governance normally takes informed, transparent decisions and manages risk. Moreover, it means developing the capacity and capability of the governing body to be effective. It not only engage with stakeholders and but also make accountability real. In fact good governance is good business for all.

1.2 Objectives of the study

Base on these discussions points, the objectives of the study are as follow:

- (a) To analyze current e-Government status of different ministries in Myanmar,
- (b) To find ways and means of developing e-Government in Myanmar by taking and comparing the lessons, the best practices and critical success factors of e-Governments from other countries and the reason for e-Government failure in Myanmar,
- (c) To propose a comprehensive model for future e-Government development in Myanmar.

1.3 Scope and Limitations of the Study

This study focuses on e-Government development of Myanmar and compares it with world leaders in e-Government countries such as Korea, Singapore, and e-Government development of neighboring countries like India and China. E-Government is more popular in Myanmar after 2003 and the period of the study is from 2003 up to February 2014.

E-Government is a new field and new research area. There are few books available on e-Government in Myanmar. Online search helps to find some papers, but it is very limited. This research tries to focus on supply side (government side) only since the demand side (customers or citizens or users) data are not available. Another

¹¹ The New Light of Myanmar, 1 April 2011

limitation of the research is online survey and web-based survey. The survey questions are sent online, and answers and feedbacks received online.

This study is designed to drive some findings and recommendations concerning future comprehensive e-Government development of Myanmar.

1.4 Method of Study

In attempting to achieve the objectives descriptive method and relevant models are used. For e-Government development in Myanmar, each website of different ministries is regularly reviewed and visited, based on UN five stage e-Government development models.

Chief Information Officer (CIO) and ICT professionals as well as ICT officials and operational level working at e-Government units of ministries are interviewed and surveyed. Firstly, the researcher conducted preliminary survey in June 2012 to the participants of "E-Government promotion Course" which was opened at Telecommunications and Postal Training Centre of Myanma Posts and Telecommunications (MPT). Then, based on the experiences of the preliminary survey, another two surveys were conducted.

The model used in the survey is developed by Professor J.R Heeks' factor model. This model was chosen due to its focus on human aspect factor known to be critical to e-Government projects' success and failure. The Likert type questions and general survey questions are used in order to know the true situation of e-Government in Myanmar. The researcher also conducted 4 time of web-based survey for the ministries over the period November 2012 to February 2014 in order to know the development of respective ministries. Moreover, ideas of ICT professionals from private sector are sought for future e-Government development.

1.5 Organization of the Study

Chapter one presents the general introduction of the study, including rationale for the study, objectives of the study, scope and limitations of the study, and organization of the study.

Chapter two discusses the literature reviews for the research problem in support of e-Government development in Myanmar. This chapter elaborates about paradigm shifts in public sector, e-Government stages literature, benefits, challenges, barriers, trust on e-Government, critical success factors, reasons of e-Government failures,

roadmap, lessons for developing countries and factors affecting the success of e-Government.

Chapter three focuses the experiences of selected countries such as Korea, Singapore, India and China. E-Government has become firmly established in all areas of the Korean government and 87% of government services are delivered on line. Singapore strongly believes that e-Government is the invention of the 21st century. This chapter deals with comparative study of Myanmar together with the countries under studies.

Chapter four is on e-Government development in Myanmar, first on history followed by e-Government projects and analysis of different ministries website development stage .Then, based on research questions and interviews, this study will find out the requirements for successful implementation of e-Government in Myanmar the barriers, and the reasons of e-Government failure in Myanmar.

Chapter five is conclusion. It consists of the synthesis of findings from chapter two, three, and four in light of the research study undertaken. It also points out that without clearly defined master plan, e-Government will not work well in Myanmar and this chapter will also provide recommendation and policy implications for future in e-Government development in Myanmar.

CHAPTER 2

LITERATURE REVIEW

This chapter will discuss firstly about the definition of e-Government briefly and follow by the new paradigm shift of e-Government and its development stages. There are different definitions from different institutions by different scholars for e-Government. Different countries might face different barriers and different challenges. Then the leaders of the countries need to ask themselves a certain questions such as "why are they pursuing e-Government?"

Lack of critical success factors will contribute to partial or total failure for e-Government projects implementation in development countries. A scholar developed the factor model for e-Government and it is also discussed in this chapter.

2.1 Definition

E-Government means different things to different people. E-Government is a means of enhancing the capacity of the public sector, together with citizens, to address particular development issues. It is never an end in itself.

E-Government can be defined as the electronic interaction (transaction and information exchange) between the government, the public (citizens and businesses) and employees.¹²

E-Government is the government owned or operated systems of information and communication technologies that transform relations with citizens, the private sector and/or other government agencies so as to promote citizens' empowerment, improve service delivery, strengthen accountability, increase transparency, or improve government efficiency.¹³

E-Government is the transformation of public sector internal and external relationships through net-enabled operations, IT and communications, in order to

¹² Abramson, A.M. and Means, E.G "E-Government ", Pricewaterhouse Coopers, Endowment for the Business of Government, Rowman & Littlefield Publishers Inc, 2001.

¹³ World Bank Issue Note: E-Government and the World Bank. November 5, 2001.

improve government service delivery, constituency participation, society.¹⁴ E-Government is an Internet-worked government which links new technology with legal systems internally and in turn links such government information infrastructure externally with everything digital and with everybody – the tax payer, suppliers, business customers, voters and every other institution in the society.¹⁵ E-Government is the public sector's use of the most innovative information and communication technologies, like the Internet, to deliver to all citizens improved services, reliable information and greater knowledge in order to facilitate access to the governing process and encourage deeper citizen participation.¹⁶

2.2 E-Government as a paradigm shifts

The advent of the Internet, digital connectivity, the explosion and use of e-commerce and e-business models in the private sector are pressuring the public sector to rethink hierarchical, bureaucratic organizational models. Customers, citizens and businesses are faced every day with new innovative e-business and e-commerce models implemented by the private sector and made possible by ICT tools and applications, are requiring the same from governmental organizations.

Osborne and Gaebler (1992) referred to citizens as customers for governments, since governments need to empower rather than serve, to shift from hierarchy to teamwork and participation, to be mission oriented and customer focused, and to focus on prevention rather than cure. Governments worldwide are faced with the challenge of transformation and the need to modernize administrative practices and management systems. Now, the public sector has begun to recognize the potential opportunities offered by ICT and e-business models to fit with citizens' demands, to offer better services to citizens and to increase efficiency by streamlining internal processes¹⁷. Tapscott and Caston (1993) argue that ICT causes a "paradigm shift" introducing "the age of network intelligence", reinventing businesses, governments and individuals. Paradigm shifts prevail in the public sector too.¹⁸

¹⁴ Fraga, E. "Trends in E-Government How to Plan, Design, Secure, and Measure E-Government", *Government Management Information Sciences (GMIS) Conference*, Santa Fe, New Mexico, 2002.

¹⁵ Tapscott, D. *The Digital Economy*, New York: McGraw Hill, 1996.

¹⁶ UN, "Benchmarking E-Government: A Global Perspective", 2001.

<http://unpan1.un.org/intradoc/groups/public/documents/un/unpan003984.pdf> Accessed on 5 May 2007

¹⁷ Osborne, D. and Gaebler, T. *Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector*, Addison-Wesley: MA, 1992.

¹⁸ Tapscott, D. and Caston, A. *Paradigm Shift: The New Promise of Information Technology*, New York: McGraw-Hill, 1993.

The traditional bureaucratic paradigm, characterized by internal productive efficiency, rationality, departmentalization, hierarchical control and functional rule-based management is being replaced by competitive, knowledge based economy requirements, such as: flexibility, network organization, vertical/horizontal integration, innovative entrepreneurship, organization learning, and speed up in service delivery, and a customer driven strategy (see Table 2.1). These new paradigms thrust shift toward e-Government paradigm, which emphasizes coordinated network building, external collaboration and customer services.¹⁹

Table 2.1 Shifting paradigm in public service delivery

	Bureaucratic paradigm	E-Government paradigm
Orientation	Production cost-efficiency	User satisfaction and control, flexibility
Process organization	Functional rationality, departmentalization, vertical hierarchy of control.	Horizontal hierarchy, network organization, information sharing.
Management Principle	Management by rule and mandate	Flexible management, interdepartmental team work with central coordination
Leadership style	Command and control	Facilitation and coordination, innovative entrepreneurship
Internal communication	Top down, Hierarchical	Multidirectional network with central coordination, direct communication
External communication	Centralized, formal, limited channels	Formal and informal direct and fast feedback, multiple channels
Mode of service delivery	Documentary mode and interpersonal interaction	Electronic exchange, non face of face interaction
Principles of service delivery	Standardization, impartiality, equity.	User customization, personalization

Source: Ho, (2002)²⁰

The new paradigm transforms organizational principles in government. While bureaucratic model emphasizes top-down management and hierarchical communication, the new model emphasizes team work, multi directional network, direct communication between parties, and a fast feedback loop. Leadership in new paradigm encourages facilitation and coordination among parties, rather than hierarchical command and control.

¹⁹ Ho, T.K. "Reinventing Local Governments and the E-Government Initiative", *Public Administration Review* 62.4 (2002) : 434-444

²⁰ Ibid

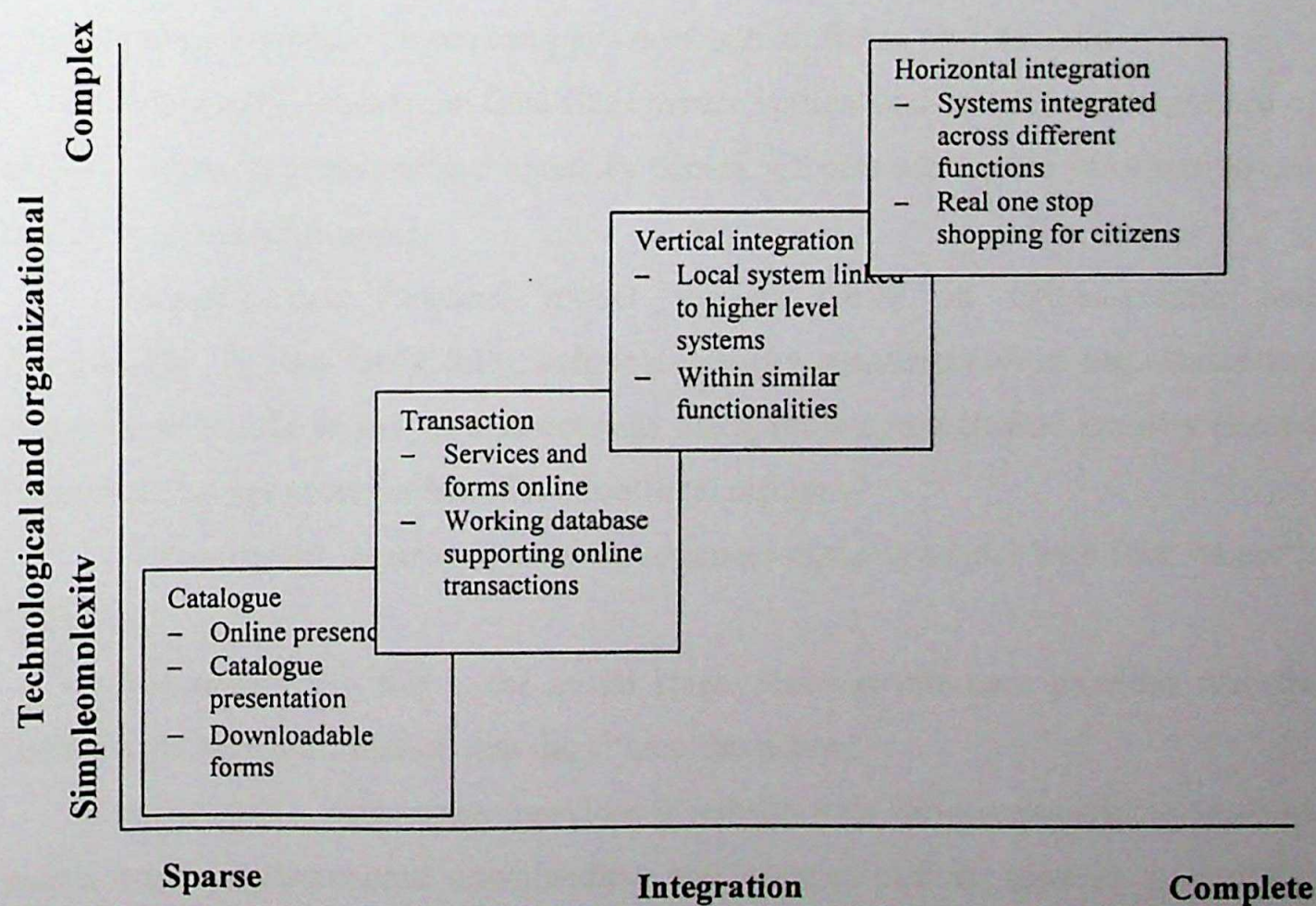
Layne and Lee (2001) developed four stage models. They regarded e-Government as an evolutionary phenomenon based on their observation and experience in the area. They propose four stages of e-Government development. Basically, the model is based on technical, organizational, and managerial dimensions. The full description of the models' four stages is:

Cataloging – this stage is meant for delivery of some basic information through website. In most cases the websites are considered to be static; it enables citizens as users to access on-line presentation and downloadable forms.

Transactional - is a stage that propagates the former, whereby it enables citizens to do on-line transactions (two-ways communication).

Vertical integration – this stage focuses on the automation of more government workflows and also transformation of government services; it includes integrating government functions at different levels such as these of local and states governments.

Fig. 2.1 The Layne and Lee model: integration and technological and organizational complexity²¹



Horizontal integration – this focuses on systems integration between different levels and functions for providing users with a unified and seamless service.

²¹ Layne, K., & Lee, J. W. "Developing fully functional e-Government: A four stage model". *Government Information Quarterly* 18.2 (2001):122–136.

In spite of the model being focused on functionality which is grounded on combination of technical, organizational and managerial feasibility – it does not consider the potential benefit of political changes. In addition, the model design has fairly considers technical security related issues in particular at the transactional; and gave very low consideration on non-technical ones, such as cultural and ethical, legal and regulatory, and economical .

Chandler and Emanuel (2002) developed a four stage model.²² The narrations of the stages are:

Information – this is a preliminary stage, where most of government services delivery is available on-line. Citizen can access government information over a website (static) – this is a one-way communication between government and citizen.

Interaction – this is the advanced stage of the former; simple interaction between citizens and governments are enhanced; various website features and functionality are available including search, and emails; at this stage the communication is two ways.

Transaction – refers to services that enable transactions of values between citizen and government; citizen can pay taxes, submit forms on-line. And

Integration – this is the final stage where vertical and horizontal integration of services across government and agencies occurs. Citizen can access information on-line from one service centre.

Chandler and Emanuel model focuses partly on citizen-centric and functionality. It gave fairly little technical security consideration at the transaction stage. However, the model ignores not only the specific non-technical security related issues but also the potential benefits of political changes.

Gartner group developed an e-Government maturity model with four stages²³. These are:

Web presence – this is the initial stage where government provides website (static) with basic information that the citizen can access.

Interaction – government provides a website with various capabilities such as search engines, documents downloading and emails; this is used as a tool for interaction between parties involved (government, agencies and citizen).

²² Chandler, S., and Emanuels, S, "Transformation Not Automation", *Proceedings of 2nd European Conference on E-Government*, St Catherine's College Oxford, UK, 2002 : 91-102

²³ Baum C & Maio, D , " Gartner's Four phases of E-Government model", Gartner's group, 2000

Transaction – citizen (users) can conduct complete on-line transaction including buying and selling activities. And

Transformation – this is the last phase, where all government operational processes are integrated, unified and personalized.

In general, the model focuses on citizen-centric and partly functionality which is grounded on technology, organizational and managerial feasibility. In addition, the model partly considers technical security at its transaction stage while on the other hand the model fairly consider specific security (non-technical) related issues or the potential benefit of political changes.

United Nation proposed a five stage model with a focuses on web based public service delivery.²⁴ Description of the model stages are:

Emerging web presence – this is the initial stage were government websites provides mostly basic and limited static information with less options for citizens.

Enhanced web presence – this is the second stage where there are improvements of government websites in-terms of providing dynamic, specialized and regularly updated information. Among the website features include search facilities, on-line help, and site maps. And

Interactive web presence – users and service providers are connected to government portals (websites); Interaction became more sophisticated than in the former stage. Services such as search facilities and accessibility of various forms are enhanced. Others are ;

Transactional web presence – this stage allows two-way interactions between the citizen and the government; users can conduct complete on-line transaction including buying and selling activities. And

Seamless/Networked web presence – this is the most sophisticated level of E-Government service delivery; all services and functions across all government levels are integrated; citizens can access any kind of services from a central location at any given time.

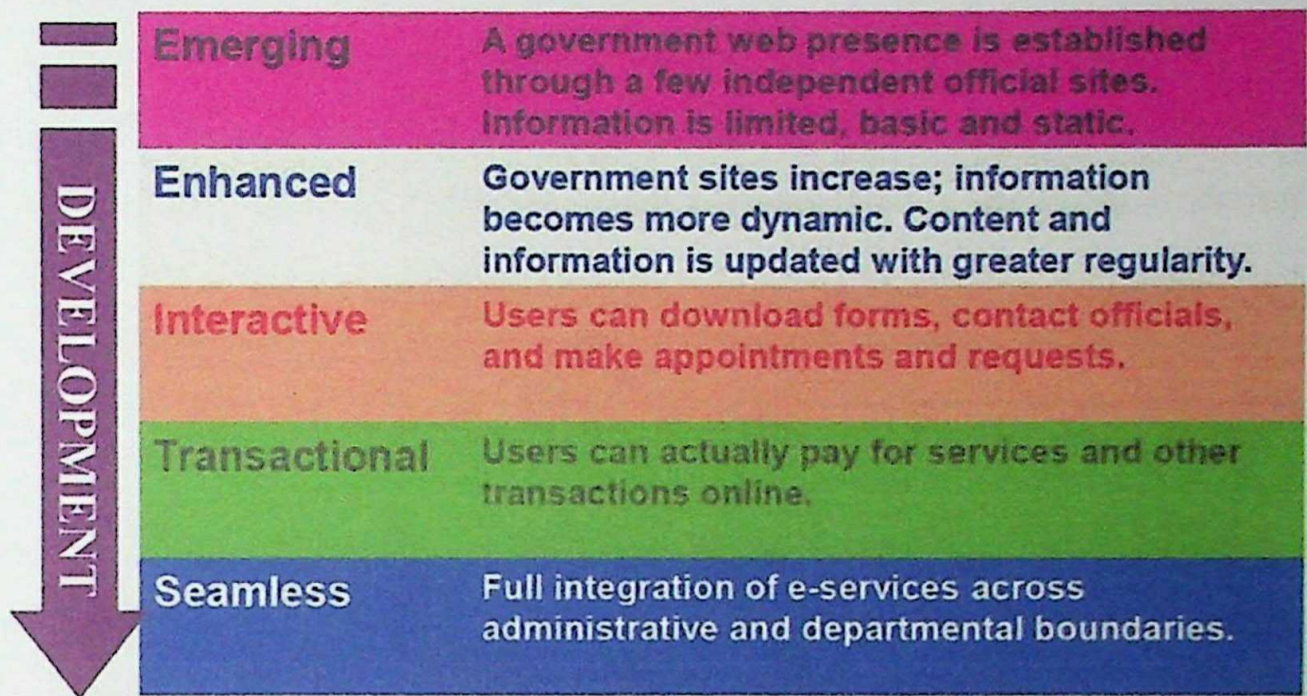
The model is centered to web-based and functionality. The model development is based on technology and managerial aspects. In addition, the model fairly considers specific issues related to technical security at its transactional stage.

²⁴ UN, "Benchmarking E-Government: A Global Perspective", 2001.

<http://unpan1.un.org/intradoc/groups/public/documents/un/unpan003984.pdf> Accessed on 5 May 2007

The UN five stage model is described in the Figure 2.2. This model will be used for websites based survey of this paper.

Figure 2.2. The UN five stages e-Government model



Source: 2005 Global e-Government readiness report, 16

West (2004) proposed a four stage model of e-Government development.²⁵ The stages and description of the model are:

Billboard – this is the stage where websites (static) are used for information display. Various types of information can be posted on the website including reports and publication; this way citizen (visitor) could easily access and consume the displayed information.

Partial service delivery – at this stage government starts to set services on-line for citizen to access; at this level the on-line website has more capabilities and functionalities include sorting and searching of information.

Full integrated service delivery – one stop centre is created (government portal) with full integrated online services; citizen can easily access government and agencies information from one service centre. And

Interactive democracy with public outreach and accountability – according to West this is the final stage of e-Government development. Government website develops into a system wide political transformation with executable and integrated on-line services. Citizens can easily access government information and also customize the on-line government information service delivery systems.

²⁵ West D. M, "E-Government and the transformation of service delivery and citizen attitudes" *Public Administration Review*. 64.1(2004) :15-27

West model focuses on functionality and citizen-centric. In addition, the model gave fairly little consideration to security (technical and non-technical) as a specific issue. However, it considers the potential benefit of political changes at its highest stage.

Hiller and Blanger (2001) proposed a model with five stages, namely:²⁶

Information dissemination – this is the initial stage of the government to disseminate information to the citizen by posting it on the website (static), the communication is one-way.

Two-way communication – at this stage government uses enhanced websites with various capabilities such as emails and downloadable forms to interact with citizen (users). And

Service and financial transaction – this is a more advanced stage than the previous one, government offers online services including financial transaction to citizen (users). This phase requires more sophisticated technology. Others are

Vertical and horizontal integration – the government integrates various systems at different levels vertically and horizontally. Finally is Political participation – government involves citizen in political participation activities including online voting and forums.

Their model focuses on functionality and it considers the potential benefit of political changes.

Moon (2002) developed a five stage model.²⁷ The stages are One way communication, Two-way communication, Transformation, Vertical and horizontal integration, and Political participation. However, if the two models of Moon and Hiller and Blanger compared, there are large similarities in particular from stage two to five. For that reason, it is better to give the description of stage one of the model (*One way communication*), which is considered as the preliminary stage of e-Government developments where government disseminates information to the citizen by posting on the website, and citizens can access online.

As the model stages are similar to Hiller and Blanger, the model focuses on functionality and also considers the potential benefit of political changes. However,

²⁶ Hiller, J., & Be'langer, F. "Privacy strategies for electronic government". Arlington, VA. Pricewaterhouse Coopers Endowment for the Business of Government, 2001

²⁷ Moon, M J. "The Evolution of E-Government among Municipalities: Rhetoric or Reality?" *Public Administration Review*, 62.4 (2002) : 424-433

<http://www.jstor.org/stable/3110357?seq=2> Accessed on 28 April 2009

the model gave attention to security at its financial transaction stage and ignores other specific security related issues including these of non-technical.

Asia Pacific region based on their experience of e-Government development proposed a six stage model.²⁸ The model stages and their description are:

Setting up an email system and internal network – this is the initial stage where most of government systems focus on internal processes that support basic administrative functions such as e-mails and payroll.

Enabling inter-organizational and public access to information – this stage involves government into developing systems that will help in managing its workflow from paper based to electronic format (inter organizational); Also at this stage citizen (public) are able to access government information through the use of internet.

Allowing 2-way communication – government and the citizen (public) use ICT as enabler for communication. For instance telephone, fax numbers or email addresses are posted on a website, this encourage public to send messages to the government and receive response.

Allowing exchange of value – at this level, ICT is used to support development of more flexible and convenient ways for citizens to conduct business with the government. Citizens have the opportunity to utilize the available on-line government services including tax assessment, visa application and license renewals. Others are:

Digital democracy – citizen use ICT as an enabler that can potentially support participatory and democratic processes. For instance use of on-line applications that empowers citizen and civil organization to vote. The final stage is

Joined-up government - this is the final stage where there is both vertical and horizontal integration of service delivery, a web portal integrates information and services from various government bodies/agencies. This way citizen and other stakeholders get seamless services without needing to know what government, department or agency is responsible.

This model focuses on citizen-centric and functionality. Also it considers the potential benefit of political changes. However, with the exception of one stage (Allowing of exchange of value) – security related issues (technical and non-technical) are not explicitly addressed as specific issues.

²⁸ Wescott, Clay G. "E-Government in the Asia-Pacific Region"; http://www.adb.org/documents/papers/e_government/egovernment.pdf Accessed on 5 April 2009

Deloitte and Touché present a six stage model based on the view that e-Government objectives should serve citizens building a long term relationship.²⁹

The full description of each of the stage is as follows:

Information publishing – at this stage government sets up websites (static) for providing information to citizen /users. At this stage the communication is on-way;

Official-two way transaction – this is an advanced stage of the former where information are transacted and exchanged between citizen as users and government/agencies as service providers;

Multipurpose portal – government uses a single portal as a single point of entry to effectively provide services to its departments, agencies and to citizen; *Portal personalization* – this stage provides citizen/users with the opportunity to customize the portal based on their desired features;

Clustering of common services – all government services and operational processes are clustered along common lines so as to provide unified and seamless services to citizen; and the last stage is

Full integration and enterprise transaction – government changes its structure and provides more sophisticated, integrated and personalized services to citizen.

Like other models, the model focus is grounded on citizen-centric. However, apart from ignoring the potential benefit of political changes, it also gave fairly little attention to specific related security issues - technical and non-technical.

Howard developed a three stage model.³⁰ The stages of the model are:

Publishing – this is the initial stage of e-Government development where Information about activities of government is available online.

Interacting – this is the advanced stage of the former, citizens have the ability to do simple interactions with governments; available services at this level include sending e-mail, chat rooms, and/or filling and sending forms.

And finally *Transacting* – based on the model design this is the highest stage of e-Government development. The stage enables citizens to conduct transactions over the Internet, including purchasing /payment of licenses and permits.

²⁹ Deloitte and Touche, "The citizen as customer" *CMA management* 74.10 (2001):58

³⁰ Howard, M., "E-Government Across the Globe: How Will 'e' Change Government?"

<http://www.gfoa.org/services/gfr/archives/2001/08/gfr0801.pdf> Accessed on 26 March 2009

The model focuses on functionality and at the same time on citizen-centric. Unfortunately, the model does not consider the potential benefit of political changes nor the specific security related issues in particular non technical.

Howard divides the stages of an e-Government system into three, namely: publication, interaction, and transaction. However, there is a shortcoming in Howard's study because it does not go as far as an integration stage. This is important because it is only the integration stage that facilitates any flow of government information between different levels of agencies and departments.

This is essential to enable the citizen to obtain government services from a single point. Although the integration stage of e-Government has been given different names, including transformation, almost all normative sources have included it as one of their final stages.

World Bank (2001) proposed a three stage model.³¹ These are:

Publishing – this is the first stage, government disseminates information to citizen through website; all important information is posted on the website.

Interactivity – at this phase government interacts with citizen. Websites are enhanced with interactive capabilities such as feedback forms and email. And lastly is

Completing transaction – this is the final stage of e-Government development; citizen/users can use the opportunity of the available technically enhanced website to conduct complete and secure transactions on-line.

The model focus is on both functionality and citizen centric. Also the model development does not consider the potential benefit of political changes. Security is addressed only at its final stage, completing transaction. Therefore the model lacks most security related issues.

Many studies – such as Chandler and Emanuels³², and Layne and Lee³³ (Table 2.2) – have divided e-Government into four stages and most, including Chandler and Emanuel's, mention the stage of interaction. This makes an important distinction between facilitating unrestricted two way communication, with

³¹ World Bank Issue Note: E-Government and the World Bank. November 5 (2001)
World Bank "World Development Indicators"2003,
<http://www.worldbank.org/data/wdi2003/> Accessed on 10 January, 2008

³² Chandler, S., and Emanuels, S., 'Transformation Not Automation', *Proceedings of 2nd European Conference on E-Government*, St Catherine's College Oxford, UK, 2002, 91-102.

³³ Layne, K. and J. Lee 'Developing fully functional E-Government: A four stage model.' *Government Information Quarterly*, 18: 2001, 122-136

technologies like email and discussion boards, and explicit transaction processing whereby citizens carry out a complete transaction via an online interface.

Interestingly, Layne and Lee do not mention the interaction stage, instead, they move directly to the transaction stage. However, they have provided a unique contribution to the division of the stages of e-Government by dividing the integration stage into vertical and horizontal integration phases. Traditionally government departments and organizations have maintaining separate databases that are not normally connected to other government departments at the same level or with similar departments at a local or central level.

The integration stage addresses breaking down these barriers. Vertical integration addresses the challenge of integrating government departments and organizations that operate the same or related systems at different organizational levels. Consequently, vertical integration leads to the computer systems of different levels of government being connected to or at least communicating with each other.

These various levels of systems are connected and talk to each other so the results of transactions from one system can be interchanged with another system. For instance, if a citizen performs a certain transaction at a local department or agency in one area, the information and results of this transaction will be propagated to city and central counterpart in another.

This level will remove the organizational barrier that promotes agency-centric solutions (bespoke), and instead, promote customer-centric solutions¹. A few studies have divided e-Government systems into five and six stages. A report prepared by the United Nations (Division for Public Economics and Public Administration) divides e-Government into five stages.³⁴

It splits the 'publish' stage (Howard) or the 'information' stage that is not mentioned within any of the three and four stages model discussed earlier.

The DPEPA (Division for Public Economics and Public Administration) authors of this paper argue that the enhanced stage could be seen as embedded or encompassed into stage one because of its function, which is that of updating information.

³⁴ United Nations – DPEPA (Division for Public Economics and Public Administration), *Benchmarking E-Government: A Global Perspective*, http://pti.nw.dc.us/links/docs/ASPA_UN_egov_survey.pdf, 2002 Accessed on 11 Oct 2005

It does not include any interaction functions and the upgrading of information can be done within stage 1 (emerging) that DPEPA define as just to create a government website with limited, basic and static information.

Research by Deloitte, cited in Silcock³⁵, divides e- Government into six stages (Table 2.2).

As with Layne and Lee, the interaction stage is not present and the model moves directly to the transaction stage from stage one (information). It should also be noted that from stage three to stage five, the Deloitte Research focuses on delivery of government services from a single point by using a portal which provides a full range of services and enables customers to make easy and single access to government services without the need to know which agency is responsible for which service.

There is another argument that because stages 3, 5 and 6 have similar functions, but do not make something like Layne and Lee’s clear distinction between vertical and horizontal integration, they could be embedded or encompassed into one integration stage. Stage 4 (portal personalization) is clearly an enhancement to the quality of service but it is unclear why it must come at a specific point in the growth of an e-Government system and the Given the representation in Table 2.2 and based on the previous discussion, the following points give observations and reflections on the current state of e-Government maturity models:

Table 2.2 The different classifications of stages of e-Government

Stage	Perception	Reference
Stage 1: Publish Stage 2: Interact Stage 3: Transact	1. Information about activities of government available online. 2. Enable citizens to have simple interactions with their governments such as sending e-mail or 'chat rooms'. 3. Provides citizens with full benefits from transactions over the Internet, such as applying for programmers and services, purchasing licenses and permits.	<i>Howard [20]</i>
Stage 1: Information Stage 2: Interaction Stage 3: Transaction Stage 4: Integration	1. Delivery of government services online. One-way communication between government and citizens. 2. Simple interaction between citizens and governments. 3. Services that enable transactions of value between citizens and government. 4. Integration of services across the agencies and departments of government.	<i>Chandler and Emanuel's [12]</i>
Stage 1: Cataloguing Stage 2: Transaction Stage 3: Vertical integration Stage 4: Horizontal	1. Creating websites and making government information and services available online. 2. Enables citizens to interact with their governments electronically. 3. Focuses on integrating disparate at different levels.	<i>Layne and Lee [11]</i>

³⁵ Silcock, R., ‘What is E-Government?’, *Hansard Society for parliamentary Government , parliamentary Affairs* , 54(2001) : 88-101

integration	4. Focuses on integration of government services for different functions horizontally.	
Stage 1: Emerging Stage 2: Enhanced Stage 3: Interactive Stage 4: Transactional Stage 5: Seamless or fully integrated	1. Creating a government website with limited/ static information. 2. Updating information regularly. 3. Provides users with reasonable levels of interaction enabling them to download forms and 4. Enables users to complete transactions such as obtaining visas, licenses, passports, birth and death records, etc, online safely and securely. 5. Provides services across administrative and departmental lines with the highest level of integration.	<i>United nations-DPEPA [24]</i>
Stage1 : Information publishing Stage 2: Official two-way transactions Stage 3: Multi-purpose portals Stage 4: Portal personalization Stage 5: Clustering of common services Stage 6: Full integration and enterprise transformation	1. Creates websites by departments and agencies. One-way communication. 2. Enables customers to have electronic interaction with government services such as renewing television licenses and paying parking tickets. 3. Enables customers to obtain government services and information from a single point. 4. Provide customers with opportunities to customize portals according to their need. 5. With portals becoming better, government will seek to gather common services to hurry the process of delivery. 6. Government departments will disappear others will appear; some departments will keep the same names but become entirely different internally.	<i>Deloitte Research cited in Silcock [25]</i>

Source: Zahir Irani, Madi Al-Sebie and Tony Elliman, (2006)³⁶

There is acceptance that the stages required by an e-Government system have been classified into three, four, five or six stages. Although scholars have called stage one of e-Government systems by different names – information, publishing, information publishing or dissemination and emerging – they have agreed on the purpose of this stage, i.e. that it makes government information available online without any interaction.

On the other hand scholars have called the last stage of e-Government systems by different names - integration, full integration and enterprise transformation and seamless or fully integrated - they have agreed on the purpose of this stage, i.e. that it leads to integrated government services and information from a single point of access.

Different models of the stages of e-Government reveal that: firstly, almost all models mention the transaction stage of the e-Government system; and, secondly; the transaction stage of e Government usually arises between the first and the final stages

³⁶ Zahir Irani, Madi Al-Sebie and Tony Elliman, "Transaction Stage of e-Government Systems: Identification of its Location & Importance" *Proceedings of the 39th Hawaii International Conference on System Sciences* (2006) : 3
<http://bura.brunel.ac.uk/bitstream/2438/4486/1/250740082c.pdf> Accessed on 10 May 2007

of e-Government systems, except where models like Howard's stop short of the integration stage.

The transaction stage almost always arises as a third stage before integration (final stage). This tends to be confirmed by such comprehensive literature reviews such as Adam et al.³⁷

Table 2.3 The location of the transaction stage within different models of an e-Government system

Location of transaction stage within different model	Reference
Stage 2	Layne and Lee
Stage 4	United Nations – DPEPA
Stage 3	Backus , Baum and Di Maio cited in, Seifert and Petersen , Chandler and Emanuels Howard Adam et al

Source: Zahir Irani, Madi Al-Sebie and Tony Elliman (2006)³⁸

There are a lot of challenges to be faced during the implementation of e-Government. All countries implementing E- government have struggled to develop a basic infrastructure to take advantage of new technologies and communications tools. Many developing countries, even if possessing the will, do not have the infrastructure necessary to immediately deploy e-Government services throughout their territory. *Infrastructure development is a must.*

The application of ICT to government may encounter legal or policy barriers. Legislatures must ensure that laws are updated to recognize electronic documents and transactions. Policymakers implementing e-Government must consider the impact of law and public policy. *Law and public policy is normally lagging behind when compare it with technology development.*

The *digital divide* is the gap between people who have access to the Internet and those who do not. Those without access cannot learn essential computer skills, cannot access information that can provide economic opportunities, and cannot share in the benefits of e-Government. It is necessary and narrows the gap of digital divide.

E-Literacy refers to marginalized groups who are unable to make use of ICT because they are not computer literate. With the digital revolution there is a very real

³⁷Adam, O., Werth, D., and Zangl, F.M., "Enabling Pan- European Interoperability For the Infocitizen", *Proceedings of 3rd European Conference on E-Government*, Trinity College, Dublin, Ireland, (2003) : 1-8.

³⁸ Op-cit

danger that the world will be divided into the “information rich” and the “information poor.” E-Government has the potential of either equalizing access to government and its services or increasing the barriers to participation. *There must be informatization plan to improve e- literacy.*

Governments must serve all members of society irrespective of their physical capabilities. Online services will have to be designed with appropriate interfaces. Accessibility means many things to many people. To be successful, e-Government projects must build *trust* within agencies, between agencies, across governments, and with businesses, NGOs and citizens. Trust has two factors. The first one is trust in improved system and the second is the trust in government.

Governments must be responsible custodians of the enormous amounts of personal information they hold. Governments collect vast quantities of data on their citizens through everyday transactions. Protecting the *privacy* of citizens’ personal information stored on these databases while making effective use of the information contained in them is a vitally important issue. Less privacy means less use of government service. Improved privacy will attract more customers.

Security breaches can shatter public trust in e-Government. Security is costly, but must be addressed in the design phase. Trust is a vitally important component of e-Government projects. Without trust, citizens who may already be leery of using technology may avoid and even shun the use of online services that ask for detailed personal information. Internet security should be given top priority.

Citizens too rarely understand how government decisions are made. This lack of transparency prevents the public from actively participating in government and from raising questions or protesting unfair or ill-advised decisions. A lack of *transparency* can conceal official graft or favoritism.

Interoperability issue is very challenging. Putting incompatible record formats online neither simplifies nor reduces the workload imposed on people and government officials. Reliable e-Government requires a comprehensive overhaul of legacy systems.

Better information management can help officials identify barriers to more efficient government. An *information management framework* is necessary to make sense of available data. Without this framework, policy makers could not derive useful analysis quickly enough to react to social and economic developments. Historical documentation is of special importance for governments. ICT not only

allows for quick and cheap dissemination of data, but also for its compact and convenient storage. Therefore, permanent availability and preservation is very important one.

E-Government services are only useful if people know about them. Education and outreach programs will be needed. It is necessary to educate about the benefit of using e-Government to the customers (citizen) and the more the customers know the better it is. E-Government cannot work if there is no public participant. It is necessary to create an environment with fair competition and private partnership.

Human resources must be structured and managed with e-Government goals in mind. A well-trained and motivated workforce is critical to e-Government success. It is HR before product and service. HR must be the first priority. E-Government implement cannot be possible without fully qualified HRD.

While planning and budgeting in a changing climate is difficult, governments should seek to invest in sustainable programs that can produce savings. E-Government is a continuous effort. It needs sustainable budget commitment in order to run it smoothly.

Governments must regularly evaluate and benchmark the progress and effectiveness of their e-Government investments to determine whether stated goals and objectives are being met on schedule.

2.3 Barriers to e-Government and its roadmap

There are seven key categories of barriers that can block or constrain progress on E-Government.³⁹

The first barrier of e-Government is leadership failures. Slow and patchy progress to e-Government can result from a lack of adequate leadership during any stage in the processes of initiating, implementing, promoting and sustaining developments. This can significantly restrict the number, scope and impact of e-Government initiatives. Leadership failures are:

- Lack of political will for e-Government.
- Low prioritization of e-Government in public policies and resource allocation.
- Cycles of attention and inattention that lead to patchy, stop-go progress on e-Government.

³⁹ " Breaking Barriers to e-Government: Inventory" <http://www.crid.be/pdf/public/6038.pdf>
Accessed on 5 December 2011

- Poor senior management understanding of e-Government.
- Poor strategic vision and planning.
- Inadequate marketing to reach and motivate target audiences in the general public and business.

The second barrier to e-Government is financial inhibitors. The costs of developing, implementing and maintaining e-Government and/or a lack of R&D and innovation funding available can be important financial inhibitors. Related to this issue are the difficulties of measuring the cost/benefits of e-Government initiatives. Inappropriate cost/benefit analyses fail to release the flow of investment at the levels necessary to support future e-Government innovation. When competing with other critical demands on public resources, difficulties in calculating substantive tangible benefits to offset clear, often apparently high, costs can lead to the financial tap to e-Government being tightened or turned off, thereby severely hampering or stopping e-Government progress. Financial inhibitors are:

- Difficulty in demonstrating the cost benefits of e-Government initiatives.
- Cost of developing e-Government services.
- Cost for government of providing services through multiple channels.
- Increased costs for governments of meeting laws and regulations relating to e-Government (e.g. freedom of information or data protection).
- Short-term costs more politically relevant than long-term benefits.
- Lack of flexibility in exploring funding innovations (e.g. involving the private sector).
- Lack of R & D and innovation funding.

The third barriers to e-Government are Digital Divides and Choices. Inequalities in skills, access to appropriate systems, knowledge and motivational support can limit and fragment take-up of e-Government. Social and economic divides can mean e-Government resources are used in very different ways (or not used at all) by different individuals, groups and organizations. This makes it particularly difficult to provide networked services that meet such greatly varying user perceptions, knowledge and capacities. Examples of the digital divides and choices are:

- Failure to develop and implement e-Government services that meet citizen needs.
- Lack of strong motivations among citizens to use e-Government services.

- ICT skills among citizens.
- Lack of affordable technological access to e-Government systems for some social groups or geographical areas.
- Low levels of Internet use amongst certain groups.
- Low speed of internet access rate to the users
- Making e-Government services easily accessible to the visually impaired and others with disabilities.

The fourth barrier to e-Government is Poor coordination. Lack of coordination and harmonization can put a brake on establishing appropriate e-Government networks and services crossing governance, administrative and geographic boundaries. Emerging forms of e-Government service delivery and ways of working often cross traditional government jurisdictions and administrative and departmental boundaries, as well as having the potential to overcome geographic distance. Legal and organizational differences on different sides of those boundaries can inhibit and block the flow of information and services through new channels of networked governance. These kinds of barriers can be:

- Differences in laws and regulations
- Government departments failing to agree and implement common procedures and standards to provide shared networked e-Government services.
- Differences in administrative traditions and processes
- A lack of co-ordination across central, regional and local levels of government.

The Fifth barriers of e-Government are workplace and organizational inflexibility. Wide realization of e-Government benefits constrained or blocked by inflexibilities in responding to necessary changes in public administration practices, processes and organizational structures. Resistance to innovation can fail to allow the redesign of organizations and reengineering of processes necessary to move to new forms of networked governance greater flexibility is needed the new opportunities afforded by ICT-related innovation. Examples of work place and organizational inflexibilities are:

- Departmental 'turf wars' involving competition over who is responsible for what in a networked service.
- Inadequate skills training and capacity building for management and staff.
- Inadequate ICT skills among government officials.

- Failure to learn from good practice.
- A government-centric, as opposed to a citizen/business-centric focus, when developing and implementing e-Government services.
- Resistance to change by government officials.
- Employment laws inhibiting flexibility in changing working practices or the deployment of staff.

The sixth barriers to e-Government are Lack of trust. Fears about inadequate security and privacy safeguards and controls undermine confidence in applications of e-Government involving sensitive personal information, vulnerability to online fraud or other illegal or abusive e-Government risks. There is more general trust in the use of ICT-enabled networks. But e-Government raises particular trust concerns as so many public services require the handling of highly sensitive personal information in digital forms. These can be exacerbated by wider distrust of government and concerns about an unwillingness of public authorities to be as transparent as possible in the provision of information about their operations. E-Government service take-up can be hampered if such causes of low levels of trust are not adequately identified, addressed and solved.

Examples of lack of trust are such as:

- The 'Big Brother' fear of unwarranted government intrusion into private lives and business operations through the growing use of networked or integrated digital databases.
- Insufficient priority to implementing and promoting effective e-Government security.
- Intrinsic 'cyber-trust tensions' as shown in the general desire for both privacy and security even though a degree of disclosure or loss of privacy is typically necessary (e.g. to identify the user of an online tax or welfare service).
- Public administration anxieties over liability for online content.
- Public concerns over the potential for online theft and fraud.
- Public perceptions over the risk to privacy and civil liberties.
- Lack of secure electronic identification and authentication systems.

The seventh barrier to e- government is poor technical design. Sometime there exist. Design flaws, such as incompatibilities between ICT systems. It is design flaw. It blocks the 'pipelines' through which information and communication should flow. E-Government systems and services frequently fail or perform poorly because of

inadequate design. Incompatibilities in hardware, software or networking infrastructures within and between public agencies are among the most common. However, there are also flaws in the user interface or usability of systems. It can hamper the ways agencies can interface with citizens and businesses. These operational problems can sabotage even potentially successful services and discourage those experiencing them from trying other e-Government opportunities. Examples of design flaws are:

- E-Government applications which are difficult to use.
- Incompatibilities between newer e-Government systems and older 'legacy' systems.
- Lack of standards for electronic identification
- Lack of interoperability between IT systems.
- Government technologies lagging behind societal use of the Internet and related technologies.

Authorities and leaders need to answer certain questions in implementing e-Government. The first question for leaders in developing countries is "Why governments are pursuing e-Government" in a book published by UN named "Roadmap for e-Government in the Developing World, *10 Questions e-Government Leaders Should Ask Themselves*".⁴⁰

First it must be aware that the e-Government is a process of transformation and the technology is a tool to help citizens and institutions and are part of the general reform program as to what is common in the administrative and economic world. It means reshaping the work of government, information management and serves the public, but it is not an easy process and not a low-cost.

Another question for e-government roadmap is "Do we have a clear vision and priorities for e-Government?" E-Government may also refer to many different things; the plans of e-Government also come in different shapes and sizes, so there should be a clear vision of e-Government. A common vision can be:

- improve services provided to citizens
- improving the productivity and efficiency of government institutions
- strengthening the judicial system

⁴⁰ "Roadmap for e-Government in the developing world: 10 Questions E-Government Leaders Should Ask Themselves", The Working Group on E-Government in the Developing World, April 2002 <http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan005030.pdf>
Accessed on 6 December 2007

- support the priorities of economic sectors
- strengthening the administrative system and broaden the base of popular participation

It can show many different goals in each of the five objectives listed above, in the sense that the public perception of e-Government keeps track of the major concerns of the community and target domains.

The third question need to ask to e-Leaders is "What kind of e-Government is ready for?" Due to the different needs of the communities, as well as priorities, there is no unified model for e-Government and government's willingness for E-Government based on the quality of targets and the sectors that selected as priorities, as well as the resources available, which based on financial budgets and human capacity and the infrastructure of communications and the legal framework. Infrastructure index and human development index are very good references to answer that question.

The fourth question will be "Is there enough political will to lead the e-Government effort?" The desire of political leaders is one of the most important requirements for the implementation of electronic government project. Without the continuation of this political support it cannot guarantee continued availability of financial resources and cooperation between institutions and policy change and human efforts. It also highlight the need for this support as well as when the opponent of the project appear or hindered.

"Are we selecting e-Government projects in the best way?" is the fifth question that e-Leaders need to answer. The selection of e-Government projects is very important, particularly the initial projects. The initial success project can be radiation point for the future attempts. It can be a driving force forward to other projects. It is also important to highlight the successes of e-project rather than spending a long time in the development of visions and strategies of action plans. It must identify important issues and deal with them in the form of quick e-Government (within a year or less) e-Government project must highlight the internal management processes and operations dealing with the public.

E-Leader also must answer this question, i. e;" how should we plan and manage e-Government projects?" Efficient management is essential to the success of e-Government. It is the case for all governmental operations and business. A lot of businesses rely on the orderly management and capable such as the completion of the

project within time, and the specific budget. It also distinguished dealing between different governmental institutions. E-Government project must develop management mechanisms to all levels of the project before starting.

"How will we overcome resistance from within the government?" is concerned with change management. Citizens may be opposed for e-Government projects. They may have refused to adapt to the new procedures, it is necessary to understand the causes of this opposition. Then it is easy to overcome them through awareness and training programs in the technical field.

"How will we measure and communicate progress? and How will we know if we are failing?" questions are questions necessary for performance review. E-Government projects require considerable funds and human resources devoted to dealing with information. They are sensitive responsibility and test of success based on the achievement of project objectives. It can be quality of services provided and the ease of access to government information. These goals are measured using criteria such as size of transactions executed electronically; speed of response to queries, the number of services provided and reduce the proportion of the cost to the citizen and the government.

Then e-Leaders also need to ask themselves "What should our relationship be with the private sector?" Public sector cannot implement the e-Government projects alone, it is necessary to search for companies and institutions with expertise in technical applications, management of information and communication projects. Only them it is possible to complete e-Government project at less time of the lowest possible cost.

The Last question for e-Leaders before e-Government implementation is "how can e-Government improve citizen participation in public affairs?" The participation of individuals, non-governmental organizations, private and civil sector is an important element in all phases of e-Government. In the end, e-Government is intended to serve the citizens who are experts.

2.4 E-Government benefits

Developing a successful e-Government provides many benefits to the government, citizen, society, business, and to the nation as a whole.

The first benefit is improves efficiency of administrative processes, as it will be more accurate, reliable, no data loss, and especially faster. ICTs enable efficiency

improvements in mass processing tasks and public administration operations. Internet-based applications can generate savings on data collection and transmission, provision of information and communication with customers. Significant future efficiencies are likely through greater sharing of data within and between governments.

The second benefit is increasing transparency. as all the information about the government and its agencies will be available, nothing ambiguous. And it will be accessed easily and from anywhere.

The third benefit is improving services, which could be by making all the services available online, with no hassle of queuing or waiting, or choosing the wrong department. So citizens will feel that they are satisfied with such a new way of serving.

The fourth decreasing corruption, every citizen will be dealt with as the other, no recommendation to citizens upon others. And the system will do exactly the rules.

The fifth benefit is contributing to revenue growth, and/or cost reductions, citizens will feel comfortable with the E-services online, as it is fast and clear, so it would be an advantage to encourage them to do their payments on time, which could contribute in the revenue growth.

The sixth benefit is achieving specific policy outcomes, and contributing to economic policy objectives. E-Government contributes to other economic policy objectives by reducing government expenditures through more effective and efficient programmes, improving business productivity through administrative simplification and promoting the information society and ICT industry.

The seventh benefit is helping trust building between governments and citizens. Building trust between governments and citizens is fundamental to good governance. ICT can help build trust by enabling citizen engagement in the policy process, promoting open and accountable government and helping to prevent corruption. This will help the e-Government to achieve the main idea from its existence.

The eight benefit is e-Government can be a major contributor to reform. All governments are facing the issue of public management modernization and reform. Developments – globalization, new fiscal demands, changing societies and increasing customer expectations – mean that the reform process must be continuous. ICTs have underpinned reforms in many areas.

2.5 Critical Success Factors

E-Government projects implementation of developing countries are very interesting. Most of the e-Government projects in developing countries are totally or partially fail. It is due to lack of Critical Success Factors (CSF).

Critical Success Factor (CSF) is the term for an element that is necessary for an organization or project to achieve its mission."Critical success factors are those few things that must go well to ensure success for a manager or an organization."⁴¹ They represent managerial or enterprise area, that must be given special and continual attention to bring about high performance. CSFs include issues vital to an organization's current operating activities and to its future success."⁴²

Business dictionary also defines Critical Success Factor as "Limited number (usually between 3 to 8) of characteristics, conditions, or variables that have a direct and serious impact on the effectiveness, efficiency, and viability of an organization, program, or project". Activities associated with CSF must be performed at the highest possible level of excellence to achieve the intended overall objectives. Also called key success factors (KSF) or key result areas (KRA).⁴³ Many factors determine an organization's success, but critical success factors define what must be achieved. These factors can be termed "mini objectives" that without constant focus will result in failure.

Critical success factors should not be confused with success *criteria*; those are outcomes of a project or achievements of an organization that are needed to consider the project a success or to esteem the organization successful. Success criteria are defined with the objectives and may be quantified by KPIs (Key Performance Indicators).

The benefit of Critical success factors is such that it focuses an organization--from the front-line employee to senior management. The entire organization pulls in one direction to achieve the factor objectives.⁴⁴

⁴¹ Rockart, John F., "Chief executives define their own data needs", *Harvard Business Review* 2 (1979): 81-93.

⁴² Boynton, A.C., and Zmud, R.W. "An Assessment of Critical Success Factors," *Sloan Management Review* 25.4 (1984): 17-27.

⁴³ <http://www.businessdictionary.com/definition/critical-success-factors-CSF.html#ixzz281sms0JJ>
Accessed on 1 June 2011s

⁴⁴ Definition of Critical Success Factors | eHow.com http://www.ehow.com/facts_5985824_definition-critical-success-factors.html#ixzz281txf0eF Accessed on 11 January 2013

Then, it is necessary to look for Critical Success Factors for e-Government implementation.

Briefing note 3 of January 2010, United Nations Asian and Pacific Training Centre for Information and Communication Technology for Development (APCICT) described the following five critical success factors⁴⁵. These will help government leaders in deciding which factors will be of critical importance for successful e-Government implementation:

- (1) Vision, objectives, strategy (Successful e-Government requires: a clear leadership vision, strong support from citizens, and agenda setting)
- (2) Law and regulations (The following laws need to be in place for e-Government to succeed:
 - Law on privacy and related issues
 - Law related to changes in business processes and information systems
 - Law regarding the government information technology architecture and establishing an integrated computing centre)
- (3) Organizational structure (Change in organization structures must be well planned and implemented in a systematic manner.)
- (4) Business process (One of the tools used to carry out business process innovation is Business Process Reengineering (BPR). BPR involves redesigning the work flow within or between department levels to increase process efficiency (i.e. to eliminate inefficiency in the work process).
- (5) Information technology (Information technology changes rapidly. Factors to consider when choosing technology and vendors are level of application technologies required, network infrastructure, interoperability and standardization and technical and human resource capabilities.

CSFs are powerful because they make explicit those things that a manager intuitively, repeatedly, and even perhaps accidentally knows and does (or should do) to stay competitive.” “When made explicit, a CSF can tap the intuition of a good manager and make it available to guide and direct the organization toward accomplishing its mission”.⁴⁶

⁴⁵ <http://www.unapcict.org/news/aboutus/programmes/research/BriefingNote-3-web.pdf>
Accessed on 10 May 2011

⁴⁶ Caralli, R.A. *The Critical Success Factor Method: Establishing a Foundation for Enterprise Security Management*. Software Engineering Institute, Carnegie Mellon, Pittsburgh, (2004).

A Coherent National Information Infrastructure is one of the CSF. The availability of an adequate technological infrastructure is one of the keys to a successful implementation of e-Government. A group of researchers⁴⁷ emphasize that "infrastructure development is a necessity before countries can consider any large projects dedicated to e-Government". Understandably, without sufficient national infrastructure, citizens' access to any e-Government touch point will be limited. The presence of an adequate national infrastructure is the basic necessity for people and businesses to use e-Government services.⁴⁸

Equally important are the back-office functions performed by the government departments' internal systems that support e-Government. Without appropriate and adequate back-end infrastructure, no government department would be able to provide efficient or effective service to the people via an e-Government front-end (e.g. a web portal). Of similar importance in a National Information Infrastructure is a whole-of-government ICT governance framework featuring ICT and information policies, the legislation needed to support e-Government and ICT management standards and best practice guidelines, e.g. for ICT project management.

This framework needs to encompass both the front- and back-end functions. Systems integration is seen as a key to achieve a successful system implementation.⁴⁹ An overarching e-Government blueprint also needs to provide for interoperability among various systems owned and operated by government departments. One of the biggest challenges in implementing e-Government is in integrating various e-Government systems. It shows that the problem lies in the lack of standardization among government departments in selecting and implementing technological platforms and application development frameworks.⁵⁰ It must be acknowledged that

⁴⁷ Chen, Y.N., Chen, et al. "E-Government strategies in developed and developing countries: An implementation framework and case study".

Journal of Global Information Management, 14.1 (2006): 23-46.

<http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan028242.pdf>

Accessed on 20 July 2011

⁴⁸ Nair, K. and Prasad, P. "Development through Information Technology in developing countries: Experiences from an Indian state". *The Electronic Journal on Information Systems in Developing Countries*, 8.2 (2002): 1-13. Accessed on 29 October 2011

⁴⁹ Sammon, D. and Adam, F. "Towards a model of organizational prerequisites for enterprise-wide systems integration: Examining ERP and data warehousing". *Journal of Enterprise Information Management*, 18.4 (2005): 458-470.

[https://faculty.biu.ac.il/~shnaidh/zooloo/lis/Towards a model of organizational prerequisites for enterprise-wide systems integration- Examining ERP and data warehousing.pdf](https://faculty.biu.ac.il/~shnaidh/zooloo/lis/Towards%20a%20model%20of%20organizational%20prerequisites%20for%20enterprise-wide%20systems%20integration-Examining%20ERP%20and%20data%20warehousing.pdf)

Accessed on 16 July 2007

⁵⁰ Lam, W. "Barriers to E-Government integration". *The Journal of Enterprise Information Management*, 18.5 (2005): 511-530.

“integration of applications and services across governments are relatively more complex and problematic than similar integration in private business”.⁵¹

Inter-departmental coordination and related policies is another important CSF. Without proper coordination between different departments, there will be inconsistencies between systems, resulting in a waste of already-scarce resources and problematic integration of information, systems and processes.⁵²

Political support, government vision and strategy, and supporting legislation are probably the most important of all the other factors. Political factors have significant impact in the development of infrastructure and must be considered in creating e-Government strategies.⁵³ In a developing country such as Myanmar, where the euphoria of democracy has yet to settle down and the relationships between the legislative and executive bodies need further balancing, political support and cooperation between the government and the legislative council is needed to ensure the success of an e-Government projects.

The application of good governance practices is important to the success of any project. In a country known for its reputation for corruption the establishment of good governance guidelines and/or practices will not only enable greater accountability and transparency which would enhance public and stakeholder support of the project, but may also increase its chances of success.⁵⁴

Change management strategy is also important CSF. E-Government initiatives have the potential to transform traditional bureaucracies. They inevitably involve changes in communication patterns, work practices, organizational structures, procedures and processes enabled by the adoption and implementation of ICT.⁵⁵ Over time, as government agencies and departments become intertwined in a mesh of

⁵¹ Grant, G. and Chau, D. "Developing a generic framework for E-Government". *Journal of Global Information Management*, 5 (2005):72-101

⁵² Jorgensen, D.J. and Cable, S. "Facing the challenges of E-Government: A case study of the city of Corpus Christi, Texas". *SAM Advanced Management Journal*, 67.3 (2002):15-30.

⁵³ Chen, Y.N., Chen, et al. "E-Government strategies in developed and developing countries: An implementation framework and case study". *Journal of Global Information Management*, 14.1 (2006): 23-46.

<http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan028242.pdf>

Accessed on 20 July 2011

⁵⁴ King, D.Y. "Corruption in Indonesia: A curable cancer?" *Journal of International Affairs*, 53.2 (2000) 603-624

⁵⁵ Forman, M. "E-Government Strategy: Simplified Delivery of Services to Citizens". (2002): 1-37
http://www.usa.gov/Topics/Includes/Reference/egov_strategy.pdf Accessed on 27 May 2007.

electronic processes and activities, the characteristics of networked organizations will become more prevalent than the older forms of bureaucracy.⁵⁶

In order to anticipate the changes that may occur and to ensure the success of e-Government initiatives, a well-thought-out change management strategy needs to be developed and implemented. Part of this strategy should include education regarding ICT and its impact.⁵⁷

E-Government services pose unique challenges to change management because they require the co-evolution of the front office service and related back office IT infrastructure.⁵⁸ Managing e-Government is invariably managing change.⁵⁹

Poor change management strategy is one of the causes why success rate of e-Government projects is dismal, especially in developing countries.⁶⁰ In one survey by Heeks⁶¹ only 15 percent of e-Government projects in developing countries are successful, 35 percent are total failures and 50 percent partial failures. Government has no strategy how to handle changes brought on by technology, like changes in policy, culture, mindset, organizational structure and process; Simple application of using email system failed as people still treated papers as the only official tool of communication as it has signature on it. Civil servants need to change their thinking and accept e-ways.⁶²

Sacheva enumerate numerous causes why people resist changes in e-Government implementation, because of long implementation cycle, unknown drivers, lack of clarification on vision, inadequate support of top management, process change, official secrets, un-measurable benefits, disjointed systems and departments,

⁵⁶ Fountain, J.E. "Building the Virtual State: Information Technology and Institutional Change". Brookings Institution, Washington, 2001

⁵⁷ Pons, A. "E-Government for Arab countries". *Journal of Global Information Management*, 7.1 (2004):30-46

⁵⁸ Apostolou, D, et al. "A collaborative decision framework for managing changes in E-Government services". *Government Information Quarterly*, 28 (2011):101-116

⁵⁹ Saboohi, N, and Sushil. "Managing continuity and change: a new approach for strategizing in E-Government. Transforming Government: "People, Process and Policy, 4.4 (2010): 338-364.

⁶⁰ Kifle, H., & Low Kim Cheng, P. "E-Government Implementation and Leadership – the Brunei Case Study". *Electronic Journal of E-Government Volume*, 7.3 (2009) 271-282.

⁶¹ Heeks, R. "Most E-Government-for development projects fail: how can risks be reduced?", *iGovernment Working Paper Series*, Paper no.14, 2003.

<http://unpan1.un.org/intradoc/groups/public/documents/NISPAcee/PAN015488.pdf>

Accessed on 11 September 2005

⁶² Ndou, V. "E-Government for developing countries: Opportunities and challenges." *The Electronic Journal on Information Systems in Developing Countries*, 18.1 (2004)1-24.

<http://unpan1.un.org/intradoc/groups/public/documents/untc/unpan018634.pdf>

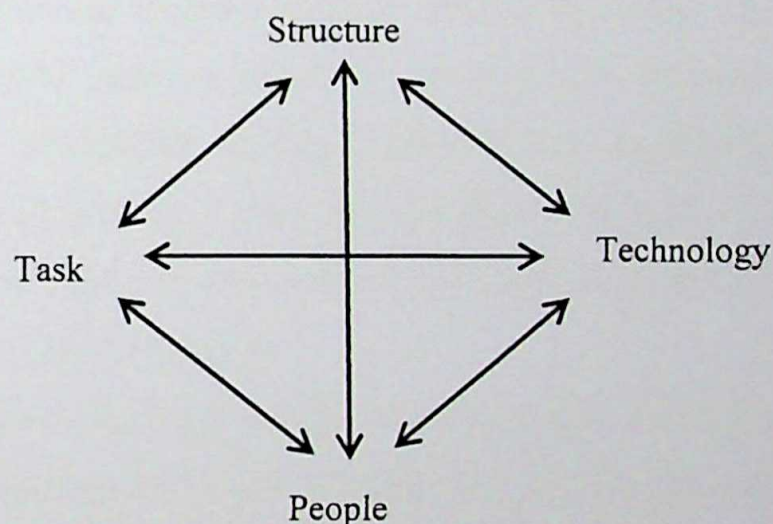
Accessed on 20 December 2011

fear of job loss, fears of loss of power, changes in job profile, cultural gap, comfort with status quo, work overload, etc.⁶³

There has to be emphasized that managing changes of e-Government is very complex not only due to overload so many resistance to change, but also because e-Government services are frequently distributed over different IT systems and organizations. Moreover, changes may be triggered by events from outside the public administration such as globalization, new opportunities, pressure of good governance, stakeholders needs, new technology, the e-platform, governments policies and legislation, public-private partnership over which public administration has little or no control.⁶⁴

Although managing changes in e-Government implementation is quite hard and complex, there exist some cases of successful change management.⁶⁵

Figure 2.3 Leavitt and his famous diamond Model⁶⁶



Every element of organizational life affects every other: change the technology and together with a change in the task and ought to change the structure and the people. Change the people, and they will find new ways of performing tasks and the technology must adjust, as must everything else. This is depicted in figure 2.3 Leavitt and his famous diamond Model.

⁶³ Sacheva, S. "Change Management for e-Governance", *I-Ways Journal of E-Government Policy and Regulation* 32 (2009): 109-117.

⁶⁴ Apostolou, D, et al. "A collaborative decision framework for managing changes in E-Government services." *Government Information Quarterly*, 28 (2011) : 101-116

⁶⁵ Saboohi, N, and Sushil. "Managing continuity and change: a new approach for strategizing in E-Government. Transforming Government: "People, Process and Policy, 4.4 (2010) : 338-364.

⁶⁶ Tom Wilson" Modeling the information user: the wider perspective." A paper delivered at the INFOTECH '95 Conference, Kuala Lumpur, Malaysia, November 1995, <http://www.informationr.net/tdw/publ/papers/klpaper.html> Accessed on 7 July 2005

Leaders are therefore the most important success factor of managing, realizing and implementing such changes. To manage such complex system with so many changes the new style of leadership is needed in e-Government implementation. One of the preconditions for successful transformation of public sector organizations is the role of leadership.⁶⁷ Necessary changes of individual elements that have to be managed in e-Government institution are discussed in the following paragraphs. It is described in Table 2.4.

In e-Government implementation, there will be necessary changes in national information infrastructure, network infrastructure and network databases, architecture interoperability, compatible data standards and technical standards, security models, implementation of discussion support, multimedia, automation, tracking and tracing and personal identification technologies regarding the technology element.

Moreover, there will also be necessary changes to the entire process due to consideration of business process change principles from the private sector, significantly accelerated process execution -from a few minutes to a couple of seconds, horizontal (integration among functions and departments) and vertical process executions (integration among organizations), changes to the rules, which determine the process (trust, safety, maintenance and integrity must be dealt with therein) regarding the process element.

The third kind of necessary changes is to the people. The extent of change will be such that the employees must gain a horizontal process view, requiring new and complex skills (e.g. self-organization, confrontation with unexpected tasks) and knowledge, organizing staff training, and encouraging the collective learning. In addition, leaders need to be able to combine their ICT knowledge and skills with their understanding of the process dimension and they should be able to develop a strategic vision and comprehensive human resource management, project management and user-orientation strategies.

The fourth kind of necessary changes is to the organization culture. There will be transition to a service-oriented culture. It will be a necessary situation for employees to overcome departmentalization thinking. Organizational loyalty need to be strengthened. Employees should be encouraged to perform more challenging tasks, to be willing to take responsibility. Inter-departmental and inter-organizational

⁶⁷. Elnaghi, M., Alshawhi, S., & Missi, F. "A Leadership Model for E-Government Transformation". *Proceedings of European and Mediterranean Conference on Information Systems* 2007: 1-12.

cooperation and trust must be strengthened. The understanding of organizational learning must be strengthened and the leaders' way of thinking must be radically changed .All these extent of change will be included in the organizational culture element.

The fifth kind of necessary changes is to the structure element. The extent of change in structure element will be such that it is necessary to take into account, that, on one hand, due to the horizontal and vertical integration (activities are being decentralized, a great level of flexibility in task-performing is required), tasks are undergoing a de-specialization process, while on the other hand, a new task-structuring is required. Data digitalization must be standardized, procedures being standardized for several departments or organizations simultaneously (e.g. the introduction of e-public procurement), common standards being applied .When procedures are simplified and informatised, the level of formalization is decreased, while, on the other hand, a new procedure execution method requires new record safety, trust, maintenance and integrity rules. At the same time decisions on the introduction of e-Government is transferred to e-leaders, which appear both on the top (e-Leadership) and the middle level (e-Champions, CIO leaders), which leads to a decentralized decision-making process, nevertheless their coordination and control roles is strengthened. Lastly, the hierarchical structure is transformed into a network one.

Therefore it should have necessary changes for five elements such as technology, process, people, organization culture, and structure. Proper and systematic management of these five elements are very critical in e-Government implementation.

Table 2.4 Necessary changes of individual elements that have to be managed in e-Government implementation

Element	Extent of changes
Technology	-national information infrastructure -network infrastructure and network databases -architecture interoperability -compatible data standards (Extensible Markup Language –XML) -compatible technical standards -security models -implementation of discussion support, multimedia, automation, tracking and tracing and personal identification technologies

Element	Extent of changes
Processes	-changes to the entire process (consideration of business process change principles from the private sector) -significantly accelerated process execution (from a few minutes to a couple of seconds; process can be executed 24/7) -horizontal (integration among functions and departments) and vertical process executions (integration among organizations) -changes to the rules, which determine the process (trust, safety, maintenance and integrity must be dealt with therein)
People	-the employees must gain a horizontal process view -new and complex skills (e.g. self-organization, confrontation with unexpected tasks) and knowledge -staff training must be organized, collective learning must be encouraged -leaders must be able to combine their ICT knowledge and skills with their understanding of the process dimension -leaders must be able to develop a strategic vision and comprehensive human resource management, project management and user-orientation strategies
Organizational Culture	-transition to a service-oriented culture -the employees must overcome departmentalization thinking -organizational loyalty must be strengthened -employees must be encouraged to perform more challenging tasks, to be willing to take responsibility -inter-departmental and inter-organizational cooperation and trust must be strengthened -the understanding of organizational learning must be strengthened -the leaders' way of thinking must be radically changed
Structure	-it must be taken into account, that, on one hand, due to the horizontal and vertical integration (activities are being decentralized, a great level of flexibility in task-performing is required), tasks are undergoing a de-specialization process, while on the other hand, a new task-structuring is required -data digitalization must be standardized, procedures being standardized for several departments or organizations simultaneously (e.g. the introduction of e-public procurement), common standards being applied (e.g. XML structures) -as procedures are simplified and informatised, the level of formalization is decreased, while, on the other hand, a new procedure execution method requires new record safety, trust, maintenance and integrity rules -decisions on the introduction of e-Government is transferred to e-

	leaders, which appear both on the top (e-Leadership) and the middle level (e-Champions, CIO leaders), which leads to a decentralized decision-making process, nevertheless their coordination and control roles is strengthened -the hierarchical structure is transformed into a network one
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Source: Leitner and Kreuzeder, (2005)⁶⁸

All employees, managers and IT specialists need basic IT literacy and specialist IT skills. Managers and information management (IM) specialists need the skill of internal and external information management, privacy protection, and feedback mechanisms. Managers also need the skills to understand capabilities of ICT, ability to evaluate trends, foresee ICT's impact on organizational culture and ability to set ICT strategy. In addition, managers need to have the skill in organizational change, risk management, accountability frameworks, financing arrangements, cooperation and collaboration, and public-private partnership. These essential skills for dealing with e-Government process are described in table 2.5.

Table 2.5 Essential skills for dealing with e-Government processes

<i>Skills</i>	<i>Needed by</i>
Information Technology	All employees, managers and IT specialists
Basic IT literacy	
Specialist IT skills	
Information Management	Managers and IM specialists
Internal Information Management	
External Information Management	
Privacy protection	
Feedback mechanisms	
Information Society	Managers
Understand capabilities of ICT	
Ability to evaluate trends	
Foresee ICT's impact on organizational culture	
Ability to set ICT strategy	
Management/Business	Managers
Organizational change	
Risk management	
Accountability frameworks	
Financing arrangements	
Cooperation and collaboration	
Public-private partnership	

Source: Leitner and Kreuzeder,(2005)⁶⁹

⁶⁸ Leitner, C., & Kreuzeder, M. "Organizational Changes, Skills and the Role of Leadership Required by eGovernment" EGOV, Vol 3591. Wimmer, M.A et al. (Eds.), (2005): 210-217.

From there and further experiences there have created some lists of competencies that leaders should have for a successful e-Government implementation. A group of researchers provides other e-Government leadership competencies that are divided into three groups – i.e. setting new directions, transforming processes and resource use and using information strategically.⁷⁰ It is described in table 2.6

Table 2.6 E-Government leadership competencies

Setting new directions	
Policy of e-Government	Understanding the environment, principles, policies, and foundations
Thinking challenges	Applying systems thinking to complex e-Government
Planning	Planning and organizing strategically for e-Government
Change	Transforming organizations and cultures to sustain e-Government
Transforming processes and resource use	
Collaboration	Collaborating across boundaries to achieve e-Government goals
Architecture and systems	Understanding and applying effective architecture and enterprise integration for e-Government
Human capital	Using new models to extend human capital for e-Government
Financial resources and investment management	Planning and managing funds resources strategically for e-Government
Performance management	Managing performance-based e-Government programs and projects
Execution/implementation	Moving from concept to reality
Using information strategically	
Information and knowledge resources	Providing the right information and knowledge at the right time within and across boundaries
Security and privacy	Balancing security, privacy, access issues, and protection of information
Technologies	Understanding strategic uses of information through the use of technologies

Source: Elnaghi et al⁷¹, (2007): 8-9

From the above listed competencies and skills of e-Government leadership it can be seen that skills to drive change in e-Government implementation are very complex. In fact e-Government need new visionary style of leadership – those who can best help navigates unknown challenges ahead.⁷² E-Government calls for strong

⁶⁹ Op-cit

⁷⁰ Elnaghi, et al, "A Leadership Model for E-Government Transformation". *Proceedings of European and Mediterranean Conference on Information Systems* (2007) : 1-12.

⁷¹ Op-cit

⁷² Ibid

leadership at different levels to provide a strategic vision for and the operational implementation of innovation and change management in public administration.⁷³

The transformation cannot be made by the public service alone but requires strong and committed leadership at the political level. Commitment of politicians and public sector managers are crucial in order to manage change. New top level leadership (e-Leaders) and mid-level leadership (e-Champions) are responsible to drive changes in organizations. It is important that top public managers do not hand over responsibility for e-Government to the professional IT experts.⁷⁴

In studying e-Government in Brunei government, it is realized that the way of e-Government implementation in Brunei is bottom-up rather than top-down. Such way is appropriate for the private sector and not for major changes in public sector. They conclude that innovation in public sector has to be top-down first and followed bottom-up approach. They further point out that poor change management strategy is one of the critical leadership issues in e-Government implementation and is too overlooked by Brunei government.

The main problem of public managers is that they treated e-Government just as "technological mission". However, they have to work on organizational infrastructure if they want to realize full potential of new technologies, especially in achieving joined-up, network government. One researcher considered that building the organizational infrastructure for e-Government could take between 12 to 18 months.⁷⁵

To identify changes that have to be managed, extended Leavitt's organizational model regards technology as an equal and co-dependent element in relation to other organizational factors (processes, structure, people and organizational culture). However, the majority of scholars during the period of e-Government claim that ICT in e-Government period have the potential to create radical organizational changes,⁷⁶ and regards ICT as the key, more or less independent element of

⁷³ Leitner, C., & Kreuzeder, M.. "Organisational Changes, Skills and the Role of Leadership Required by e-Government". *EGOV 2005, LNCS 3591*, M.A. Wimmer et al. (Eds.), (2005) : 210-217.

⁷⁴ Kifle, H., & Low Kim Cheng, P. "e-Government Implementation and Leadership – the Brunei Case Study". *Electronic Journal of e-Government* ,7.3 (2009) : 271-282.

⁷⁵ Joyce, P. "E-Government, strategic change and organizational capacity". V E. M. Milner, Delivering the Vision. Public services for the information society and the knowledge economy. London: Routledge. (2002):156-171.

⁷⁶ Bellamy, C., & Taylor, J. "Governing in the Information Age". Buckingham: Open University Press, 1998.

organizational transformation. On the other side there are authors who believe that ICT is only one of the elements within an organization, which is reciprocally related to other elements within as well as outside of the organization, and only appropriate connection between them enables optimum exploitation of the potentials of new technologies.⁷⁷ The latter group of scholars hold socio-technical view on organization, presented in Leavitt's model.

After confrontation of those two views of ICT role in e-Government period, another opinion is that ICT in e-Government period is a key driver of organizational transformation of public sector organizations. However, it more than ever depends upon other factors within an organization, and partly upon its surroundings, because such factors are usually those that trigger potentials of ICTs and enable or even limit their optimum utilization.

Then, Leavitt's model is adjusted into model that enables ICT to be placed into the centre of the socio-technical system as the main transformation factor in public sector organizations. ICT is a central actor in such model, however, cannot operate independently. An optimum potential utilization is strongly co-dependent on the other elements of the model. This leads to the creation in some ways of a new entity-relationship model, which would best describe the relationships among the key factors for a successful e-Government implementation (Figure 2.4).

Ho, A. T.-K, "Reinventing Local Governments and the E-Government Initiative". *Public Administration Review*, 62.4. (2002): 434-444.

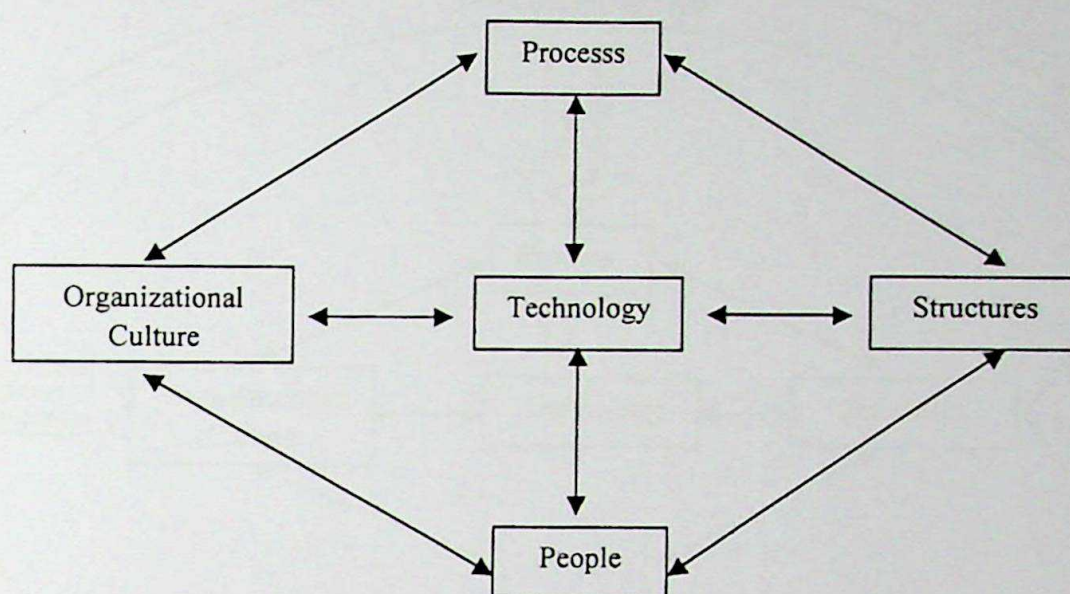
Bekkers, V. "E-Government and the emergence of virtual organizations in the public sector". *Information Polity*, 8.3/4 (2003): 89-102.

⁷⁷ Fountain, J. "Building the virtual state. Information technology and institutional change". Washington D.C, 2001.

Van Wert, J. "Questions about e-Government". *Digital Government Workshop at the Kennedy School of Government*, Harvard University, 2002

Maniatopoulos, G. "E-Government Movements of Organizational Change: A Social Shaping Approach", *4th International Critical Management Studies Conference*, Judge Institute of Management, Cambridge, UK, 2005.

Figure 2.4 Model Representing the Role of ICT in the e-Government Period in Relation to other Organizational Factors



Source: Nograšek, J, (2011)⁷⁸

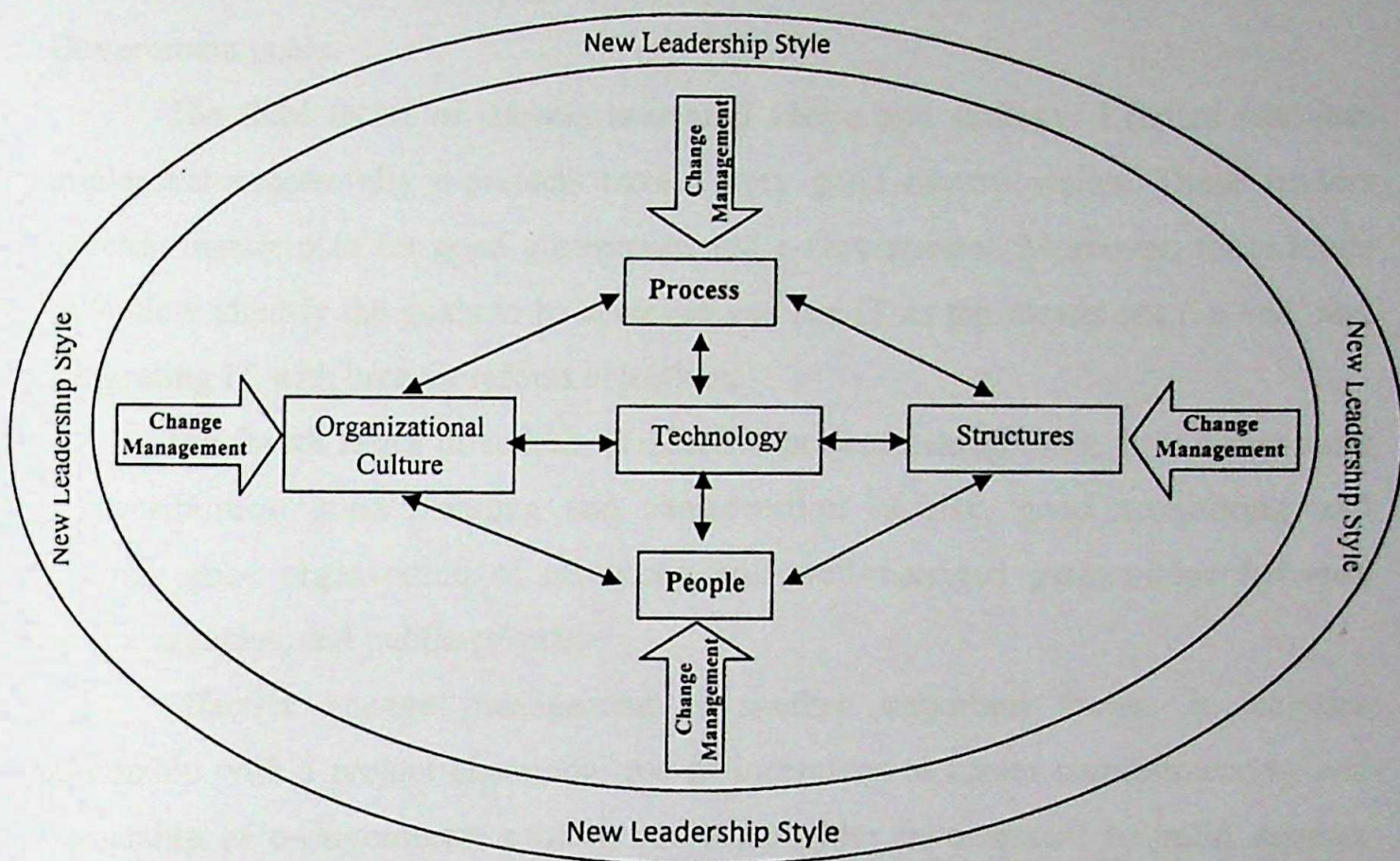
Therefore changes brought by new technologies and their potentials into e-Government processes have to be into the core of change management strategy and changes in other four elements of organization that are caused by technology have to be addressed at the same time and relations among them have to be identified.

New type of leadership with a complex vision, integrating the reengineering of work processes, organizational structures and cultures also have to bear in mind that new technologies and Internet are at the core of their competencies .

Then, conceptual change management model of e-Government implementation can be created and it is shown in Figure 2.5. All changes that are occurred in each of the element of adjusted model have to be managed and included in comprehensive change management strategy. Those changes have to be managed by e-Government leaders that have to conquer adequate skills to manage them (Table 2.5 and Table 2.6) and select the most appropriate change management model.

⁷⁸ Nograšek, J. "Change Management as a Critical Success Factor in e-Government Implementation", *Business Systems Research* 2.2 (2011):1-56

Figure 2.5 Change Management Model of e-Government Implementation



Source: Nograšek, J. (2011)⁷⁹

2.6 E-Government Project Success and Failure

Managing changes in e-Government implementation is very complex task. Poor change management strategy is one of the causes why e-Government projects frequently failed. One of the biggest responsibilities of insufficient addressing change management issues stands on the leadership of e-Government and responsibility for e-Government is given to the professional IT experts instead of preparing strategic planning and considerable change management strategy for e-Government. E-Government is more an organizational change issue than a technological issue.

According to Manchester University researcher in the year 2003 only 15% of e-Government projects in developing countries get successful result. There are some of the main factors that help support success of e-Government in developing/transitional countries.

E-Government projects are successful because of external pressure. It is because of the drive for reform from outside government, e.g. from civil society.

⁷⁹ Op-cit

Another factor of e-Government's success depends on internal political desire. It is due to the drive from key government officials for reform and achievement of e-Government goals.

The third factor of success is overall vision and strategy. Leaders who can implement successfully e-projects have a very good overall vision. These leaders develop master plan for good governance and e-Government. Moreover, these kinds of leaders identify the goals to be achieved and see IT as the means not the end, and integrating IT with broader reform objectives.

The fourth factor of success is effective project management. It includes clear responsibilities, good planning and consideration of risk, good monitoring and control, good organization of resources, and well-managed partnerships between public agencies, and public-private.

Effective change management is another important factor. It includes leadership with a project champion, use of incentives to create commitment to and ownership of e-Government project, and stakeholder involvement to build support and minimize resistance.

Effective design can also be contributed to successful implementation of e-Government projects. It is a kind of an incremental/piloting approach with feasible objectives and quick, scalable outcomes; participatory involvement of all stakeholders, leading to designs that meet real user needs and match real user contexts.

Requisite competencies are also important factor for success. It means presence of the necessary skills and knowledge, especially within government itself, needs both management and IT skills and knowledge.

Requisite competencies are a must and without which e-Government will not work. Encouragement through appropriate telecoms policies. Other critical success factors identified include: luck, perseverance, and adequate funding.

While some government has been implementing e-Government initiatives many initiatives fail to live up to expectations.⁸⁰ Researcher finds that 85% of e-Government initiatives in developing countries are failure either total or partial failure. Developing countries continue to produce too many failures, marked by cost

⁸⁰ Heeks, R. (2003). "Most E-Government-for development projects fail: how can risks be reduced?" *iGovernment Working Paper Series*, Paper no.14.
<http://unpan1.un.org/intradoc/groups/public/documents/NISPAcee/PAN015488.pdf>
Accessed on 11 September 2005

overrun, late deliveries, poor reliabilities and users' dissatisfaction."⁸¹

A loose budgetary control is one of the reasons and escalation of commitment take part in the failure. One of the scholars argues that the main reason of implementations fail is the existence of design-reality gap.

This gap is as a result of differences between what is considered to be necessary important in the design stage and the reality into which the system will be transferred.

E-Government initiatives can be divided into three main definitions:

Total failure : the initiative was never implemented or was implemented but immediately abandoned.

Partial failure: major goals for the initiative were not attained and/or there were significant undesirable outcomes.

Success : most stakeholder groups attained their major goals and did not experience significant undesirable outcomes.

Major goals are the main objectives a group wanted to achieve with the initiative; undesirable outcomes are unexpected outcomes that a group did not want to happen but which did happen.

This is also six-way classification of e-Government case studies.

Total failure: the initiative was never implemented, was implemented but immediately abandoned, or was implemented but achieved none of its goals.

Largely unsuccessful: some goals were attained but most stakeholder groups did not attain their major goals and/or experienced significant undesirable outcomes.

Partial success/partial failure: some major goals for the initiative were attained but some were not and/or there were some significant undesirable outcomes

Largely successful: most stakeholder groups attained their major goals and did not experience significant undesirable outcomes.

Total success: all stakeholder groups attained their major goals and did not experience significant undesirable outcomes.

Too early to evaluate: it is too soon after implementation and/or there is too little evidence yet to evaluate the outcome.

According to the Manchester University research and the figures on the basis of the poll result ratio of total failure: success produces the following figures:

⁸¹ Abdel-Hamid, T. K., and Madnick, S. E. "The abusive lining: how we fail to learn from soft ware development failures", *Sloan Management Review*, 32.1 (1990): 39-47

Table 2.7 Success and Failure of e-Government in Developing/Transitional Countries

Classification	Percentage (Number)
Success	15% (7)
.Partial Failure	50% (29)
Total Failure	35% (18)
<i>Total</i>	100% (54)

Source: Heeks, R. (2003)⁸²

The working estimates from the surveys suggest that more than one-third of e-Government projects in developing/transitional countries are evaluated as total failures, a further half is partial failures, and roughly one-seventh is a successes. It means that the great majority of e-Government projects are regarded as failures of some kind. It can be said that the higher up the management pyramid, the greater the likelihood of failure especially in e-Government.

Most of the successes are operational-level systems that automate basic clerical functions like data processing. Many of the partial failures are systems in which the operational component works, but in which the tactical or strategic management components do not work. One of the famous models of e-Government success and failure is the design-reality gap model. The central character of e-Government success and failure is the amount of change between 'where we are now' and 'where the e-Government project wants to get us'.

Leaders also should know the current realities of the situation. In addition, leaders should clearly understand the model or conceptions and assumptions built into the project's design. Success and failure of e-Government therefore depends on the size of gap that exists between 'current realities' and 'design of the e-Government project'.

It is found that the larger this design-reality gap, the greater the risk of e-Government failure. Equally, the smaller the gap the greater the chance of success.

Analysis of e-Government projects indicates that seven dimensions - summarized by the ITPOSMO acronym - are necessary and sufficient to provide an understanding of design-reality gaps:

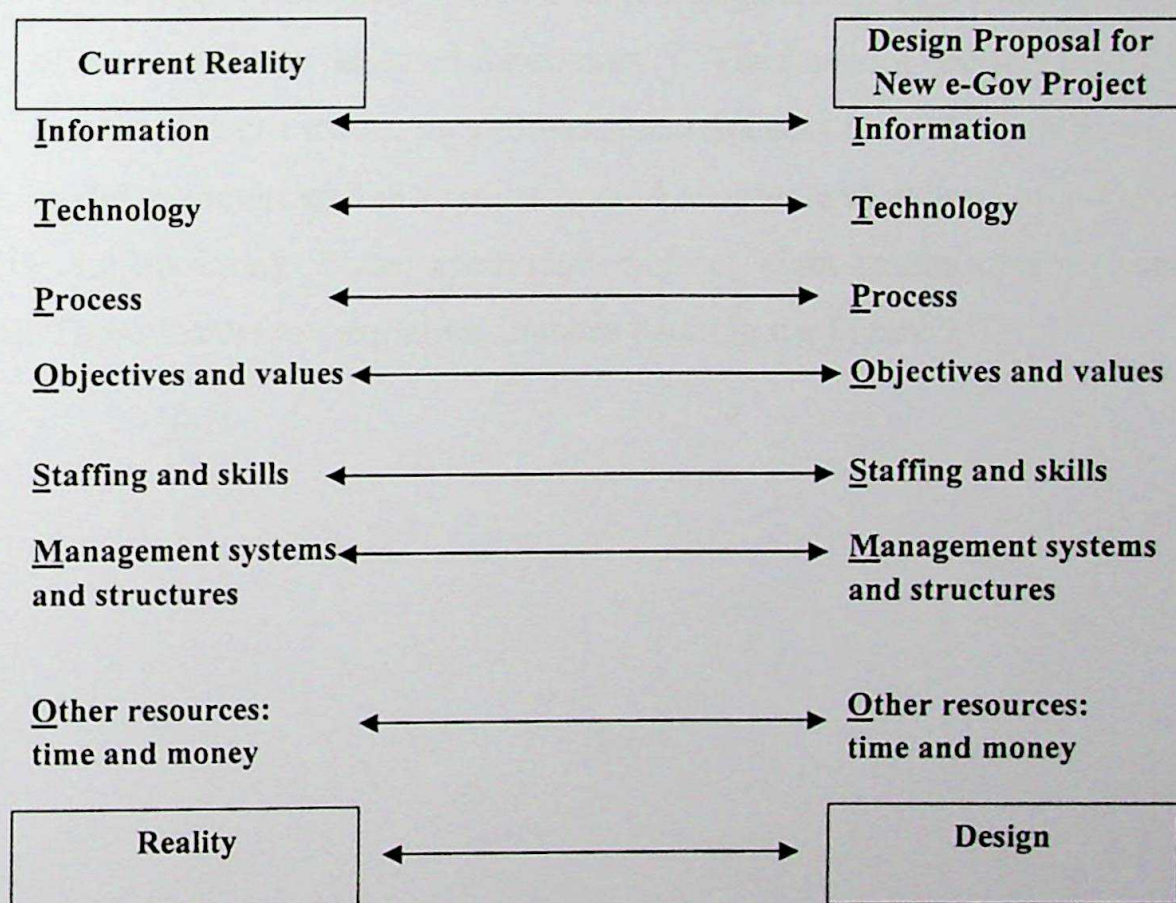
- Information

⁸² Op-cit

- **T** echnology
- **P** rocesses
- **O** bjectives and values
- **S** taffing and skills
- **M** anagement systems and structures
- **O** ther resources: time and money

Putting these dimensions together with the notion of gaps produces the model for understanding success and failure of e-Government that is shown in Figure 2.6..It is mostly regarded as the design-reality gaps model.

Figure 2.6 The ITPOSMO dimensions of e-Government project design-reality gaps⁸³



E-Government failures come in more varieties. It archetypes of failure do exist, a large design-reality gap will exist and , failure will be more likely to emerge.

The first archetype is *Hard-Soft Gaps*. Many e-Government systems get designed according to these notions. In reality, many government organizations don't adhere to these 'hard' ideas. They are dominated by 'soft' factors: people, politics,

⁸³ Heeks, R. (2003). Most e-Government-for development projects fail: how can risks be reduced?, *iGovernment Working Paper Series*, Paper no.14.
<http://unpan1.un.org/intradoc/groups/public/documents/NISPAcee/PAN015488.pdf>
 Accessed on 11 September 2005

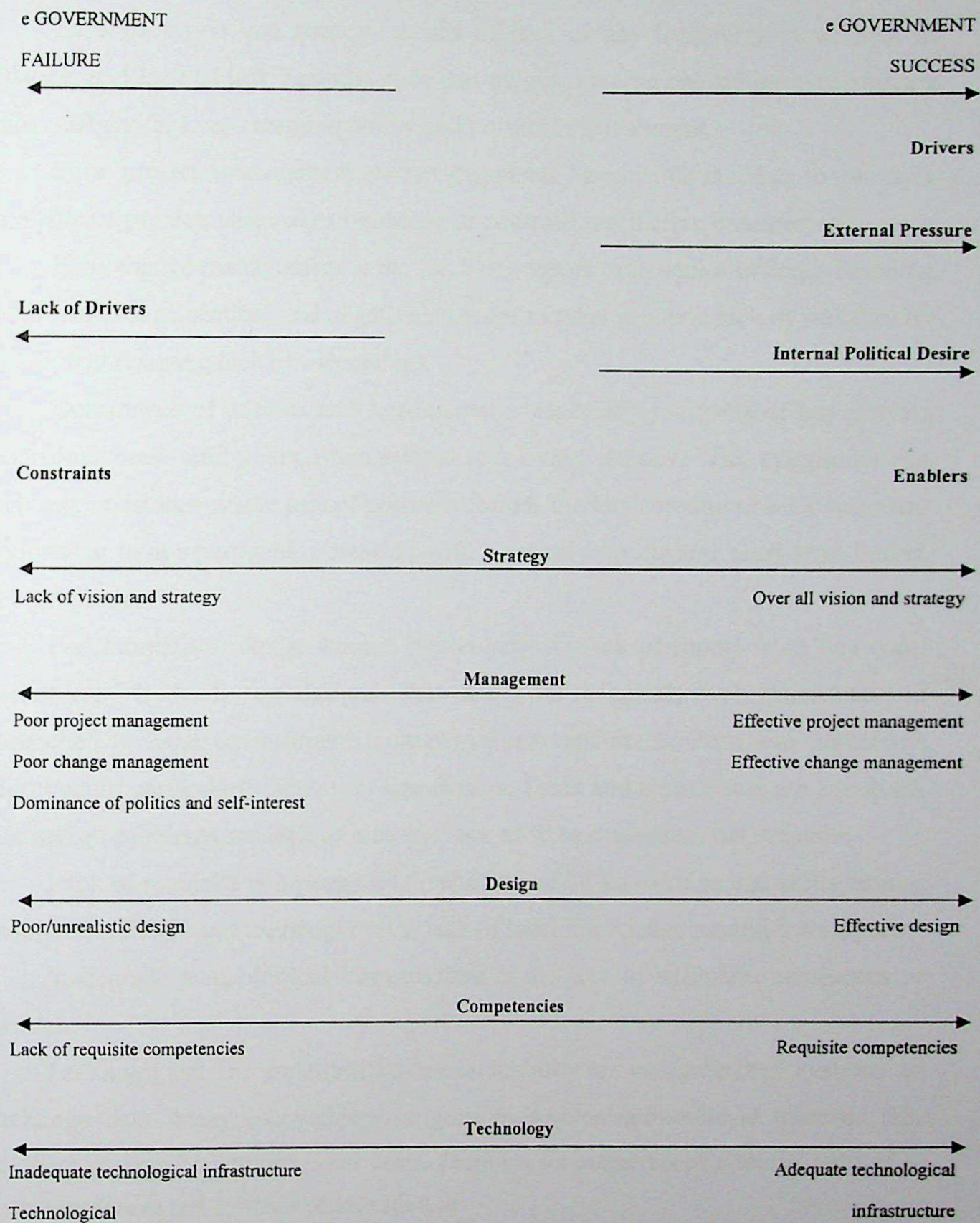
emotions and culture. When a hard e-Government design does not meet a soft reality, there's a large gap, and a strong likelihood of failure.

The second archetype is *Private-Public Gaps*. Despite the best efforts of some, the public sector remains fundamentally different from the private sector. Except that too many IT firms, IT consultants, government CIOs. Forget this. They pick up an information system designed for the private sector. Then they try to shoehorn it into a very different public sector reality. It's a classic case of square pegs and round holes. Then, the large design-reality gaps plenty of failure.

The third archetype is *Country Context Gaps*. It sometimes seems only the first half of 'Think Global, Act Local' gets remembered. Governments seeking quick fixes try to pull solutions off-the-shelf from other countries. But Yangon is not Seoul. Yangon is not Tokyo. So there's often a large design-reality gap when e-Government system of country X was designed for country Y. The frequent result is also failure Y.

Another famous model for e-Government Success and Failure is factor model. Factor model summarizes the reasons behind success and failure of e-Government projects. Left-pointing items encourage failure; right-pointing items encourage success. These factors are explained in more detail in the Figure 2.7.

Figure 2.7 Factor model for e-Government success and failure⁸⁴



Here are a few lists and explains some of the main factors which underlie failure of e-Government in developing/transitional countries.

⁸⁴ Heeks, R. "Causes of e-Government Success and Failure: Factor model"
<http://www.egov4dev.org/success/evaluation/factormodel.shtml> Accessed on 27 August 2013,

Lack of internal drivers means pressures only from IT vendors, with no internal ownership or understanding of e-Government.

Lack of vision and strategy means of lack of any long-term view, lack of guidance, and lack of link between ends and means; may be caused by ever-shifting senior staff and/or ever-changing policy and political environment.

Poor project management means dispersed responsibilities due to multiple ownership of project; absence or weakness of controls; ineffective procurement.

Poor change management is the Lack of support from senior officials (causing lack of resource allocation, and negative message to other groups); lack of stakeholder involvement (causing lack of ownership).

Dominance of politics and self-interest is especially for focus of key players on personal needs and goals, often related to 'playing politics', with symptoms like infighting, resistance where loss of power is feared, 'me too' copying of e-Government solutions for image purposes, obsession with electoral impacts and short-term kudos, and corruption.

Poor/unrealistic design caused particularly by lack of inputs from key local stakeholders. It leads to designs that are over-technical, over-ambitious, or mismatched to local environment (culture, values) and needs. Poor and unrealistic design occurs particularly where foreign donors, firms and consultants are involved. Other design problems are lack of piloting, lack of fit to organizational structure

Lack of requisite competencies means lack of IT knowledge and skills among developers, officials and users/operators; lack of local knowledge among developers

Inadequate technological infrastructure is the lack of sufficient computers or networks.

Technological incompatibilities mean inability of computerized systems to interchange data. Many e-Government projects in developing/transitional countries fail. Then, these projects have to bear some costs. There are six categories of potential costs of e-Government failure and they can be identified as

- (a) Direct Financial Costs
- (b) Indirect Financial Costs
- (c) Opportunity Costs
- (d) Political Costs
- (e) Beneficiary Costs
- (f) Future Costs

Direct Financial Costs means the money invested in equipment, consultants, new facilities, training programmes, etc.)

Indirect Financial Costs means the money invested in the time and effort of public servants involved.

Opportunity Costs means better way in which that money could have been spent, if it wasn't spent on the e-Government failure.

Political Costs means loss of 'face' and loss of image for individuals, organizations and nations involved in failure.

Beneficiary Costs means the loss of benefits that a successful e-Government project would have brought.

Future Costs for e-Government occur when there is an e-Government failure. It increases the barriers for future e-Government projects.

A key problem is a lack of awareness of these costs. Most costs are intangible. E-Government failures are often "hushed up". Despite the high costs of failure and the high prevalence of failure, many officials and politicians are still very keen on e-Government.

There are so many the reasons for e-Government projects failure. ICT and e-Government professions were asked in India the reasons of failure in e-Government.

The first reason is the Government Employees. The lack of commitment of Bureaucrats is the primary flaw that lies in the system which in itself doesn't want to be transparent. Developers of e-projects are not the "operators". No government employee wants information made available fast and accurately to public. Since they don't like transparency in government offices and they fear it. Lack of proper awareness about lead generation and lack of proper technical and handling knowledge is the main reason of lack of proper IT education.

Some other reasons given by the professionals are flaw in planning, execution and system design, users (all are old people and don't know how to use computers), user feel more comfortable with paper work, government process, lack of change management skill, irrelevant application, scare of transparency, unwillingness to change attitude and mentality, lack of proper infrastructure and communication medium , lack of participation of private and capable players,

An India e-Government specialist describes so many reasons of e-Government failures. Some important reasons of e-Government failure are due to impossible mission , misunderstanding of governance and government, bottleneck at the top,

vendor driven e-Government, focusing only on "e" portion, employees are neglected in the e-Government development process, individualized (not institutionalized) projects, procedural loop holes, gap in fronts-office and back office e-Government, unsustainable business model, egoism at the top, misinterpretation of PPP ,large, complex Centralized system, and blame game culture.

2.7 E-Government Lessons

Developing e-Government Systems is a complex one. Implementation of large and complex project management system mostly fail not only in developed countries but also in developing countries. According to ITU recommendations, there are seven key lessons to assist developing countries' government leaders with building the capabilities and resources to design, implement and maintain e-Government services.⁸⁵ They are

1. Develop a strategic plan to guide e-Government services,
2. Understand the needs of all segments of public to make sure the e-Government system genuinely assists each citizen to fulfill his or her human development needs; and, enable citizens to participate in the design of e-Government services,
3. Use well established system development practices to carry out the day-to-day activities of developing, implementing and maintaining e-Government services,
4. Create a learning organization where employees are encouraged to participate in developing and managing e-Government services,
5. Develop effective ICT governance mechanisms to assign roles and responsibilities for managing and making decisions about e-Government services,
6. Develop ICT capabilities focusing on building a suitable ICT infrastructure to sustain long-term investments in e-Government, nurturing the development of human capital within the government to use ICTs for e-Government, and facilitating the skills of employees to develop and manage partnerships with private sector firms and other possible partners,

⁸⁵ ITU, " Electronic Government for Developing Countries ",
http://www.itu.int/ITU-D/cyb/app/docs/e-gov_for_dev_countries-report.pdf Accessed on 7Aug 2009

7. Provide a secure experience for web visitors by developing an e-Government security and disaster recovery plan.

Table 2.8 Factors impeding an enabling e-Government environment in developing countries

Core Factors	Symptoms	Consequences
Institutional Weakness	Insufficient planning Unclear objectives	Inadequately designed system Cost over-runs
Human Resources	Shortage of qualified personnel Lack of professional training	Insufficient support Isolation from sources of Technology
Funding arrangements	Underestimated project costs Lack of recurring expenditure	Unfinished projects Higher maintenance costs
Local environment	Lack of vendor representation	Lack of qualified technical support
Technology and Information changes	Lack of back-up systems/parts Limited hardware/software Inappropriate software	Implementation problems System incompatibility Over-reliance on customer application
Legal inadequacy	Complex legislative procedure	Lack of legal framework

Source: UN, *"Benchmarking E-Government: A Global Perspective"*, (2001) : 22
<http://unpan1.un.org/intradoc/groups/public/documents/un/unpan003984.pdf>
 Accessed on 11 Oct 2005

The feasibility of having a successful e-Government is directly depended on the governments' overall ability and readiness to spend on the necessary information technology and related costs.

Development of e-Governments is directly proportional to the IT infrastructure that is capable of supporting and enabling the execution of e-Government. An e-Government infrastructure in general comprises network infrastructure, security infrastructure, application server environment, data and content management tools, application development tools, hardware and operating systems, and systems management platform. However, many developing countries do not have the infrastructure necessary to deploy e-Government services throughout their territory.

The key to encourage citizens in developing countries to use the internet would be to provide them with compelling content and services that meet their primary needs.

The success of e-Government initiatives and processes are highly dependent on government's role in ensuring a proper legal framework for their operation. A

requirement for e-Government processes to be introduced and adopted is their formal legal equivalence and standing with the paper process.

The key concern for the developing countries would be to identify the legal issues. Many developing countries have implemented ICT applications to deliver information and services to the public through the internet.

As the enthusiasm of e-Government grows, many developing countries continue to utilize more sophisticated web sites with more features to do a better job of helping citizens, businesses, other governments, and other web visitors.

It is well established that governments in developing countries fall behind the rest of the world with e-Government. Success depends on government leaders to develop strategies to address how to enhance the willingness of citizens to adopt and use government services with ICTs and how to improve the ability of each ministry to implement ICTs.

The particular challenge for governments in developing countries is to build organizational capabilities to customize e-Government applications to local conditions the organizations need to have skilled human resources with the ability to creatively adapt new technologies and global practices to the local context and also manage the whole process of implementation.

One of the key issues for developing countries governments is how to manage the process of learning about new technologies and finding appropriate ways of implementing the technology to support its e-Government systems. One of the principal lessons of e-Government implementation worldwide is that the implementation roadmap for e-Government must, on the one hand learn from international experience but must also be a home grown product. Thus any country implementing e-Government can learn from the experiences of Singapore, Malaysia, Korea, Australia, India and others as well as the less successful strategies, but must also contextualize a strategy for specific to their countries. A strategy that is simply imported from another jurisdiction represents the 'black box' approach and is almost guaranteed to lead to a loss of understanding, ownership and probably commitment, as well as engendering a culture of dependency.

E-Government is not a pre-packaged solution for participation and good governance, efficiency or clean government. Instead e-Government entails deep public sector reform that must be evolutionary. E-Government is about transformation where technology is a catalyst and a tool. Yet, if e-Government is an

isolated process and not part of a larger program for improvement then it is unlikely to deliver its potential or expected benefits. Success in e-Government ultimately requires changes in how government manages information, and how civil servants undertake their jobs and interact with the community. E-Government transformation like any major public sector reform also presents costs and risks, both financial and political.

E-Government cannot be implemented simply by issuing an order from political leaders or a central authority. E-Government requires that officials change the perceptions and actions, and the way they exchange information between government departments (G2G), with the community/Citizens (G2C), and with business (G2B).

E-Government is essentially a political, not a technical project. Managerial and institutional reform must accompany technological change. E-Government is conditioned by the political and institutional context of its application—more than by other concerns such as technical standards and infrastructure.

Reforms and change in public organizations require public pressure, political commitment and an authorizing environment.

Current approaches to e-Government in developing countries result in delivering services online without internal process changes or deeper public sector reforms. For governments in the developing world plagued with inefficiency and corruptive practices, using new technologies to improve delivery of information and services is a key step forward.

E-Government may have the potential to generate enormous benefits in four critical areas of special relevance to developing countries: I) transformation of public institutions and service delivery; ii) promotion of transparency; iii) enabling of effective decentralization; and iv) increment of global competitiveness and integration.

2.8 Policy Challenges

There are some policy challenges that the developing countries must face in implementation of e-Government projects. These one lack of qualified HR to lead the process, weakness in services, limited funding resources, weak ICT governance and Inadequate legal and policy framework. Civil servants, their managers and other key stakeholders are often excluded from the initial design, practically guaranteeing their

lack of cooperation through the implementation phase. Finally, sustainability is key, beyond the initial phase of a pilot project.

External coalitions for e-Government and public sector reforms are needed to complement the efforts of internal change agents and public managers. But in many countries civil society organizations are weak or exclusively focused on own service delivery. Private sector associations may be engaged in short term narrow interest lobbying. Public sector reforms demand sustained efforts and such efforts demand strong cross-sector coalitions.

The first policy challenge is lack of a cadre of e-Leaders. As with any transformation process, the role of leadership is crucial to success. In the particular case of e-Government, leadership has been lacking at the highest political levels. The great majority of initiatives have been managed by mid-level managers. Ad hoc committees were created to work with and guide the technical staff. Most political leaders have only a limited understanding of the potential role of new technologies in public sector reform, and others see no political incentive in embarking on such a demanding reform process.

E-Leadership is needed at many levels. E-Leaders include the political, executive and legislative branches, and within government. These leaders are not just technology managers or chiefs of the MIS organization. They are a hybrid breed of leaders who understand both the demand (business or development) side as well as the supply (procurement and delivery) side of ICT.

Many countries are trying to address the e-leadership gap. Korea has given early (as early as 1998) and special attention to creating such a cadre, with the CIO office close to the minister and with enough authority in areas of budgeting and restructuring. In some countries like Turkey, these leaders within government agencies are called 'transformation teams', and in Sri Lanka, 'Chief Innovation Officers', to emphasize the process innovation and transformation roles of ICT. Many countries have recognized this challenge rather recently, but for most, a coherent response has yet to emerge. However, providing appropriate labels for this new cadre may be helpful, but not sufficient to turn CIOs into a powerful force for ICT-enabled change and transformation. E-Leaders need to be recruited, developed and equipped with the necessary skills, attitudes, knowledge and experience to lead institutional and process change.

The second policy challenge is weaknesses in civil service. The need to reform the civil service is on agenda. Embracing new technologies to transform the public sector requires that information tools be in the hands of the service providers and not just the technology savvy staff. But public service providers too must be motivated to innovate and improve services. Moreover the service providers must be skilled to play their new roles.

The third policy challenge is limited funding resources. E-Government is a continuous process. Regular stream of budget funding needs to be created for it. So public and private partnership also need to mobilize financial resources is very important. At the same time private sector must know how to tap scarce financial resource for effective implementation.

Most legislators, public sector leaders and specialists have yet to engage effectively in creating the necessary policy environment for a networked and connected government, including policies concerning privacy and security. Most governments also need to improve the quality and reliability of their technology infrastructure to enable back-office process transformation and integration, government-wide information sharing and citizen-centric service delivery. Decisions about technology are currently left in the hands of technical staff, with very limited or nonexistent leadership and guidance from the political level. When the top political authority in the public organization gets involved, it is because of the amount required and not to promote a debate on whether the chosen technology contributes to the strategic objectives of the organization. This results in a series of expensive technology acquisition decisions. Lacking standards, ICT governance framework, and top management involvement in setting priorities or enforcing standards typically results in a completely fractured technology platform, rarely driven by current priorities or future vision of public sector reform.

The choice of whether or not governments ought to embrace new technologies in the transformation of the public sector no longer exists. The reform of weak, inefficient and corrupt political institutions of the developing world is not possible without deeper understanding of the role of information and communication and taking account of the strategic role of ICT in development. Just as the transformation of the global economy was made possible by ICT, the transformation of governments, especially in the developing world, needs to rely on information technologies as the new enablers of reform. In the meantime, investments in ICT without corresponding

investments in institutional reforms and process changes will lead to limited benefits and unrealized potential. Only when e-Government involves joint investments in institutional and technological change, would deep transformation of the public sector and significant payoff from ICT be possible.

There will be many models to inspire this kind of e-Government and government transformation. They are some key lessons learned from leading countries.⁸⁶

The first lesson is "informed and committed leadership". E-leadership should be nurtured at the highest political levels by raising awareness about the potential transformative role of ICT in government and the role of leadership in realizing this potential. But e-Leadership must go deeper and cut across all sectors of society. They should be encouraged to articulate community needs for e-Government services and help build pressures on governments to become transparent and responsive. Leaders of think tanks and academic institutions should engage government and provide the intellectual leadership for reform. Perhaps most critical is the creation and continuous development of a cadre of CIOs who are able to bridge the gap between the political and executive levels who manage the development strategy and public reform process, and those responsible for managing the supply and absorption of the new technologies.

Another lesson is to "create an environment for Incentives for Reforms and Sustained Institutional Change". It is important to manage expectations about e-Government programmes and their ability to impact the life of ordinary citizens in the short term. Often there are 'killer' applications that could have wide and powerful impact such as the computerization of land records and making land certificates available to the millions of small farmers in Andhra Pradesh. But many investments in e-Government will take long gestation periods to show results and these are often of institutional, infrastructural and transformational nature. Since e-Government is about transformation and will inevitably encounter resistance and doubts, it is important to balance investments between those 'low hanging fruits' and quick impact applications, and those investments necessary to build the platforms for wider impact and transformation. Prioritization and phasing of investments should thus take account of the incentives and time horizon of various stakeholders to ensure adequate incentives

⁸⁶ ITU, "Electronic Government for Developing Countries", http://www.itu.int/ITU-D/cyb/app/docs/e-gov_for_dev_countries-report.pdf Accessed on 7 Aug 2009

for a sustained public sector reform process. A compelling long term vision is often an essential ingredient to overcoming painful transition costs and temporary setbacks. That long term vision must excites politicians, citizens and civil servants,

The third lesson is to "create a Vision, a Strategy, a Plan and a Budget." The e-Government strategy needs to be embedded in public sector reform strategy, and vice versa. Most critical aspect of this is to prioritize ICT applications across sectors and levels of government in line with the overall public sector reform strategy. Once such priorities are set, then ICT can be integrated with mutually reinforcing measures to change policies, skills processes, investments, and incentives in support of these specific reform objectives.

One of the important lessons learned is also "creation of an Adequate Enabling Environment." Enabling policies need to be addressed at the highest political level in order to create the appropriate environment for a networked society. These include: opening markets to competition to improve connectivity, improving opportunities for citizens' access to new technologies, investing in the necessary education and training resources to improve the workforce, and addressing infrastructure needs. Many of these policies and enabling conditions cut across sectors and ministries.

The fifth lesson is "Private Sector Participation". In many countries, the private sector is further ahead of government in deploying ICT for their own business process transformation and service delivery. Its experience in deploying ICT can be adapted and shared with governments. Private sector participation in e-Government projects should mobilize not only private financial resources but also private sector expertise in project management and business process re-engineering. The highly-successful Chilean online public procurement, for example, is operated by a consortium that includes Microsoft, Hewlett Packard, and the local private sector company, Sonda. Private sector participation can further reinforce the drive of policy makers and public managers to change the bureaucratic culture of government into customer-focused and people-centered service.

The sixth lesson is "Evaluation and Performance Measurement". Evaluation and Performance Measurement are the weakest in most developing countries. In most countries, information on actual allocation of resources or government expenditures is not widely disseminated, and very hard to understand. Performance and outcome measures are seldom monitored. Yet, monitoring of progress and evaluation of development impact of e-Government programmes are critical to scaling up

innovations and learning from success and failure. Monitoring and evaluation should be designed upfront, as an integral part of overall e-Government strategy. Learning and accountability should be embedded into pilots and overall programmes. This is particularly critical for a transformative role of e-Government, as changes are more complex and benefits diverse and unpredictable. Participatory approaches to monitoring and evaluation should be encouraged as they engage clients and users of e-Government services in learning provide continuous feedback for timely adaptation and demand-driven investment. It can also help citizens to apply pressures to realize the benefits of reforms and investments.

Myanmar along with most developing nations still has a long journey towards a mature e government capability. There is much work to be done, many challenges to be met and many pitfalls to be avoided in order to achieve the required capability, and it will take some years for current expectations to be fulfilled. A sustainable and viable vision of Myanmar's future in e-Government needs to be developed and promulgated, good governance frameworks and practices have to be formulated and implemented throughout every layer of the bureaucracy, ICT policies and standards need to be developed, infrastructures need to be built, expert knowledge and skills need to be acquired and applied, and reasonable milestones must be set.

2.9 Conceptual Framework

Myanmar Computer Technology Development Council is now headed by the Minister of Communications and Information Technology. In the previous era before 2011 April, e-National task force was a very strong institution and it undertook most of the ICT policy and e-Government Implementation. The Prime Minister of the previous government was taking the leadership position for all of the e-Government projects being implemented in Myanmar.

Government ministries and Institutions are trying to provide e-services to the business and citizens in consultation with Myanmar Computer Federation and Myanmar Computer Professionals Association (MCPA). Most of the e-services delivered to business and citizens were not users-centric, but it was ministries and department-centric. Neglecting the right of choice for the government customers is in the past.

Government strategy is people-centered development. The performances of the Ministries are under constant review by respective committees of parliament. In

Conceptual Frame Work of the study, e-Government development depends, especially, on Telecom and ICT industry, ICT policy, ICT Human Resource development, ICT law and regulatory framework, Telecom and ICT Infrastructure, Government Institutional set up, Private Institution and Citizen, CIO and last but not the least, the mindset of the leaders as well as government staff.

In the near future, the definition of e-Government may include what is variously called government reform, government modernization and institutional development. This means that ministries and development beyond IT department must be strategically involved in e-Government strategies. Moreover, this meant that budgeting process need to be changed, for example, to accommodate increased data sharing and cross-boundary operation. Oversight structure and process must be changed.

Technology is always changing and the fastest changing technology is ICT. But laws and regulations cannot catch up with the forever changing ICT Technology. Many laws and legislative frameworks are required for e-Government to implement its task successfully. These include laws regarding authentication, digital signature, data privacy of digital forms as official government document and procedure, law on privacy and related issues, law related to changes in business processes and information systems, law regarding the government information technology architecture and establishing an integrated computing centre.

E-Government also requires a fundamental shift, especially mindset shift, in the culture of the civil service and of government officials.

Development of the ICT, Telecommunication and ICT industry also promote the supply and demand side of e-Government services. Telecommunications sector is still dominated and monopolized by the government, but with the promulgation of new telecom law by Parliament in the near future, there will be more competition in the telecommunication sector. It will also pave the way for telecommunication sector development.

ICT and Telecommunication sector's contributing to the GDP is about 3% in the year 2013-2014 according to a news paper report.⁸⁷ According to the objectives of ICT industry in Myanmar, expanding job opportunities through ICT industry, providing benefits of using ICT in other industry sectors as well as trying to become a

⁸⁷ "New Light of Myanmar", 30.3.2014

good & reliable outsourcing destination, like India are being implemented. The stakeholders from the ICT and Telecommunication sector like to increase their contribution to GDP.

There are noticeable some good opportunities for ICT Industry such as gradually increasing domestic demand from public & private sector and rapid growth of mobile industry. At the same ICT industry has its own weakness such as high turnover rate of experienced software business development.

Qualified ICT human resources play very important roles in e-Government development. E-Government will not work effectively and efficiently if there are no qualified ICT professional to support industry and application areas. Whether supply of HRD and demand of HR match or not is another issue with education, ICT and labor sectors. ICT related training course for e- Government is needed. India and Japan established Training Centers and they are providing high level software technologies for ICT professionals and it is a good starting point too.

It is expected that the respective ministry will conduct ICT courses & curriculum in high school for future ICT development in Myanmar.

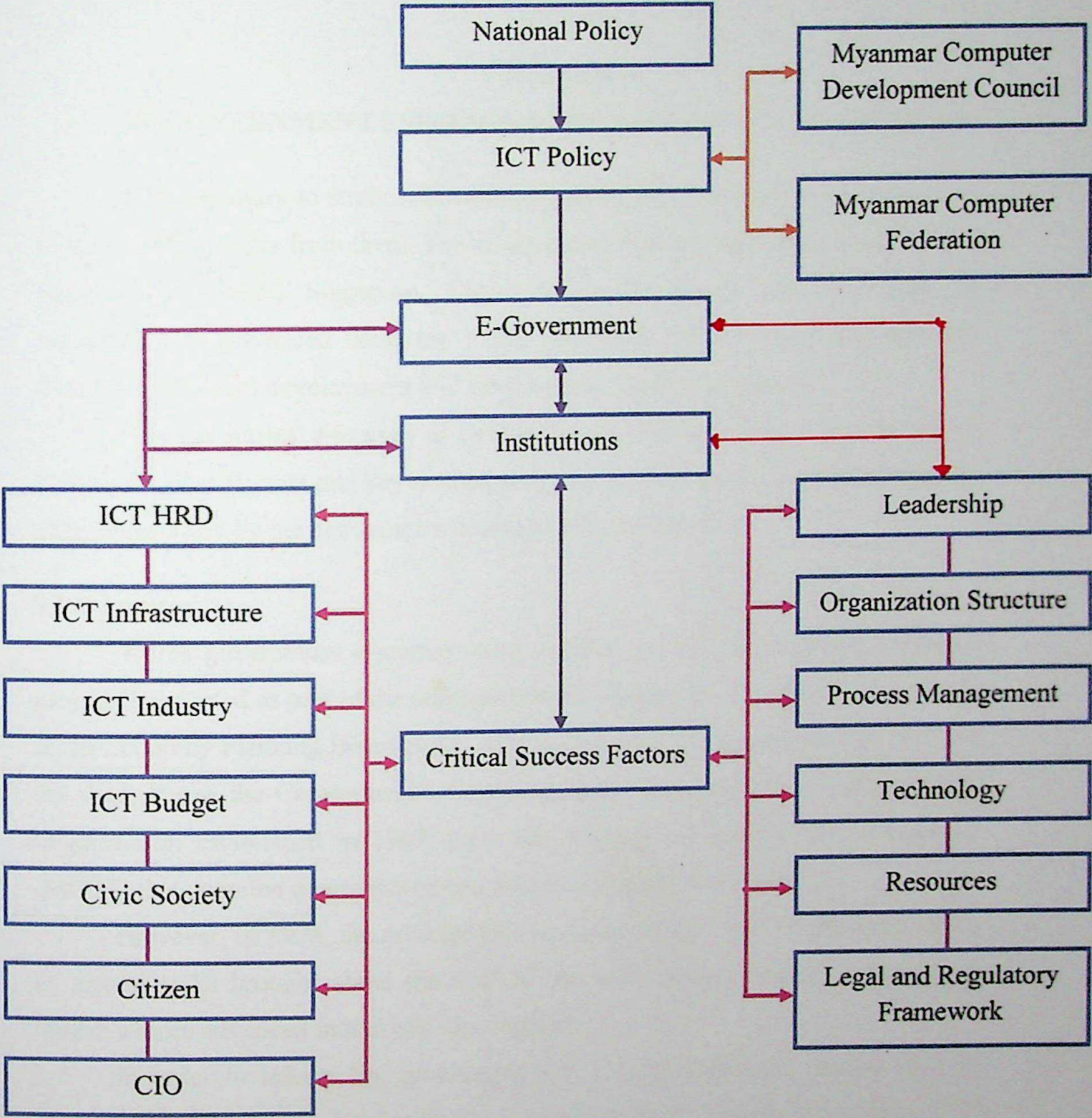
E-Government needs telecom & ICT infrastructure. It also must be accessible, affordable with speed. Telecom and ICT sector is growing at unprecedentedly rate nowadays and with 3 to 4 years from now on there will be sufficient telecommunications and ICT infrastructure for all the stakeholders. Ministry of Communications and Information Technology is trying its best to expand and develop its infrastructure in order to meet the future requirements and demand of the country. Most of the people in the world who are beginning to connect to the internet will connect using smart phone. It is predicted that in the future the interactions with government, business and citizen on-line will be through primarily the phone. In this regards, multichannel service provision will have the better future. It is the delivery of government services though a wide variety important as all citizens comes to see themselves as customers of government.

Based on the framework, the development of the e-Government, its benefits, challenges, barriers and trust are initially discussed.

This is followed by a study on the experiences of the leading countries such as Korea and Singapore and neighboring countries like India and China. Moreover, this study tries to find out the critical success factors as well as the reasons of failure in the implementing e-Government projects and lessons.

This study attempts to find out the current status of Myanmar e-Government development by comparing with the Asia neighboring countries. E-Government development in Myanmar based on website development stage is also analyzed. The study also explores the implementation experiences of e-Government officials of different ministries by conducting various surveys since June 2012. Interviews and survey with Chief Information Officers and ICT related staff responsible for e-Government unit of various government departments, and ICT professionals from different background conducted in this study. Figure 4.8 shows conceptual framework of the study based on the literature review.

Figure 2.8 Conceptual Framework of the Study



Source: Author's Sketch based on Literature

CHAPTER 3

E-GOVERNMENT EXPERIENCES OF SOME SELECTED COUNTRIES

It is necessary to study e-Government experiences of some countries in order to learn some lessons from them. The selected countries are from Asia region such as Republic of Korea, Singapore, China and India. Korea and Singapore are technologically advanced countries. China and India are Myanmar neighbors and their e-Government development will have some impact on Myanmar.

These countries' e-journey as well as the objectives, problems and challenges, Critical Success Factors and key earning points, and achievement are discussed in this chapter followed by the comparative analysis with Myanmar.

3.1 E-journey

Korea government e-journey is an interesting story. Korea's e-Government project first started as part of the office automation efforts for statistical analysis work in the Economy Planning Board (EPB) with the introduction of computers in 1967. At the time, it was the Committee on Coordination for Development of Computerized Organization established in 1967 under the Ministry of Science and Technology (MOST) that supplied computers to each ministry in the government.⁸⁸

However, in 1978, the need for informatization rather than simple automation of menial tasks brought about the start of the e-Government initiative that could realize a more advanced model of e-Government.

In order to reform the government into a highly efficient, productive, and democratic organization, innovating the way government operates by utilizing ICT took shape as e-Government projects for building necessary infrastructure to achieve this end and became the "Five Year Basic Plan on Informatization of Public Administration". These efforts by the Ministry of General and Home Affairs (MOGAHA) paved the way for efficient and far-reaching implementation of Korea's advanced informatization policies in the 1980s.

⁸⁸ "E-Government in South Korea", http://en.wikipedia.org/wiki/E-Government_in_South_Korea
Access on 25 August 2011

Then, Korea decided to build the infrastructure for e-Government at the early 1980s. The first decision was to build a "National Backbone Computer Network" and subsequently government enacted the laws such as the Computer Program Protection Act and Supply and Utilization of Computer Network Act in 1986 and the Software Development Promotion Act in 1987. These efforts secured technology and infrastructure vital to realizing e-Government.

In the case of Singapore, the advent of e-Government has its origins in the Government's decision to computerize the civil service in 1981. However, had it been an isolated development focused just on the civil service, e-Government in Singapore today would not have reached the level it has. The Government's infocomm journey started in the early 80's with the aim of transforming the Singapore Government into a world-class user of information technology. The "Civil Service Computerization Programme" (CSCP) launched in 1981 marks the first wave of e-Government in Singapore.⁸⁹

The Civil Service Computerization Programme streamlined and automated business processes. This reduced paperwork and significantly improved internal operational efficiencies. It aimed at manpower savings, operational efficiency improvement, better information support for decision-making and certain pioneer services for the public. It, naturally, focused on automating many traditional work functions and on reducing paperwork.

One of the early strategies CSCP adopted was called SS-SF -- Start Small, Scale Fast. Since ICT was unfamiliar to both the Government and the public at the initial stages, it was felt that the prudent approach would be to start each major initiative on a small scale as a proto type, and once tested and accepted by public, to ramp up rapidly to deploy the system on a mass scale.

In China, led by former Premier Zhu Rongji, the China Informatization Office came into existence in December 2001. Eight months later, State Council Document No.17 was released, declaring the infrastructure for China's e-Government procedures: the first phase of e-Government in China focuses on twelve networks, widely known as the "Twelve Golden Projects," including (a) core systems designed to strengthen supervision and enhance efficiency (i.e., the Administrative Resources

⁸⁹ Arun Mahizhnan & Narayanan Andiappan, "e-Government: The Singapore" <http://unpan1.un.org/intradoc/groups/public/documents/unpan/unpan033394.pdf>
Accessed on 19 September 2008

System and the Golden Macro Project), (b) projects designed to safeguard government revenue and rationalize government spending (i.e., the Golden Tax Project, the Golden Customs Project, the Golden Audit Project, the Golden Finance Project, and the Golden Card Project), and (c) systems designed to ensure basic order in the national economy and social development (i.e. Golden Shield, Golden Quality, Golden Agriculture, Golden Water Conservancy, and Golden Social Security). While some of these projects include front-office applications on the external network, most operate on the e-Government internal network with direct links to the main databases.⁹⁰

In India, computerization of railway reservations was done in the late Eighties and has made an immense impact on Indian society. This single example has made Indians hugely conscious of the benefits of computerization and early concerns that computerization will result in a displacement of labor in a highly populous country such as India soon faded. In reality, the scale of railway operations increased many fold through computerized operations and the impact on employment was in fact positive.

The Government of India approved the National e-Governance Plan on May 18 , 2006, comprising of 27 Mission Mode Projects (MMPs) and 8 components – three Core Components, and five others. A good beginning has been made to make e-Government a reality in India,

There are the 27 Mission Mode Projects (MMPs) identified by the NeGP – 8 integrated projects; 8 central projects and 11 state projects.⁹¹

3.2 Objectives

The Korean government made the implementation of e-Government a major national agenda for the 2000s. It has concentrated on 11 major tasks for e-Government (2001~2002) and 31 major tasks for the e-Government roadmap (2003~2007). As a result, e-Government has become firmly established in all areas of the Korean government.

⁹⁰ Guo Liang , " Under The "Golden Shine": China's Efforts to Bridge Government and Citizens , Centre for Social Development , Chinese Academy Of Social Science, January 28, 2006.

<http://workspace.unpan.org/sites/internet/Documents/UNPAN042815.pdf>

Accessed on 10 November 2012

⁹¹ "National e-governance plan", Background paper, 12th November 2010 ,

https://www.negp.gov.in/templates/pdfs/12th_Nov_NAG_261110.pdf Accessed on 18 September 2012

Korea's e-Government was successfully launched in November 2002. The government selected 31 Roadmap Projects in 2003 and has pursued them since then. E-Government projects are not administrative goals any more, but a means to reform government administration.

Another major goal of Korea's e-Government is to democratize the administration in order to realize cyber democracy. To this end, the Korean government is actively inviting citizens' participation in e-Government and making effort to realizing a fully integrated or seamless e-Government level, which is the final stage of development for e-Government.

For e-governance, the "The Participatory Government's Vision and Direction of e-Government" was announced by Korea government in May 2003, and the "E-Government Roadmap" based on the vision of realizing the "World's Best Open e-Government" was released in August of the same year.

The roadmap outlines very concrete and specific performance indicators to realize the vision to become Korea the "World's Best Open e-Government" as follows:⁹²

1. increase online public services to 85%
2. rise into top 10 ranking in the world for business support competitiveness
3. reduce visits for civil service applicants to 3 visits per year and
4. raise the utilization rate of E-Government programs to 60%.

The roadmap is divided into four areas, 10 agenda, and 31 tasks and managed in terms of 45 detailed subtasks.

Singapore has come a long way in its e-Government efforts. However, the government's adoption and usage of infocomm technology was never viewed as an end in itself, but a means to an end – to reinvent the government and to serve our customers and citizens in the best possible way. The overall vision for e-Government is to delight customers and connect citizens through infocomm. To achieve this, a number of national plans were put in place in the last 30 years. The Singapore Government's development of e-Government is an ongoing process with no solid-state in sight. It is perhaps a never-ending journey where destinations are only

⁹² "E-Government in South Korea", http://en.wikipedia.org/wiki/E-Government_in_South_Korea
Accessed on 14 August 2012

transient stopovers. However, there are certain guiding principles of e-Government that serve the process well.⁹³

- Every service that can be delivered electronically shall be.
- The customer shall supply or update personal information only once.
- Those without home access shall have access to public delivery network.
- Staff must assist those who need special help like the elderly.
- All services shall be "customer-centric" and not "agency-centric."
- Physical visits shall be kept as low as possible.

E-Government in China has followed a government-directed from-top-to-bottom course of development, and its goals, as stated by former general secretary of the Chinese Communist Party (CCP), Jiang Zemin, are "to deepen administration system reform, further transform government functions improve management style, promote e-Government, enhance administrative efficiency, reduce administrative costs, and form a standardized, harmonious, fair, transparent, clean, and effective administrative system."

The three officially mandated goals of e-Government in China are such as "to build a national information highway as a path to modernization and economic development, to drive the development of information technology in China, and to unify the country by tying the center to the provinces and by allowing the government to act across ministerial and industrial demarcation lines" and it clarify the direction and future progression of the so-called "Golden Projects".⁹⁴

While Chinese leaders also emphasize the importance of providing a better quality of service to their citizens, the major goal of e-Government seems to be interestingly different than in western countries. In China, the focus of e-Government has mainly been on administrative reform (Xingzheng Guanli Tizhi Gaige).

In India, "The National e-Governance Plan" (NeGP) has been conceptualized with the following vision:⁹⁵

⁹³ Arun Mahizhnan & Narayanan Andiappan , "e-Government: The Singapore"
"http://unpan1.un.org/intradoc/groups/public/documents/unpan/unpan033394.pdf
Accessed on 16 August 2012

⁹⁴ Guo Liang , " Under The "Golden Shine": China's Efforts to Bridge Government and Citizens ,
Centre for Social Development , Chinese Academy Of Social Science, January 28, 2006 .
http://workspace.unpan.org/sites/internet/Documents/UNPAN042815.pdf
Accessed on November 2012

⁹⁵ <http://deity.gov.in/content/national-e-governance-plan> Access on 20August 2012

“Make all Government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man”.

India applied a seven guiding principles for "The National e-Governance Plan" NeGP. They are:⁹⁶

- Deliver Public Value
- Change Management
- Think Big, Start Small, and Scale Fast
- Centralized Initiative and Decentralized Implementation
- Common Core and Support Infrastructure
- Capacity Build
- Public Private Partnership (PPP)

India e-Government strategy is not similar to previous countries. The India strategy consists of 10 stages.⁹⁷

The first stage of India e-Government strategy, stage 1 is building e-Governance awareness and commitment. This stage comprised four sub-stages such as "National e-Governance Summit", "Raising Awareness among Leaders", "Awareness-Raising among the Donor Community" and "National Association for SMART State Governments". SMART means Specific, Moral, Accountable, Responsible and Time frame.

The second stage, stage 2 is "Building e-Governance Strategic Capacity". Building Strategic Institutions for e-Governance, Building Legislative Infrastructure for e-Governance, Building Commitment for e-Governance, Building e-Governance Strategy and Information Obligation are the sub-stages of stage 2.

The third stage is stage 3. It is the stage of "Building e-Governance Implementation Capacity". In this third stage, India government planned to realize it through the three sub-stages such as building human capacities for e-Governance implementation, building data systems for e-Governance implementation and financial dimension to e-Governance.

⁹⁶ Chauhan, Radha "National E-Governance Plan in India ", UNU-IIST Report No. 414, (2009):13 <https://www2.iist.unu.edu/www/docs/techreports/reports/report414.pdf> Accessed on 15 August 2012

⁹⁷ Sachdeva, Sameer. " White Paper on E-Governance Strategy in India"(2002) http://indiaegov.org/knowledgeexchq/egov_strategy.pdf Accessed on 15 August 2012

Building Infrastructure for e-Governance Implementation is stage four. This stage comprised of the three sub-stages such as establishment of institution for infrastructure, building of national backbone infrastructure, and delivering of infrastructure.

Stage 5 is Government Process Reengineering. India government implemented that stage by first studying of existing processes followed by giving recommendations for reengineering.

Stage 6 of India e-Government strategy is "Building e-Governance Pilot Projects". India government firstly identified e-Governance pilot projects and then implemented these pilot projects.

Stage 7 is "Evaluation of e-Projects". This stage consisted of three sub-stages such as studying of causes of success or failure, replicating the successful projects and bridging the gaps for failure.

Stage 8 of India e-Government strategy is "Identifying projects with long term prospective". The sub-stages of this stage 8 are Citizen Card issuing and establishment of national networks.

India e-Government stage 9 is "Global Vision". India government applied two sub-stages such as designing their e-Government policy based on global interoperability and networking their infrastructure national networks with global networks.

The last stage is popularizing e-Governance. India government uses the strategy of marketing and promotion in order to popularize their e-Government implementation.

There are seven objectives/aims of India e-Government and they are:

1. To build an informed society
2. To increase government and citizen participation-
3. To encourage citizen participation -
4. To bring transparency in the governing process -
5. To make the Government accountable -
6. To reduce the cost of Governance -
7. To reduce the reaction time of the Government

3.3 Problems and challenges

Korea faces increasing "Cyber threats" such as Hacking, DDoS, Stuxnet. Another big challenge is threats to "Digital Privacy". Recently some top Korea Companies apologized to public for the lost of customers privacy data. It highlights the extent of cyber threat to privacy issues.

Another challenge in Korea is digital divide index for the disadvantaged. Informatization level of the disadvantaged reaches 71.1% compared to the level of overall population.

Internet addiction too is a challenge for Korea. Total addiction in 2010 for teenager is about 12.4% and for adult is 5.8%. There will be more addicted people with better attractiveness of internet and social network.

Cyber ethics is great concerned for Korea. One of the movie stars suicide due to lack of cyber ethics in there. Cyber ethics is the philosophic study of ethics pertaining to computers, encompassing user behavior and what computers are programmed to do, and how this affects individuals and society. Cyber ethical questions such as "Is it OK to display personal information about others on the Internet (such as their online status or their present location via GPS)?" and "Should users be protected from false information?" are hot issues nowadays.

The Singapore Government faces four *key challenges* in e-service delivery:⁹⁸

- (a) The first is "*Rising customer expectations on government e-services*" – Customers' expectations are constantly evolving in the infocomm landscape where technologies are moving at an ever-increasing pace. Beyond providing a 24x7 e-Government, customers prefer to deliver government services that meet the needs and lifestyles of the changing environment.
- (b) The second challenge is "*Online medium becoming the medium of choice among an infocomm-savvy population*" – Although a small segment of population resists the use of online services, there are growing numbers of citizens who prefer the online medium to the traditional medium. The challenge is in meeting the diversity of needs.
- (c) "*Competitive global environment*" is the third challenge – In a changing global landscape, Singapore has to constantly leverage infocomm to keep up the country's competitive advantage as well as to improve service delivery.

⁹⁸ "Singapore e-Government Journey"

[http://www.moha.gov.la/acscsm/resources/Singapore/Country Report Singapore e-Government.pdf](http://www.moha.gov.la/acscsm/resources/Singapore/Country%20Report%20Singapore%20e-Government.pdf)
Accessed on 20 August 2012

(d)The last challenge " *Increasing need to do more with less*" – In a vibrant society like Singapore, with its relatively fast-paced lifestyle, there is an increasing need to do more with less through the use of infocomm. Efficiency and productivity are key elements in such a context.

As a consequence of a deeply centralized and often inefficient administrative management system, China has faced critical problems including over bloated structures, overstaffing, confusion between government and enterprise management, and the often unhelpful intervention of the central government in the economy.

Contradictions arose and became ever more significant as administrative reform lagged behind economic reform. The application of e-Government in China was intended, in part, to accelerate the government's pace of implementing and using information and communications technologies (ICTs) to improve administrative efficiency and effectiveness and, through this administrative reform, to promote economic development and the administrative capacity (*Hongguan Tiaokong Nengli*) of the central government in China.

China government faced so many pressures and challenges during the implementation of e-Government projects. Chinese government emphasis on management, but still faces the problem of deficiency in service. The existing main problem is that the services that provide are not adequate. The concepts of "work of a net", "work of a line" and "work of a card" have been carried out in Shanghai, but the services are still not thorough. The reason why some services can't be finished on line is due to the weak support of the background program.

There are mainly three reasons as follows: Firstly, the information system itself can't supply overall supports to the online programs, because the background systems are built on the functions of different departments respectively. They can't combine into a whole; Secondly, the staff can't bear the whole days' work strength (a pattern of 7 days*24hours); thirdly, the security authentication technology system is not completed. Although the Electronic Signature Law has been passed, the complete, safe and reliable system hasn't been completely prepared.

Another challenge of Chinese e-Government is not having a very well-organized legal and regulatory system. Improving the transparency of government work is the goal of Chinese administrative management reform, although government information disclosure emphasizes "the principle of openness with the exception of

un-exposure". But nowadays, China's confidential legal systems, especially the enforcement of the system, are more suitable for the "principle of confidential".

China's Secrets Act gives the rights for state organs and institutions to keep secrets of the information. Because there also exist flaws in the reform of the administrative system, personal benefits will probably become the motivation for people to define what shouldn't be defined as secrets as secrets. Besides, on the condition that if it can't be decided whether something belongs to national secret or which grade the secret falls into, it will be strictly dealt with. In addition, changes in systems, cultures and environment will also affect whether the information should be defined as secret.

China's administrative system is complex. It is an over-complicated management mechanism. The local governments are lead by the Communist Party of China. The inner and outer nets are separated. The network structure between lower and upper organizations is complicated (not unified). It not only adds the costs of improving government service ability via network technology, but also decreases the opportunities of the social participation. The exploitation and utilization of governments' information resources are hard to realize socialization.

While India does have an inspiring vision of where e-Government is going, there is a gap between service delivery and reality in that country. The challenge of e-Government in India lies in providing the service to about a billion people. At the moment, India is ranked 125th in the global e-Government readiness ranking of 2012 which indicates significant room for improvement.

Countries like India people are poor and infrastructures are not up to the mark. Under such condition it becomes very difficult to provide government services to the people. There are number of major issues such as:

Poverty: Internet access is too expensive for the poor in developing countries like India. Installing the necessary telephone lines needed for internet or email access is equally unaffordable in most poor countries. In India, each telephone connection may cost as much as Rs 30,000 in urban areas and Rs 70,000–80,000 in villages, which is unaffordable by most low income families. It is also very expensive to gain internet access in India: it may cost about Rs25 per hour in cities and Rs 150–1200 per hour in rural areas.

Technical illiteracy: There is general lack of technical literacy as well as literacy in countries like India, the correlation between education level and use of electronic means or Internet and other ICT means are quite significant.

Language Dominance: The dominance of English on the internet constrains the access of non-English-speaking population. It is found that of all the web pages in the world, about 84 percent are in English followed by 4.5 percent in German, 3.1 percent in Japanese, 1.8 percent in French, 1.2 percent in Spanish, 1.1 percent in Swedish, 1 percent in Italian and less than 1 percent in all other languages. Languages do little to alleviate the problem due to the poor literacy level mentioned earlier. In the case of India, 95 percent of the population does not speak English. Due to such overwhelming dominance of English over these communications channels, computers and the internet are quite useless in Indian villages, and the use of local languages does little to alleviate the problem due to the poor literacy level mentioned earlier.

Unawareness (unawareness regarding benefits of e-governance): There is general lack of awareness regarding benefits of e-governance as well as the process involved in implementing successful G-C, G-G and G-B projects. The administrative structure is not geared for maintaining, storing and retrieving the governance information electronically.

Lack of Participations of Society, Public and Private sectors: Designing of any application requires a very close interaction between the govt. department and the agency developing the solutions. At present the users in govt. departments do not contribute enough to design the solution architecture. Consequently the solution developed and implemented does not meet the requirements of an e-governance project and hence does not get implemented.

Inequality (urban vs rural communities, educated vs illiterate, rich vs poor): Inequality in gaining access to public sector services between various sections of citizens, especially between urban and rural communities, between the educated and illiterate, and between the rich and poor.

Infrastructure (electricity, internet, technology): Lack of necessary infrastructure like electricity, internet, technology and ways of communications will affect the speed which delays the implementation.

Impediments for the Re-Engineering process: Implementation of e-governance projects requires lots of restructuring in administrative processes, redefining of

administrative procedures and formats which finds the resistance in almost all the departments at all the levels.

Operational Reluctance: The psychology of government servants is quite different from that of private sectors. Traditionally the government servants have derived their sustenance from the fact that they are important repositories of government data. Thus any effort to implement Documents Management and workflow technologies or bringing out the change in the system is met with resistance from the government servants.

3.4 Critical Success Factors and key learning points

The first critical success factor of Korea is ***Strong government leadership***. Leadership is from the president. Korea's e-Government plan is strategic, major national agenda and sustainable plans for over 30 years. Korea had adopted nationwide change management plan for successful e-Government implementation. Most of the e-Government projects are aligned with performance evaluation.

The second critical success factor is ***strong IT governance mechanism***. Presidential committee on government national informatization strategy committee is chaired by high level officials. The prime minister mediates and guides the administrative branches on e-Government affairs. There is always regular revision of the legislative system for government process reform.

The third critical success factor is ***delivering of customer oriented e-Government services***. Korea government service development is based on the needs of citizens, company and other organization. Moreover government civil services are closely related to citizens' everyday life.

The fourth critical success factor is ***performance based management system***. Korea government laid down clear goals, objectives, short and long-term plans, with expected expenditure, income. There is regular review streams and deadlines. They also set Qualitative, Quantitative Performance Index (KPI) for nationwide level and each project level. Moreover there is a system of designation of an officer or organizing body in charge of project performance.

Technology Support is the fifth critical success factor. Government encourages the participation of experienced system Integration companies and specialized solution vendors. They also applied adoption of practical technology; GIS

(Geographical Information System), LBS (Location-Based Service), Component Based Developing technology, etc.

Appropriate legal frameworks for each phase of e-Gov implementation play very critical role and Korea government emphasized on it. In order to sustain e-Government implementation, appropriate laws were enacted during each phase ensuring a conducive environment for e-Government (They promulgated Act on Expansion of Dissemination and Promotion of Utilization of Information System (1986), Framework Act on Informatization Promotion(1996), Digital Signature Act(1999), e-Government Act(2001), Act on Shared Utilization of Public Administration Information(2010), etc.

Sustained Investment in e-Government budget is important. It is noted that 1% of the national budget was invested into e-Government construction every year. They created and utilized the Information and Telecommunication Promotion Fund to build early e-Government. There was appropriated 10% of the informatization budget for e-Government support projects by MOPAS in order to effectively implement multi-ministry horizontal projects.

Establishment of informatization as a national agenda and continuous investment also help in e-Government development of Korea. Another CSF is establishment and management of national system for promoting informatization . Experts in the private sectors took important roles in overseeing, coordinating, reviewing and advising organizations for informatization policies.

Establishment of informatization governance for mutual benefits and cooperation between the public and private sectors, striking a digital balance between the central and local governments, support for sharing and broad adoption of best practices and consultation on digitization, capacity building for the public in the use of online service and information (for example, In 2000, "Digital Literacy Plan for 10 Million" was set up) are important CSF in Korea case.

Key learning points from Singapore is having *clear Long-term vision and goals*. Singapore success is due not only to effective Leadership and Governance but also to partnership with ICT Industry, private and people sectors, each with a clearly defined role. They also applied customer-Centric e-Service delivery and their approach is holistic and integrated approach. Singapore's Political leaders provide support and take interest in the planning and delivery of key initiatives. They create an effective governance and management structure led by senior public-sector officers

(e.g. iGov Council). They used to sets long-term vision, strategies, goals and policies. They guide the effective and efficient deployment of ICT initiatives. There is a system of a dedicated agency to provide technical leadership and to drive the development and implementation of e-Government programs.

India gives some lessons for lessons for other developing countries and they are:

1. Databases are at the heart of governance and government. It is therefore necessary to strengthen them.
2. There is no substitute to self-reliance and indigenous capability.
3. Without capacity and competency of human resources we cannot implement e-Government successfully. So government must invest in human resource development (HRD).
4. Prepare National E-Government Plan.
5. Consider both the Demand and Supply Sides of E-Government.

3.5 Achievements

The achievements of these countries are briefly in this study. The most easiest and convenient way to see the achievement is in terms of e-Government development index. E-Government development index is the measurement of e-Government development for each country. It is an assessment of the National and Ministerial Websites of the 192 United Nations Member States. Mathematically, the EGDI is a weighted average of three normalized scores on the most important dimensions of e-Government, namely: scope and quality of online services, development status of telecommunication infrastructure, and inherent human capital. Each of these sets of indexes is itself a composite measure that can be extracted and analyzed independently.

$$\text{EGDI} = (\frac{1}{3} * \text{online service index}) + (\frac{1}{3} * \text{telecommunication index}) + (\frac{1}{3} * \text{human capital index})$$

E-Government development index of these countries and Myanmar for 2012 is described in the table 3.1

Table 3.1 E-Government development index of selected countries

Country	EGDI Value	Rank
Republic of Korea	0.9283	1
Singapore	0.8474	10
China	0.5359	78
India	0.3829	125
Myanmar	0.2703	160

Source: Global e-Government survey 2012.

This table clearly shows the position of Myanmar compared to other countries.

Another method of describing achievement is in terms of online service index and its components. Online service index values, can be assessed by each country's national website, including the national central portal, e-services portal and e-participation portal, as well as the websites of the related ministries of education, labor, social services, health, finance, and environment as applicable. In addition to being assessed for content and features, the national sites were tested for a minimal level of web content accessibility.

There are the four stages of online service development such as "connected, transactional, enhanced and emerging".

Stage 1 is the *Emerging information services*: Government websites provide information on public policy, governance, laws, regulations, relevant documentation and types of government services provided. They have links to ministries, departments and other branches of government. Citizens are easily able to obtain information on what is new in the national government and ministries and can follow links to archived information.

Stage 2 is the *Enhanced information services*: Government websites. It delivers enhanced one-way or simple two-way e-communication between government and citizen, such as downloadable forms for government services and applications. The sites have audio and video capabilities and are multi-lingual, among others.

Stage 3 is *Transactional services*: Government websites engage in two-way communication with their citizens, including requesting and receiving inputs on government policies, programmes, regulations, etc. Some form of electronic authentication of the citizen's identity is required to successfully complete the

exchange. Government websites process non-financial transactions, e.g. e-voting, downloading and uploading forms, filing taxes online or applying for certificates, licenses and permits. They also handle financial transactions, i.e. where money is transferred on a secure network to government.

Stage 4 is the *connected services*: Government websites have changed the way governments communicate with their citizens. They are proactive in requesting information and opinions from the citizens using Web 2.0 and other interactive tools. E-services and e-solutions cut across the departments and ministries in a seamless manner. Information, data and knowledge are transferred from government agencies through integrated applications. Governments have moved from a government-centric to a citizen-centric approach, where eservices are targeted to citizens through life cycle events and segmented groups to provide tailor-made services. Governments create an environment that empowers citizens to be more involved with government activities so as to have a voice in decision-making.

Table 3.2 shows the performance of five countries. According to online service indexes all of e-Government websites of Korea, Singapore and India can deliver 100% of stage one services such as providing information on public policy, governance, laws, regulations, relevant documentation. But there is different situation in China and Myanmar for stage one service delivery. 92 % of China e-Government websites can deliver stage one services and only 50% of Myanmar e- government website can deliver stage one service.

For stage two online service delivery that is providing "enhanced information services", Korea, Singapore, China , India and Myanmar delivery achievement is 79%,79%, 55%, 64% and 17% respectively. It delivers enhanced one-way or simple two-way e-communication between government and citizen, such as downloadable forms for government services and applications.

For stage three online service delivery that is providing " Transactional services ", Korea, Singapore, China , India and Myanmar delivery achievement is 92%,94%, 40%, 33% and unlucky 0% respectively. At the preparation for time of the global e-Government survey in 2012 Myanmar did not have any services which can deliver online transaction. Transactional services are two-way communication with their citizens, including requesting and receiving inputs on government policies, programmes, regulations, etc.

For stage four online service deliveries that is providing "connected services", the achievement of Korea and Singapore are at the same level 87% and 86% respectively and China and India achievement is also at the same level, 38% for both countries. Myanmar stage four online service deliveries is 0%. The table 3.2 shows the online service performance of the countries under study.

Table 3.2 Online service index and performance for five countries.

Country	Online Service Index Value	Stage I %	Stage II %	Stage III %	Stage IV %	Total %
Republic of Korea	1.0000	100%	79%	92%	87%	87%
Singapore	1.0000	100%	79%	94%	86%	87%
China	0.5294	92%	55%	40%	38%	46%
India	0.5359	100%	64%	33%	38%	47%
Myanmar	0.1046	50%	17%	0%	0%	9%

Source: Global e-Government survey 2012.

3.6 Comparative Analysis

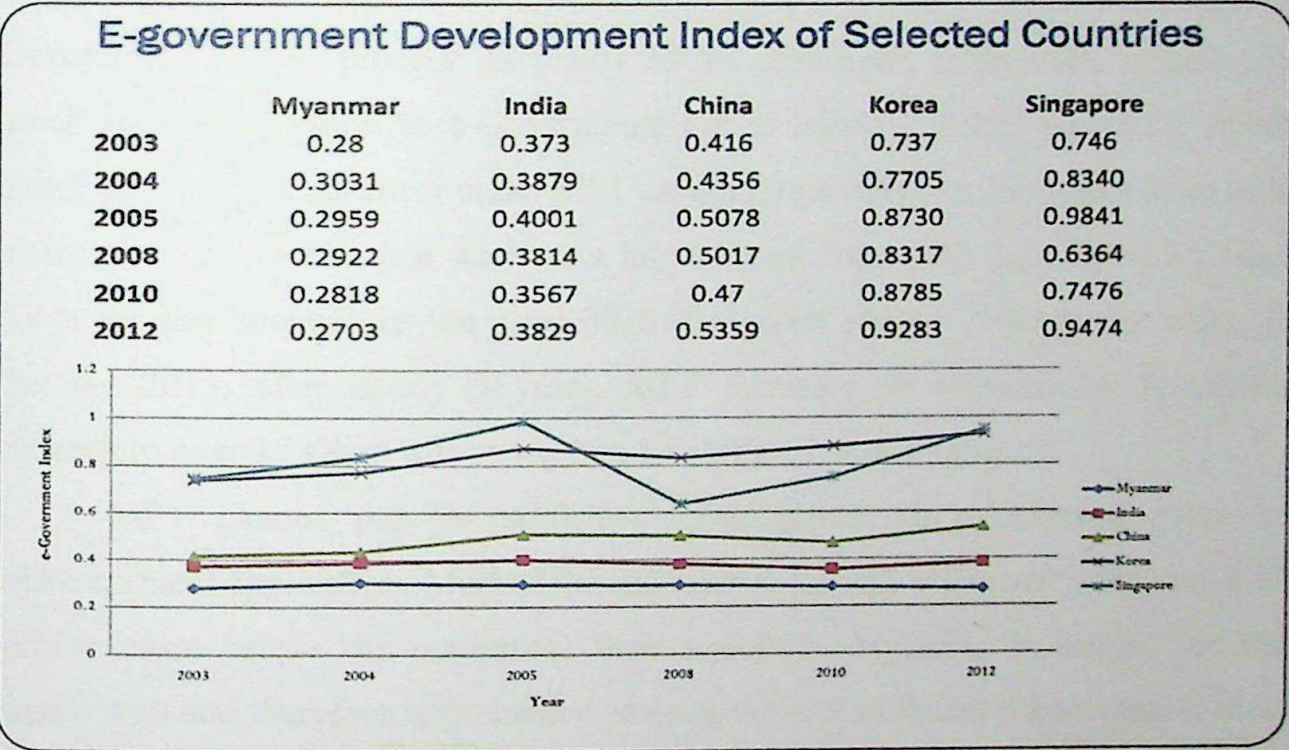
In November 2000, ASEAN entered into the e- ASEAN framework agreement in order to facilitate ASEAN information infrastructure (AII) ; the hardware and software systems need to access, process and share information to promote the growth of electronic commerce in the region. Then State Peace and Development Council in Myanmar established e-National Task Force in the same year. It is chaired the Minister for Ministry of Communication Posts & Telegraphs (MCPT). It comprised about 30 experts from government, universities and business as members. E-National Task Force set up IT master plan in 2001 and implemented some e-Government pilot projects.

The long term vision of e-Government at that time was "to modernize Myanmar through e-Government". The vision consisted of 3 stages and the first stage was during 2006-2010. The goal of the first stage is to catch up with average level of ASEAN country (meaning that Myanmar is not at the average level.) The goal of the second stage (2010-2015) was to join the leading group of ASEAN and the goal of third stage (2016-2020) was to become a leader in the developing countries in terms of e-Government.

Five leading organizations such as e-National task Force, Ministry of Communications and Information Technology, Myanmar Computer Science and development Council, Posts & Telecommunications Department and Myanmar Computer Federation are responsible for implementing e-Government projects in Myanmar.

E-Government development index of Myanmar from the year 2003 to year 2012 is regarded as the achievement in e-Government journey while table and graph shows Myanmar's e-journey in comparison with 4 other countries such as South Korea, Singapore, China and India can be learnt from the following figure 3.1.

Figure 3.1 E-Government development indexes of selected countries



Source: Various Global e-Government surveys

Base on these e-Government development indexes it can be said that our e-story is not a success story.

E-Government expert had proposed 3 strategies for Myanmar and they are building up of infrastructure, making success stories and triggering snowball effects.

Myanmar has had ICT master plan including e-Government and which has yet to approve by authority concerned.

For South Korea, Singapore, China and India, they all have high level political support at the National, state and local level. For example in Korea it is the President who is also giving a lot of political support for development of e-Government in

Korea. Myanmar seems to have that kind have support but that is not sustainable due to some politically indicated reasons.

All these countries have established a specific and designated Institution and department responsible for formulating policy and implementation of e-Government projects headed by respected professionals. The departments and Institutions are mandated and they have the power to do what is right for their people. Myanmar does not have these kinds of institution. Ministry of Communications & Information Technology is responsible for e-Government implementation and it is the focal ministry for it. Moreover MCIT cannot interfere and influence of the decision of other line ministries for e-Government implementation decision in their respective ministries. In fact, MCIT needs to move very fast in line with New Democratic Government reform process. In reality MCIT department under MPT cannot give much specific attention to e-Government but to telecom sector, especially mobile development. IT department under MPT cannot cope with ever increasing demand of Internet users. For example we have a International Bandwidth capacity of 3.5 Gbps (Giga bit per second) in the year 2010-2011 with about 7700 internet users. In October 2013, after nearly 3 years, MPT increased its international bandwidth capacity to over 17 Gbps with more than 1.8 million internet users.

MPT cannot provide sufficient infrastructure for widespread usage of e-Government application. Most of the countries in the region built their telecom & IT infrastructure before they implement their e-projects. Myanmar is unique and she cannot wait and therefore implement e-projects without sufficient infrastructure. Most of the ministries purchased hardware and software without proper & reliable and supporting infrastructure, and then it is a waste of resources.

Legal environment is not fit for e-Government development in Myanmar too. The countries under study encouraged and promote the use of e-Government in their system by enacting law and necessary regulations. But this is not the case in Myanmar. Computer Science Council Development Law and electronic Transaction Law are the only laws which are not in line with ICT development.

Another point is related to performance base management system. If we introduce e-services in the system these should be monitoring of e-service delivery to the customers, such as how many percent of the total service is e-service or the ratio of e-service revenue to total revenue. The growth rate of e-service must also check. This is a kind of performance management. According to the recent survey of CIO

and e-Government officials from various ministries, only 28% of respondents replied that they used performance based management system in their e-Government services and it is a clear indication that one of the key success factor is lacking in Myanmar e-Government.⁹⁹

Myanmar needs to respond to the wave of globalization in economic, social, political and technology affairs as well as in public management affairs. E-Government is a kind of ICT related issue. In China e-Government is regarded as a strategic tool for administration reform and civil service reform. But Myanmar authorities did not pay top priority and never consider e-Government as strategic tool in economic and administrative reform. E-Government initiatives were not the major national agenda for Myanmar.

Their visions of goals of e-Government are always aligned to National goals for four countries under study but Myanmar did not enjoy such an alignment in the implementation of e-Government projects.

Project management and change management play very critical role in e-Government. Myanmar government officials, especially Chief Information Officers, don't have adequate training on these special concerned. They are just firefighters. They have lack of understanding on Business Process Re-engineering and Government Process Re-engineering. Moreover, if we implement e-Government in government departments it should be a participatory process. But all have yet to experienced ministry wise or department wise change management program since 2003 when government tried to introduce e-Government in the system.

If new system, new working methods are going to introduce in a particular environment there should always be standardized manuals, guidelines, and procedures must come together with it. But most of the government departments, which have tried to use e-Government services in their system, do not have the respective standardized manual and guidelines for it.

However, regarding the use of ICT equipment the authorities concerned issued an order which is to be followed strictly by the entire government department due to the leakage of top secret information, since then the use of internet was discouraged again. It was before 2011 general election.

⁹⁹. General survey of e-Government with 60 questions conducted in January 2013. Only 9 out of 32 respondents answer yes on this measurement system.

Funding is another major challenge. MCIT allocate a certain portion of its capital budget for ICT development of the whole country. That is less than 1% of total capital budget. In fact if government would like to promote e-Government there should be more budget allocation for e-Government related activities not only for MCIT but also for the all the stakeholders. It is true that Myanmar cannot build ICT infrastructure and human resources capacity due to lock of financial resources allocation.

CIO issue is also very important. CIO is the most responsible person in respective government department. They must be qualified persons with the proper skills, mindset and vision. CIO post should be a designated post and CIO should have special responsibility. But in most of the government department CIO role is just a nominal role. Sometime it is joint responsibility & duty. When needed they will act & work as a CIO functional duty officer. If not needed they will go back to their original position. Most of the senior officials do not like working as CIO. Once they were appointed as CIO they have no incentive and no more direct dealing with usual departmental customers. It means less outside income for them. CIO position and role is a very important one but not a preferred choice for certain reasons. Once they are appointed as CIO their next move will be to get out of this position as quickly as possible.

Myanmar is also weak in CIO development programs. In the year 2003-2004 there were some training courses for CIOs, but later no CIO training courses were conducted. CIO development programs are a necessary pre-requisite for successful e-Government initiatives and implementation.

CIO mandate is clearly defined in the countries under study. Myanmar is a different scenario. There is not any clearly defined mandate, role and responsibility for most of the CIO. For CIO almost everything is ad-hoc, without proper pro-active planning.

Some e-Government researchers explored a list of 36 success factors for e-Government initiative which are described in Table 3.3.¹⁰⁰ This table shows that good planning, good system usability, good team skills and expertise, strong

¹⁰⁰ Arief Ramadhan, Dana Indra Sensuse, Muladno and Aniati Murni Arymurthy "Synthesizing Success Factors for e-Government Initiative", *Research Journal of Applied Sciences, Engineering and Technology* 6.9 (2013): 1685-1702
<http://maxwellsci.com/print/rjaset/v6-1685-1702.pdf> Accessed on 29 November 2013

leadership, good coordination between all project participants, best practice consideration, supportive government policy, supportive ICT infrastructure/service availability, good and clear organizational structure, legal framework, good change management, good project management, good information quality, good system quality and trust are some of the success factors.

There are four dimensions of e-Government promotion such as legal mechanism, enabling mechanism, support mechanism and assessment mechanism. Myanmar is very weak in e-Government promotion and Cyber Law has yet to be promulgated. There are no enforcement or supportive mechanism as well as assessment mechanism for e-Government promotion. Myanmar may not be able to achieve the desired level of expectation without adequate preparation and fulfilling of success factors for e-Government initiative.

Table 3.3 Thirty six Success factors for e-Government initiative

No.	Success factor
1	User and stakeholder involvement
2	Good planning
3	Using portal
4	Training
5	Good system usability
6	System campaign
7	Prototype
8	Good team skills and expertise
9	Strong leadership
10	Good coordination between all project participants
11	Best practice consideration
12	Enough funding
13	Make better business process
14	Supportive government policy
15	Political support and stability
16	Good outsourcing strategy
17	Supportive ICT infrastructure/service availability
18	User/citizen computer/internet literacy
19	Good and clear organizational structure
20	International support
21	System security
22	Legal framework
23	Monitoring and evaluation
24	Good partnership with other institution
25	Good change management
26	Supportive cultural environment
27	Good system modeling
28	Deal with bureaucratic
29	Citizen relationship management
30	Top management support
31	Support interoperability
32	Good project management
33	Good information quality
34	Good system quality
35	Good service quality
36	Trust

Source: Arief Ramadhan, Dana Indra Sensuse, Muladno and Aniati Murni Arymurthy (2013)¹⁰¹

¹⁰¹ Arief Ramadhan, Dana Indra Sensuse, Muladno and Aniati Murni Arymurthy "Synthesizing Success Factors for e-Government Initiative", *Research Journal of Applied Sciences, Engineering and Technology* 6.9 (2013) : 1685-1702
<http://maxwellsci.com/print/rjaset/v6-1685-1702.pdf> Accessed on 29 November 2013

CHAPTER 4

MYANMAR E-GOVERNMENT DEVELOPMENT

Different countries face different situations and based on these situations they try to implement their e-Government projects on various objectives. Most of these objectives are mainly as follow:

- (a) Economic development,
- (b) Increase the quality of life style,
- (c) Development of ICT industry
- (d) Reinvention of government.

Myanmar, implemented some of the e-Governments projects. Admittedly it is not up to the desired and expected level in implementation of e-Government projects in Government to Government (G2G) and Government to Citizen (G2C).

The emergence of e-ASEAN and e-ASEAN Framework Agreement has played a crucial role in developing e-Government across the ASEAN region.

4.1 The emergence of e-ASEAN and e-ASEAN framework agreement

With the advent of the Internet and the revolution in information and communication technology (ICT), ASEAN leaders saw the need to promote collective efforts to complement national development strategies in this sector. The ASEAN leaders endorsed the e-ASEAN initiative during their Annual Summit meeting in Manila on 28 November 1999. The aims of e-ASEAN are to develop a broad-based and comprehensive action plan, including physical, legal, logistical, social and economic infrastructure needed to promote an “ASEAN e-space” as part of an ASEAN positioning and branding strategy.

Although the ASEAN Economic Ministers initiated e-ASEAN in September 1999, the roots of the initiative can be traced back to ASEAN Vision 2020 set forth in 1997. According to ASEAN Vision 2020, the member countries resolved to accelerate the development of science and technology, including information technology by establishing a regional information technology network and centers of excellence for dissemination of and easy access to data and information.

In the year 2020 ASEAN would be “a concert of Southeast Asian Nations,

outward looking, living in peace, stability and prosperity, bonded together in partnership in dynamic development and in a community of caring societies.”¹⁰²

The following Table 4.1 presents the main elements of the e-ASEAN framework.

Table 4.1 Elements of e-ASEAN

ASEAN INFORMATION INFRASTRUCTURE (AII) 1. Enhance interconnectivity and interoperability of national information infrastructures by 2001 2. Encourage cooperation 3. Internet exchanges and gateways 4. Regional caching/mirroring 5. Hubbing 6. Facilitate the development of the AII backbone	COMMON MARKETPLACE FOR ASEAN ICT GOODS AND SERVICES 1. Liberalization of trade in goods 2. Accelerate tariff reduction 3. Liberalization of trade in services 4. Accelerate framework agreement on services 5. Investment promotion in ICT sector 6. Extend incentives 7. Facilitation of trade 8. Fast track MRA implementation
E-SOCIETY 1. Foster development of a knowledge-based society 2. Narrow the digital divide 3. Enhance workforce competitiveness 4. Facilitate flow of knowledge workers in the region 5. Use technology to enhance the spirit of ASEAN community	E-COMMERCE FRIENDLY ENVIRONMENT 1. Agree on regional standards based on international norms 2. Electronic identification and authentication (such as PKI) 3. Secure electronic payments and settlements 4. Legal recognition of electronic transaction based on UNCITRAL 5. Code of e-commerce practice (UCC) 6. Implementation schedules 7. E-commerce code based on UNCITRAL for all countries by 2003 8. For those with e-commerce legal infrastructure: • Encourage mutual recognition and cross certification of digital signatures and documents by 2001 • Facilitate secure regional electronic payments and settlements by 2002 at the latest
E-GOVERNMENT Use ICT to: 1. Enhance delivery of services to the people 2. Facilitate free flow of goods, data and movement of people within ASEAN 3. Facilitate linkages between public and private sector and promote transparency 4. Enhance inter-government cooperation	

Source: ASEAN Secretariat, ASEAN Vision 2020, Kuala Lumpur, 15 December 1997.

In November 2000, ASEAN entered into the e-ASEAN Framework Agreement in order to facilitate the establishment of the ASEAN Information Infrastructure (AII). It is about the hardware and software systems needed to access,

¹⁰² ASEAN Secretariat, ASEAN Vision 2020, Kuala Lumpur, 15 December 1997.
Accessed on 5 March 2013 [http:// www.aseansec.org/1814.htm](http://www.aseansec.org/1814.htm)

process and share information and promote the growth of electronic commerce in the region. A high-level private-public sector task force formulated the framework. The member countries agree that e-ASEAN would bind them by facilitating interconnectivity and technical interoperability among their telecommunication systems and equipment.

4.2 E-Government initiatives, vision and objectives

After e-ASEAN Framework Agreement had been made, Myanmar established E-National Task Force in November, 2000 and that taskforce is chaired by the Ministry of Communications, Posts, and Telegraphs (MCPT). There were about 30 experts from the government, universities, and business as members. E-National Task Force set up the Myanmar Information Technology Master Plan in 2001 and based on this plan, some pilot projects such as e-School, e-Visa, and, e-Banking were carried out. However, because the master plan had only basic principles and directions in fact, it was mostly regarded as a failure. In May 2005, the Myanmar government received a loan (about 11 billion won) from Korean Economic Development Cooperation Fund (KEDCF).

With the loan, the Myanmar government made a contract to establish a Myanmar Basic e-Government System. The project was completed by May 2006. The objective of the project was to connect Ministry buildings with high-speed network and computerize basic government administration processes. The project wired government offices with fiber optics, install network equipment and servers, and then data centers were established to provide basic e-Government applications. The first ICT master plan was drawn up in the year 2005 followed by second ICT master plan in 2011. The first ICT master plan was a good starting point for e-Government in Myanmar.

E-Government, e-education and e-commerce projects are implemented according to these ICT master plans.

Myanmar is a late starter in e-Government. It can serve as an opportunity because Myanmar can avoid trials and errors and she can maximize the advantage of the latecomer such as the adoption of advanced concepts and technologies.

The long-term goal for Myanmar e-Government was to modernize Myanmar through e-Government by 2020. The long-term goal consisted of three stages.

The goal of Stage I (2006~2010) was to catch up with the average level (middle level) of ASEAN countries. In this stage, the emphasis was put on upgrading and successfully implementing priority projects.

The goal of Stage II (2011~2015) was to join the leading group of ASEAN. Based on the successful implementation of Stage I, Stage II aims to digitize the government and expand the success models to the government-wide scale.

The goal of Stage III (2016~2020) was to become a leader in the developing countries in terms of e-Government.

Table 4.2 Vision and Objectives e-Government

Modernize Myanmar through e-Government		
Stage I (2006~2010)	Stage II (2011~2015)	Stage III (2016~2010)
Catch up the average of ASEAN countries	Belong to the leading group of ASEAN	Lead the less developed countries
Connect & provide	Digitize & Manage	Make own Model
Think big But start small	Scale fast	Integrate

Source: Myanmar ICT Development Master Plan Project Part III-IV. e- Government, 11

The midterm goal was to catch up with the middle-level ASEAN countries in e-Government implementation by 2010. It had three sub-goals. One was that e-Government provides business support services to help business people. Another was to make the government more efficient. By providing major public services via the internet, the government could increase its efficiency. The other was to make the government more transparent. Applying information technology to the government will lead to more revelation of information to citizens and thus more active participation of citizens. It was highly expected that these goals could be achieved based on a solid architecture and a working governing mechanism.

Under these goals, there are four objectives. For citizens, government needs to provide information and civil service online via the government portal. For productivity and transparency, government needs to digitalize and speed up business processes and increase transparency. For enterprises, government has to provide better public services to improve the business environment. For a framework for e-Government, government needs to build the infrastructure for accessible, secure, and reliable e-Government.

4.3 Principle Directions and Strategic Directions

Myanmar developed the 7 principle directions for e-Government action plan.

The first direction is focusing on the needs of citizens and businesses. Since one of the main objectives of e-Government is to serve citizens and business better, it is essential to listen to what they want. Listening to the needs of citizens and business over the whole processes will make the system more useful and productive.

The second direction is acquiring a full commitment from the top leadership. The commitment of the top leadership is indispensable for the success of e-Government in Myanmar. Since the establishment of e-Government there is a need of a significant amount of resources but shows little visible returns to the investment in a short-term, it is hard to justify the spending of the resources without the support of the leadership. Also the establishment of e-Government means not only the computerization of the government functions but also the reorganization of exiting tasks and functions. It is impossible to execute the reorganization without the support of the top leadership.

The third direction is keeping the principle of "selection and concentration." Considering the limited resources, it is not practical or impossible to computerize the whole government at the same time. The government needs to select a group of important projects with high probability of success and concentrate on them. It can be viewed as a step by- step approach.

The forth direction is making success stories and utilize those as best practices. It is essential to make early success stories and let them spread to other departments in order to justify the investment in e-Government projects. Also those success stories will provide valuable lessons for establishing practices unique to the whole country.

The fifth direction is utilizing the experiences of benchmarked countries. As discussed before, it is the benefit of being a late comer to learn from the lesson from the early starters. Especially when the situation of the early starters is similar to our country, the benefit will be more valuable. Therefore careful attention should be paid to the experiences of benchmarked countries.

The sixth direction is managing with a specific target for each stage. It takes time to finish e-Government projects and come up with any tangible outcome from them. Also it is not easy to measure the success because, in most of the cases, it is

very hard to convert the outcomes into monetary terms. Therefore, it is important to set up specific targets in order not to lose the focus and keep the plan on track.

The seventh direction is utilizing e-Government projects as leverage to foster ICT deployment and ICT industry. E-Government projects would provide the local ICT industry and workers with a huge market to develop their potentials and have them trained. Also they can learn from business practice of foreign businesses while they are participating in the projects. The government has to approach the distribution of e-Government contracts with a strategic plan to foster its local ICT business.

ICT master plan also develops three strategic directions for e-Government. The first strategic direction is *"building up of fundamental infrastructure."* Building e-Government cannot be separated from the existing efforts. It can be achieved by continuing the efforts made in the past. One of those efforts includes systematic investment in infrastructure. As mentioned above, infrastructure is indispensable for the success of e-Government. It is necessary to continue investing in fundamental infrastructure such as networks, basic applications, and data bases.

The second strategic direction is *"making success stories"*. It is always good to learn from the countries which have similar policy environments which successfully implemented e-Government plans. In that way Myanmar can avoid the trial-and-error process and save precious time and resources. Also it will increase the success probability of e-Government plans. From the successful early adopters, it is easy to learn about the role of leadership, criteria to select prior projects, and implication of management techniques. If priority projects succeed in here, those cases also can be distributed and utilized as best practices for other projects in the e-Government plan. Therefore we must try to maximize the advantage of a latecomer. In order to keep the plan on track and not to lose the focus of the projects, it is needed to select and complete a couple of service-oriented projects with tangible results. Those early successes will have citizens' and leaderships' continued support for e-Government projects.

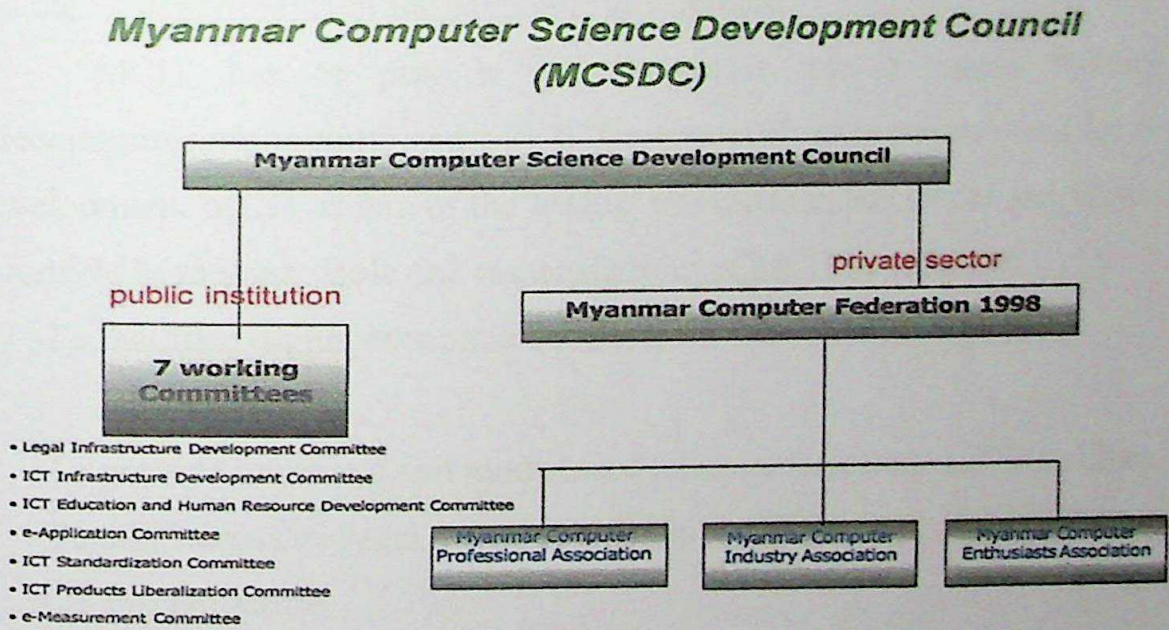
The third strategic direction is *"triggering snowball effects"*. Myanmar needs to build upon early successes in e-Government projects and expand it to the entire government. Those successes will validate more investment, reorganization of tasks and functions of the government. Also it will secure the support of the leadership.

4.4 Leading organizations

Myanmar Computer Science and Development Council (MCSDC) is the highest policy making body in Telecommunications and ICT affairs chaired by the minister for Communications and Information Technology. Another leading organization is the Ministry of Communications and Information Technology (MCIT). These two organizations review and formulate policy affairs not only for ICT but also for e-Government.

Posts and Telecommunications Department (PTD) is also responsible for law and regulation in telecommunications and ICT sector. The implementation of telecommunications and ICT development activities are mostly carried out by Myanmar Posts and Telecommunications (MPT), Yatanarpon Teleport (YTP), Myanmar Computer Federation (MCF) and semi-government and NGO organizations.

Figure 4.1 Myanmar Computer Science and Development Council



Source: IT Department, Myanma Posts and Telecommunications

The Figure 4.1 shows how the Myanmar Computer Science and Development Council (MCSDC) is organized and it can be seen clearly that there are 7 working committees under the Myanmar Computer Science and Development Council (MCSDC). They are namely Legal Infrastructure Development Committee, ICT Infrastructure Development Committee, ICT Education and Human Resource Development Committee, e-Application Committee, ICT Standardization Committee, ICT Products Liberalization Committee, and e-Measurement Committee.

The working committees' responsibilities are:

- (a) Formulation of policy and guideline for national Information Technology development.
- (b) Developing policy to utilize IT widely and systematically.
- (c) Developing policy to control Information Technology and Network.
- (d) Conducting the IT education program for students and youth.
- (f) Managing and guiding to private sector computer associations.
- (g) Evaluation of ICT projects.

There are some roles and responsibilities of the Ministry of Communications and Information Technology (MCIT). MCIT is the new name of the ministry and its previous name was MCPT (Ministry of Communications, Posts and Telegraphs). Two organizations, Myanma Posts and Telecommunications (MPT) and Posts and Telecommunications Department (PTD) are under the control of MCIT and they are the oldest departments of the Myanmar government.

MCIT has to play a very important role in nation building since telecommunications combined with ICT are recognized as majors' tools for economic development. MCIT is one of the leading ministries in economics and administrative reform of Myanmar. Role and responsibilities of MCIT is as follow;

- To facilitate digital economic development through the design of IT applications.
- To provide improved and modernized telecommunication and IT facilities.
- To take necessary legal measures to build a sufficient and adequate Telecom and ICT infrastructure.
- To enhance the ability of all citizens to utilize a high-quality telecommunications and ICT network at reasonable prices.
- To hire and train more telecommunications and ICT personnel to provide seamless telecommunications and ICT services.
- To develop the Information Communications Technology (ICT) to increase the momentum of national economic development.
- To maximize side effects of building and upgrading Telecommunications and ICT infrastructure.

MCIT is now playing very crucial and important role in reforming telecommunications and ICT sector after the present government took power in 2010.

4.4.1 Organization and Management

Strong political leadership is critical to the success of e-Government because e-Government is not simply an introduction of technology to government operations but it is an enabler of government reinvention. For example, e-Taxation, e-Billing and especially e-Government portal is to build a 'single face' of the government. The previous system in the government, however, had created multiple governments, from irrigation districts and school boards, to state and central authorities, with independent authority and statutory power. This structure run counter to the concept of a single faced e-Government. It is the reason why Myanmar really needs a strong e-Government coordinating organization which can resettle government's objectives, redefine value of work and reorganize jurisdiction and domains under the auspices of top leadership.

The E-National Task Force was established in 2000 to support planning and implementation of ICT development. There is an e-Government Sub-committee therein. Another body is an e- Government Implementation Group which supports a specific e- Government project like Korea EDCF projects. But these two bodies have had constraints because they are not fully supported by the top leader, or by the top manager from other governments.

There should be an 'E-Government special Committee' under the direct control of the Leader on a standing base. This Committee will consist of about 20 to 25 members from ministries related to e-Government priority projects and private sectors. The role, function of this committee and relations with existing organizations should be defined when the committee is established.

Another urgent issue related to organization and management is the core organization in each ministry or agency which can play the pivotal role in planning and implementing e-Government plans, projects and programs in each organization. In fact, every ministry already designated 2 or 3 CIOs who will be in charge of ICT planning and management. But, these CIOs are not dedicated to ICT management only, and moreover they do not have any dedicated manpower which can support them. Some ministries have established a couple of committees who can help the CIO in managerial and technical aspects. But, this situation does not exist in other ministries.

Time Frame

The time frame for the e-Government action plan was summarized as follows.

Table 4.3 E-Government Action Plan Time Frame

Fiscal Year	Tasks
2006-7	• Organizing the e-Government Committee • Approval of the e-Government Action Plan • Enacting e-Government Law
2007-8	• Feasibility studies on Inter-Ministry Projects • Start a system building for Inter-Ministry Projects • Building Ministry's e-Gov. Action Plan and EAs
2008-9	• Finish system building for Inter-Ministry Projects • Pilot service for Inter-Ministry Projects and evaluate • Feasibility studies for Minister's Projects • Starts system building for Minister's Projects
2009-10	• Finish a system building for Minister's Projects • Pilot services for Minister's Projects and evaluate
2010-11	• Expansion for all the Priority Projects • Plans for the next phase

Source: Myanmar ICT Development Master Plan Project Part III-IV .e- Government, P 50-51

4.5 Laws and Regulations of Telecommunications and ICT sector

It is still in the 19th century of legal environment in terms of telecommunications and ICT legal affairs. Myanmar Telegraph Act is the India Act XIII of 1885, (1st Oct, 1885) which is more than 120 year old. The Myanmar Wireless Telegraphy Act is the India Act XVII of 1939, promulgated on 1st Jan, 1934 and it is nearly 80 years old.

The first law relating to ICT is "Computer Science Development (CSDL) Law" of 1966 which was enacted on 20th Sep, 1996 followed by the Law amending CSDL (23rd Feb, 1997). There are two more laws such as "WAN (Wide Area Network) Notification (10th July 2002)" and "Electronic Transaction Law (30th April, 2004)" which is quite unpopular and seen as unacceptable and mostly criticized by politicians in our country after Myanmar started along the road to democratization.

The above mentioned laws and regulations still govern the telecommunications and ICT sector and they are not conducive to the development of that sector. The responsible personnel concerned are trying to amend these outdated laws. It is also quite clear that there is no law for promotion of e-Government activities until now in Myanmar.

The Ministry of Communications and Information Technology has already submitted the new Telecommunications Law (draft) to parliament for evaluation and

reviewing. Then, after a process of detailed and careful scrutinization, parliament approved it. The President promulgated "The Telecommunications Law" on 9 October 2013 and its 5 regulations have already received back from the Attorney General's Office with their remarks and it is under process now.

4.6 Position of Myanmar in e-Government Development

Myanmar e-Government development and her rank compared to other countries in terms of e-Government development will be discussed briefly here.

In 2012, the UN's e-Government development Index ranked Myanmar 160 among 193 countries in the world. Myanmar e-Government development index seems to decline according to global e-Government survey 2012. When detailed analysis is made on that e-Government development index data it was found out that Myanmar was not able to provide necessary data for that global e-Government survey in 2011. So the data for telecom infrastructure component is all zero in the e-Government development index. It has surely affected the Myanmar ranking in the world, e.g; Myanmar was 141 in the year 2010. It is described in table 4.4 and 4.5.

Table 4.4 Position of Myanmar: E-Government development in South-Eastern Asia

Country	E-gov. development index		World e-gov. development ranking	
	2012	2010	2012	2010
Singapore	0.8474	0.7476	10	11
Malaysia	0.6703	0.6101	40	32
Brunei Darussalam	0.6250	0.4796	54	68
Viet Nam	0.5217	0.4454	83	90
Philippines	0.5130	0.4637	88	78
Thailand	0.5093	0.4653	92	76
Indonesia	0.4949	0.4026	97	109
Lao People's Dem. Rep.	0.2935	0.2637	153	151
Cambodia	0.2902	0.2878	155	140
Myanmar	0.2703	0.2818	160	141
Timor-Leste	0.2365	0.2273	170	162
Sub Regional Average	0.4793		0.4250	
World Average	0.4882		0.4406	

Source: Global e-Government survey 2012

Note: (If telecommunication infrastructure component could be provided at the time of data collection Myanmar would be in a higher rank in E-Government development. Table 4.5)

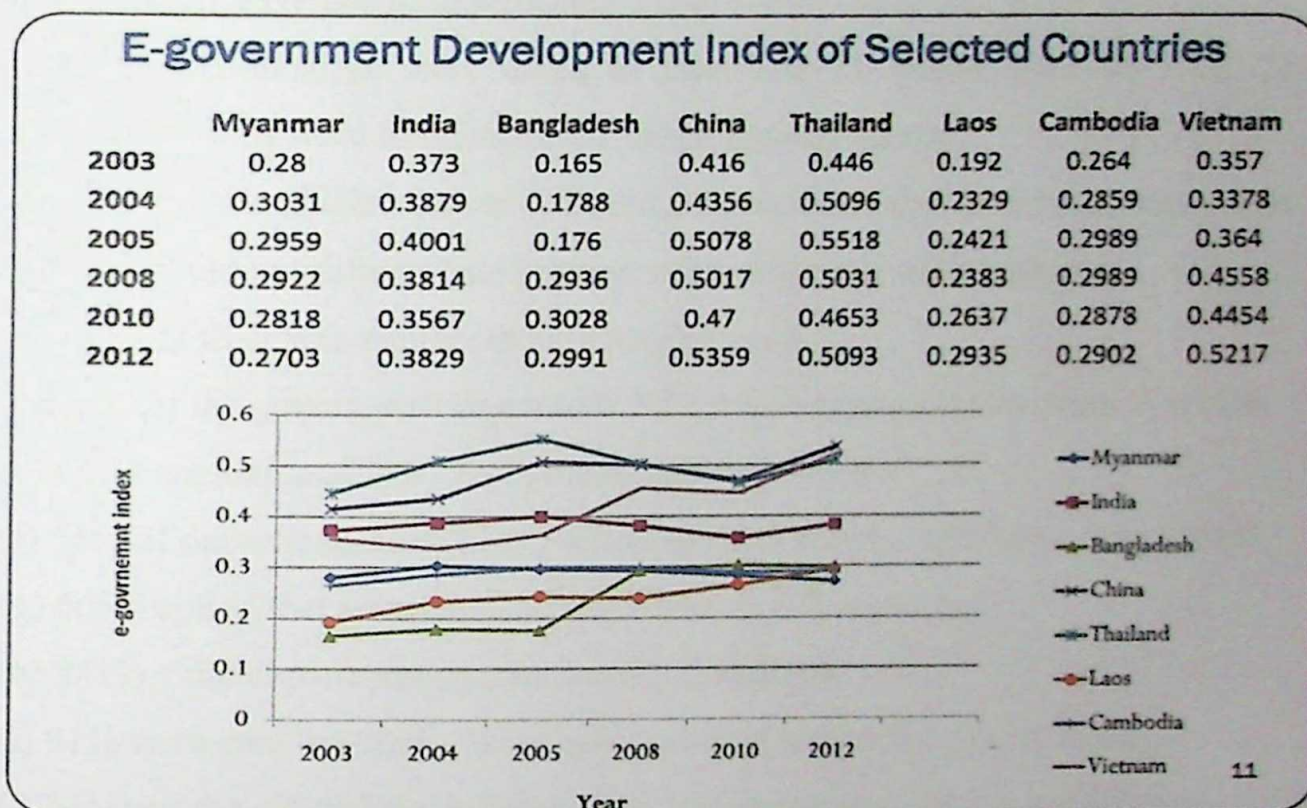
Table 4.5 E-Government development index of least developed countries.

Rank	Country	Index value	Online Service Component	Telecomm. infrastructure component	Human Capital Component
160	Myanmar	0.2703	0.1046	0.0000	0.7064
161	Gambia	0.2688	0.3203	0.1344	0.3519
162	Nigeria	0.2676	0.2222	0.1270	0.4535
163	Senegal	0.2673	0.3464	0.1283	0.3271
164	Nepal	0.2664	0.2876	0.0597	0.4521
165	Sudan	0.2610	0.2549	0.0725	0.4555
166	Côte d'Ivoire	0.2580	0.3333	0.1019	0.3388
167	Yemen	0.2472	0.1765	0.1011	0.4642
168	Solomon Islands	0.2416	0.1307	0.0198	0.5743
169	Liberia	0.2407	0.1895	0.0477	0.4849
170	Timor-Leste	0.2365	0.2157	0.0649	0.4290
171	Comoros	0.2358	0.0784	0.0436	0.5853
172	Ethiopia	0.2306	0.4706	0.0093	0.2119
173	Burundi	0.2288	0.1503	0.0173	0.5188
174	Dem. Rep. of the Congo	0.2280	0.1765	0.0183	0.4893
175	South Sudan	0.2239	0.1438	0.0725	0.4555
176	Djibouti	0.2228	0.1961	0.0488	0.4236
177	Papua New Guinea	0.2147	0.2288	0.0411	0.3743
178	Togo	0.2143	0.1373	0.0744	0.4312
179	Benin	0.2064	0.1961	0.1118	0.3113
180	Eritrea	0.2043	0.2092	0.0132	0.3907
181	Mauritania	0.1996	0.0784	0.1123	0.4079
182	Guinea-Bissau	0.1945	0.1046	0.0511	0.4278
183	Mali	0.1857	0.3203	0.0645	0.1723
184	Afghanistan	0.1701	0.2353	0.0573	0.2178
185	Burkina Faso	0.1578	0.2941	0.0454	0.1338
186	Sierra	0.1557	0.1699	0.0395	0.2576
187	Haiti	0.1512	0.0915	0.0698	0.2922
188	Niger	0.1119	0.1961	0.0293	0.1103
189	Chad	0.1092	0.0980	0.0291	0.2003
190	Somalia	0.0640	0.1830	0.0090	0.0000

Source: Global e-Government survey 2012

Myanmar e-Government development index (EGDI) is declining comparing to other countries in the region. According to Global e-Government survey of 2003, 2004 and 2005 of UN, Myanmar EGDI is higher than Laos and Bangladesh but later in the year 2010 and 2012 Myanmar EGDI is lower than those countries. It is described in the following Figure 4.2 e-Government development index of selected countries.

Figure 4.2 E-Government development indexes of selected countries



Source: Various sources of global e-Government surveys

4.7 Survey on e-Government failure

In 2011 Oct, Ministry of Communications, Post and Telegraph organized a workshop on e-Government at Naypyitaw. It was attended by CIOs of different ministries, members of Myanmar Computer Science Development councils, members from Myanmar Computer Federation, Myanmar Computer Professional Association and Myanmar Computer Industry Association. All of them actively took part in the workshop and clearly understood that Myanmar e-Government efforts are falling behind the neighboring countries. CIO knew their different ministries' e-Government development stages.

In 2012 of June, there was a preliminary survey on e-Government. Telecommunications and Postal Training Centre of Myanmar Posts and Telecommunications opened a course on e-Government promotion for government officials who are responsible for e-Government implementation in their works. The

ranks of these officials are middle level managers up to the deputy director. They are from different ministries in Naypyitaw and 38 officials attended that course.

The preliminary survey questions comprised the understanding of e-Government, webification¹⁰³ and e-Government, e-Government stage of ministries, prediction for next 5 year on e-Government, assignment of CIO, and budget allocation for sustainability of e-Government, HRD, security issue, government process reengineering (GPR), their future road map for e-Government, and outsourcing activities of department.

Questionnaires were asked to them and 33 replies were received. The following points were found out from that preliminary survey:

- (a) Most of the officials (about 70%) did not understand about e-Government at first.
- (b) 72% could not differentiate between webification and e-Government.
- (c) 40 % of their websites are at the emerging stage.
- (d) 70% of the government department did not have separate e-Government section.
- (e) CIOs are assigned in 87% of government department.
- (f) 66% of departments don't have sufficient HRD to carry out e-Government tasks.
- (g) 66% replied that security is the major issue in e-Government.
- (h) 84% of the department use outsourcing alternative.
- (i) 91% answered that they did not have sufficient budget for e-Government.
- (j) Most of the official doesn't understand about Government Process Reengineering (GPR).

These respondents were not CIOs, but they are ICT staff of e-Government.

Based on that preliminary survey the researcher conducted different surveys by using question on e-Government during 2014. The first survey was conducted in January 2014 and it comprised 60 questions. Most of these questions are general questions. The survey questions and the results are described in Appendix one.

There are 32 respondents representing 32 government ministries. The questions were divided into seven groups such as "Drivers of e- government, Strategy, Management, Design, Politics and self interest, Competency and Technology".

In Myanmar most of the government ministries provide their basic information

¹⁰³ Webification (sometimes seen with a lower case w) is the act of converting content from its original format into a format capable of being displayed on the World Wide Web.
<http://searchsoa.techtarget.com/definition/Webification>

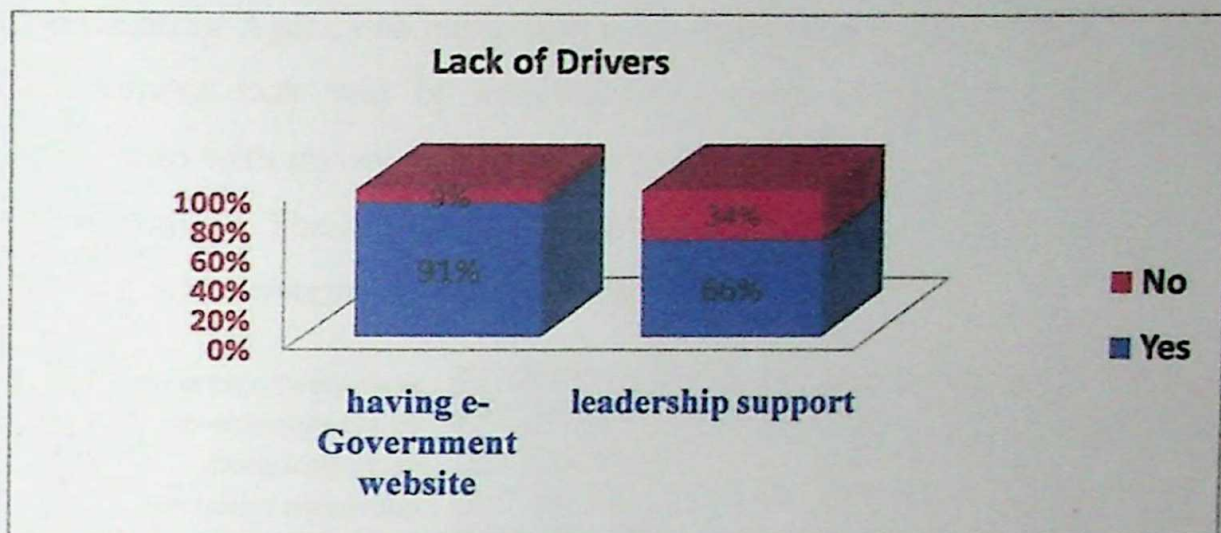
through their websites and it is about 90% of all. 68.7% of respondents answered that they have some leadership support for organization e-Government projects. Major findings of general survey are:

1. Only 12.5% of organizations provide frequently asked questions (FAQ) in their websites.
2. 87% of government organizations are in partnership with private sector for developing their e-Government projects.
3. Nearly 30% of the organizations don't have strategic vision for e-Government.
4. 36% of the government organizations don't have organization-wide e-business plan in implementation of e-Government.
5. Nearly 84% of respondent have trusted in e-Government and it is a good sign from the government staff.
6. 96.7% of respondents replied that their organizations don't have sufficient rule and regulation to implement e- government successfully, and only 6.4% had replied that they have strong legal ground for it.
7. Almost all of the respondents (96.7%) answered that they need an agency like special committee for e-Government or National coordinating Agency to implement e-Government successfully.
8. 60% of respondent don't know what is business process re-engineering.
9. 40.9% of organization don't use cost benefit analysis in implementation of e-Government, and 22.6% used cost/benefit analysis.
10. 86.7% of respondents replied that there was not any change in mindset.
11. Security issues are considered in e-Government planning (93.93%)
12. Only 23% of services can be delivered by means of no direct contact with the customers.
13. Only 48.5% of high ranking officer of your organization fully understand about e-Government.
14. 34.4% replied that they don't have sufficient infrastructure

That general survey also asked the questions on "Does your department/ ministry/ organization has e-Government website?" and "Do you have any leadership support for organizations e-Government projects?" The researcher found out that relating to drivers, 91% of the departments/ ministries/ organizations in Myanmar have e-Government websites, and 66% of the organizations get leadership support for

e-Government projects. The Figure 4.3 below shows the result of the questions.

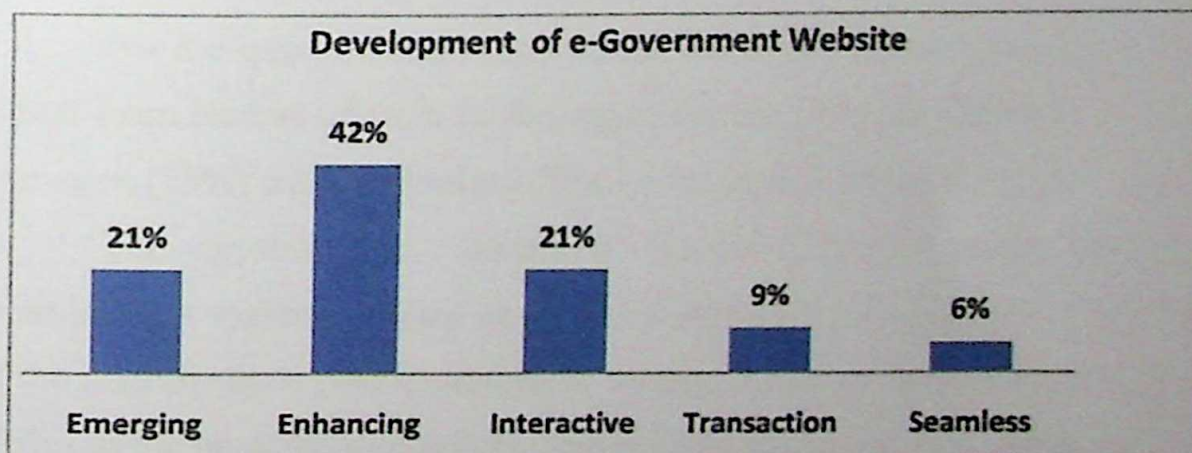
Figure 4.3 E-Government survey results on lack of driver



Source: Survey

The researcher also asked the question on the e-Government development status of different ministries. The question is "what is the development stage of that e-Government website?" According to their replies it was found out that 42% of the e-Government websites are in enhancing stage and 21% of the websites are in emerging stage and interactive stage, only 9% are in transaction stage and 6% are in seamless stage. The Figure 4.4 shows the result of the question.

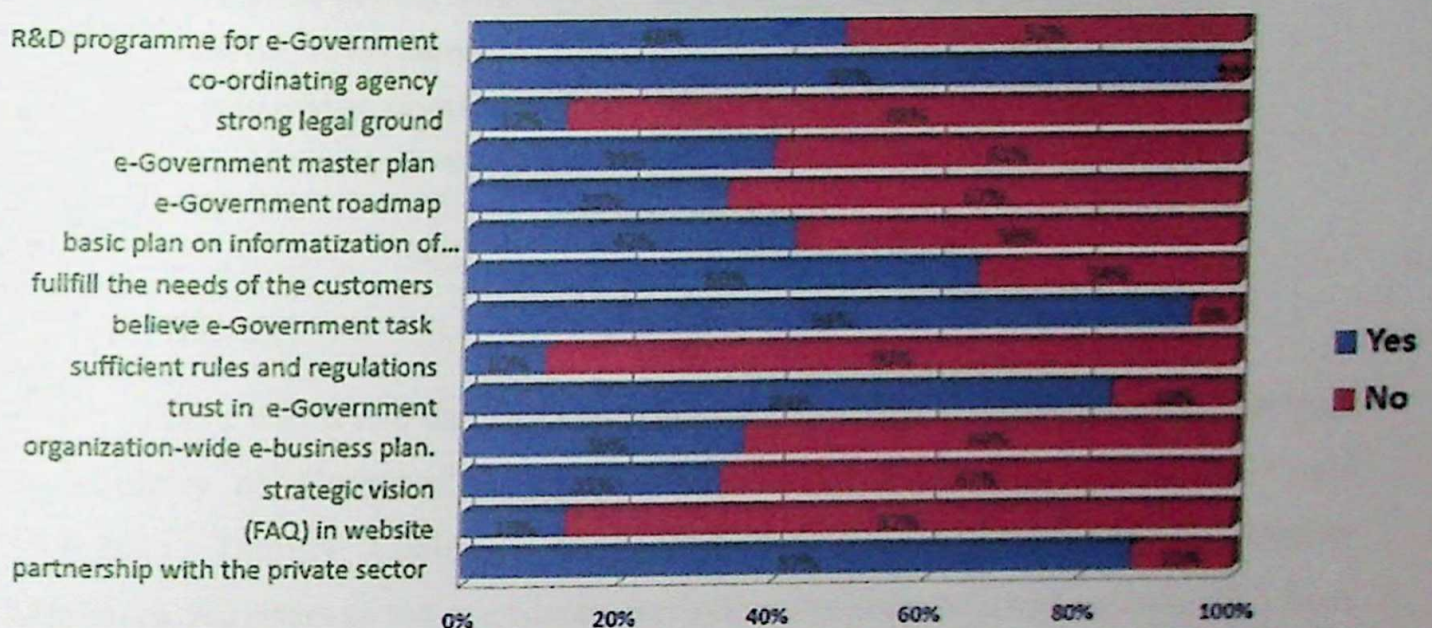
Figure 4.4 E-Government survey results on development of e-Government Website



Source: Survey

In answering questions such as "Do we need co-coordinating agency like special committee for e-Government or National Coordinating Agency to implement e-Government successfully?, Do you believe that e-Government task will be sustainable ?, Do you have any R&D programme for e-Government ? Do you believe that e-Government task will be sustainable?, Do you have trust in e-Government of your organization?, and Are there any partnership with the private sector in your

department for e-Government ?" most of the respondents (97%) believe that they need coordinating agency like special committee for e-Government or National Coordinating Agency to implement e-Government successfully; (94%) believe that e-Government task will be sustainable; most of the departments (87%) have the partnership with private sector for e-Government; (84%) of respondents have trust in e-Government. The survey result of these questions is described in the following Figure 4.5 E-Government survey results

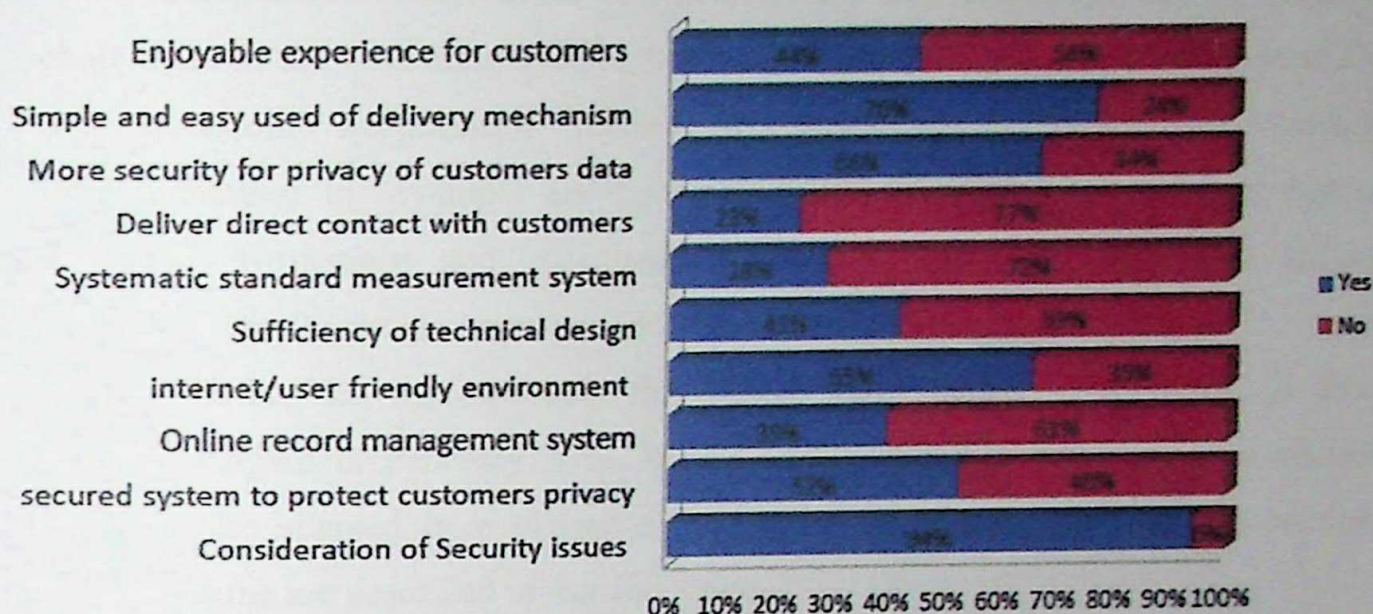


Source: Survey

For the question concerns with the leader in e-Government team, the response is that team leaders of most of the organizations (48%) are Director/ Deputy General Manager, (29%) team leaders are Director General or Managing Director level.

The questions on means of service delivery, security issues, standard measurement system, privacy of customer data were asked and the result is that most of the organizations (94%) considered security issues in implementing e-Government; (76%) of the organizations believe that the delivery mechanism of e-Government are simple and easy for users; 66% of the organizations believe that privacy of customers data are more secured by e-Government service; and 65% of the organizations have internet/ user friendly environment. See the following Figure 4.6.

Figure 4.6 E-Government survey results



Source: Survey

There was a two day workshop on Accelerating of e-Government in Myanmar at Ministry of Communications and Information Technology on 14.6.2011 and 15.6.2011. Deputy Chairman of People Parliament, Union Ministers, Deputy Ministers, Advisers to the presidents, representative from state and regions, CIO from all government ministers, executives and professionals from Computer Associations attended that workshop. There were 15 key challenges identified by that workshop and they are;

- (a) Leadership and commitment
- (b) Lack of strategic vision
- (c) CIO's role and responsibility
- (d) Security
- (e) Lack of e-Government Policy
- (f) Lack of Legal framework
- (g) Lack of standardization
- (h) Budget constraints
- (i) Inter-ministerial co-ordination
- (j) Lack of in-house technical experts
- (k) Fragmented approaches
- (l) Lack of dedicate ICT unit
- (m) Unwilling to change current procedures and practices
- (n) Affordable internet connectivity

(o) high transaction costs

Respondents were asked to identify the 5 key challenges out of these 15 challenges in implementing e-Government in Myanmar. There are 23 respondents for that question. Respondents replied that key challenges for e-Government implementation in Myanmar are poor coordination (100%), poor technical design (95.65%), workspace and organization inflexibility (91.3%), leadership failure (86.96%), and financial constraints (86.96%).

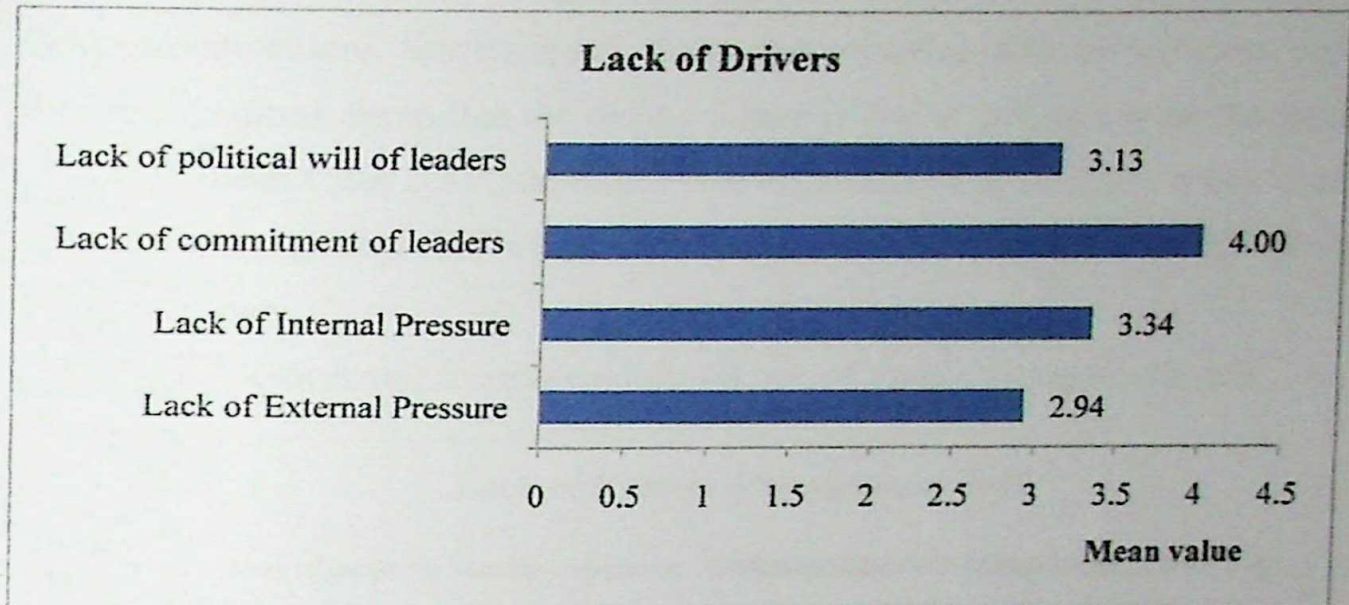
Another survey, especially for e-Government failure in Myanmar, is also conducted again in February 2014. In this survey data was collected using online questionnaire adapted from various e-Government literatures. The survey questions and the results are described in Appendix two.

There are 32 respondents for the questions on e-Government failure in Myanmar. All of the respondents are CIO and responsible officials from different ministries. Professor Heeks' "Factor model of e-Government failure" is used in the survey. There are 40 survey questions and they are also divided into seven factors such as lack of internal and external drivers, dominance of politics and self interest, lack of vision and strategy, lack of change management skill, poor design, lack of competencies, and lack of infrastructure.

Likert scales are used in the survey questions. Score 1 is strongly disagree, 2 is disagree, 3 is neither disagree nor agree, 4 is agree and 5 is strongly agree.

Factors on lack of drivers include political will and commitment of the leader, internal and external pressures. E-Government projects failure may be due to lack of external and internal pressure, lack of political will and commitment of the leader. Survey result shows that regarding with the lack of drivers, most of the organizations strongly agree that the main reason for e-Government project failure is due to lack of commitment of leaders with mean value 4; and most of the organizations agree that it is due to lack of internal pressure with the mean value 3.34. Survey result on lack of drivers is described in the following Figure 4.7.

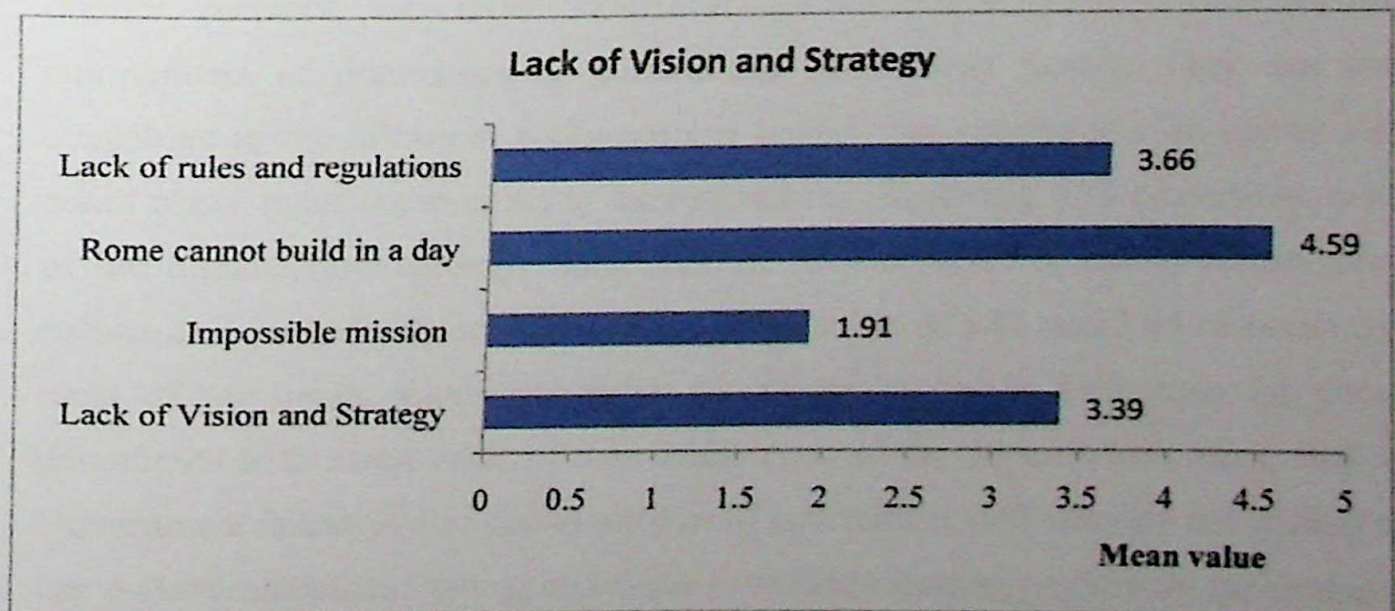
Figure 4.7 E-Government survey results on lack of drivers



Source: Survey

The questions on lack of vision and strategy are also asked. E-Government projects can fail due to lack of vision and strategy, impossible mission, perception of overconfidence and assume that it can build within a day, and lack of rules and regulations. Survey result shows that regarding with strategy, most of the organizations strongly agree that e-Government cannot build in a day with mean value 4.59; and most of the organizations agree that the failure is due to lack of rules and regulations with mean value 3.66. The following Figure 4.8 describes the result of the survey on lack of vision and strategy.

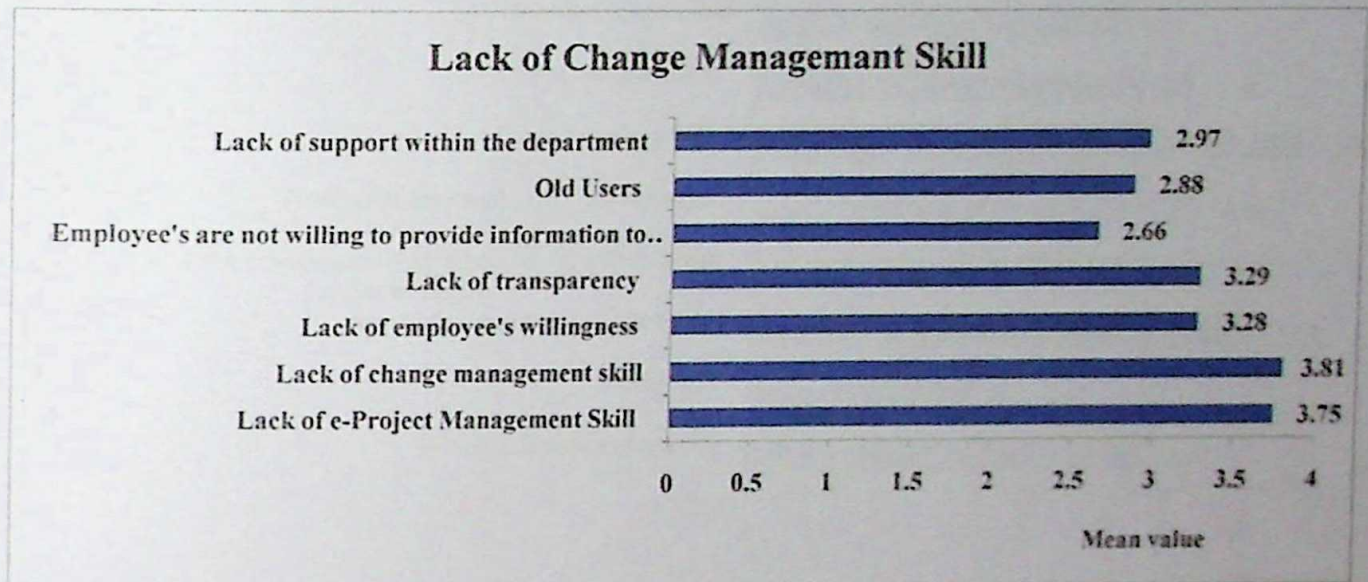
Figure 4.8 E-Government survey results on lack of Vision and Strategy



Source: Survey

Lack of change management skill is another contributing factor for e-Government failure. Survey result shows that regarding with management, most of the organizations agree that the project failure is due to lack of change management skill with mean value 3.81; and most of the organizations agree that it is due to lack of e-project management skill with mean value 3.75. The following Figure 4.9 shows the result of survey.

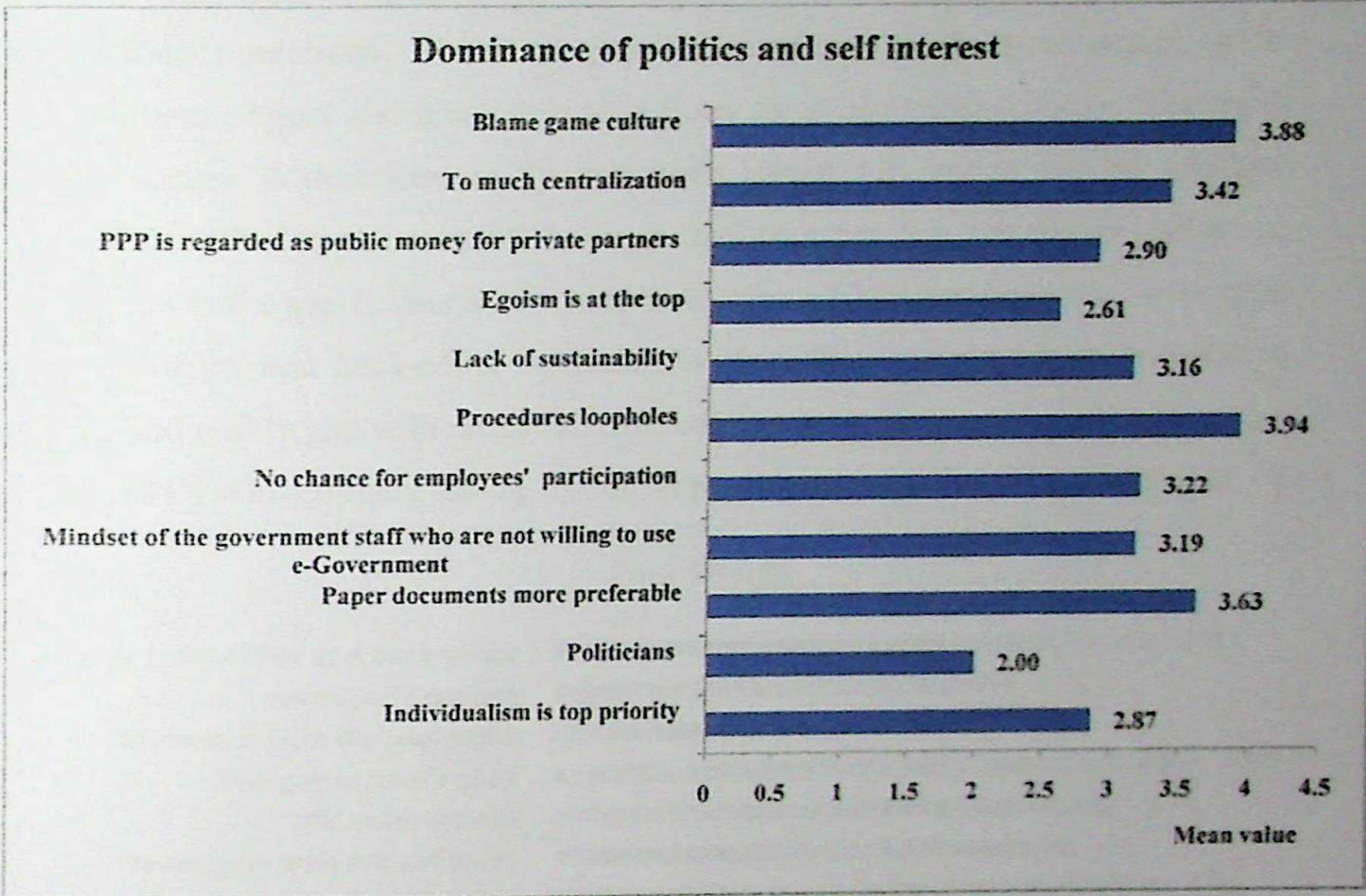
Figure 4.9 E-Government survey results on lack of change management skill



Source: Survey

Mindset of the government staff who are not willing to use e-Government, chances for employees' participation in decision making process, procedures loopholes, lack of sustainability, egoism, PPP being regarded as public money for private partners, too much centralization, and blame game culture are the components of dominance of politics and self interest factors. They can also contribute to the failure of e-Government project implementation. The survey also asked about these components to the respondents. Regarding with constraints, most of the organizations strongly agree that the project failure is due to blame game culture and procedural loopholes with a mean value of 3.88 and 3.94 respectively; most of the organizations agree that the failure is due to preference for paper documents with mean value of 3.63 while most of the organizations agree that e-Government failure is also due to mindset of government staff who are not willing to use e-Government and having no chance in decision making process for government staff with a mean value of 3.19 and 3.22 respectively. These points are described in Figure 4.10.

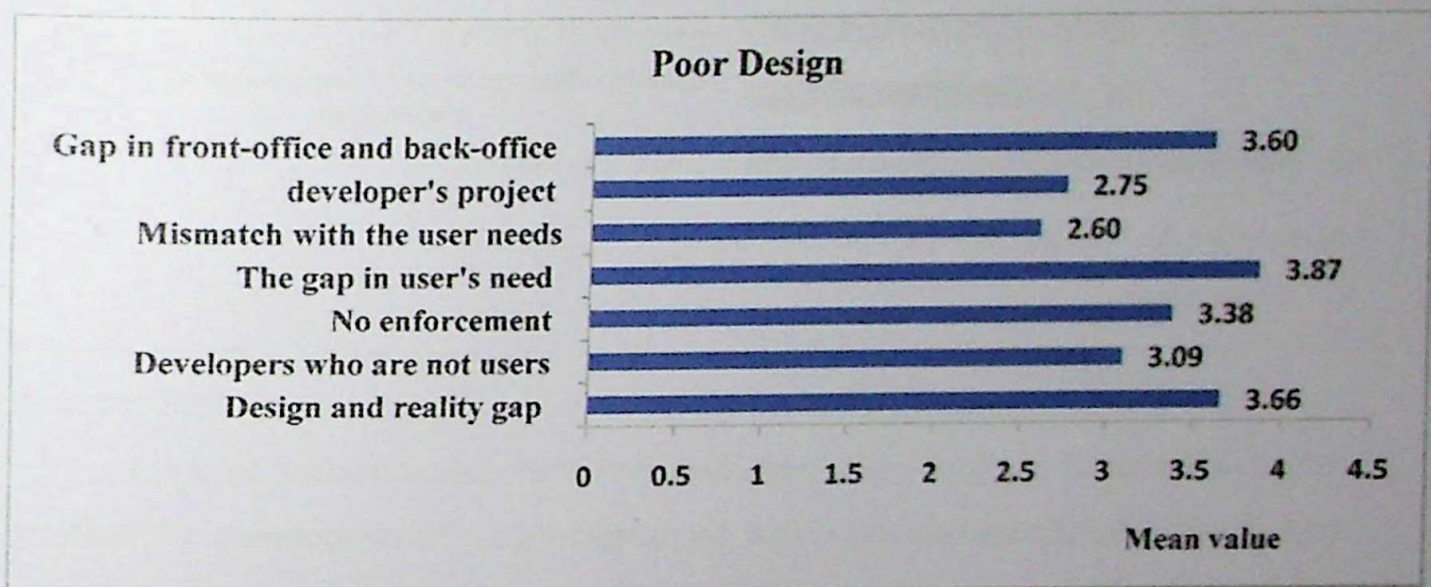
Figure 4.10 E-Government survey results on dominance of self interest & politics



Source: Survey

Sometimes there are gaps in design and reality of e-Government websites. Sometimes developers are not e-Government users. They don't know the needs of the users and mismatch occurred. There may also be some gaps in front-office and back-office operations. These components contribute to the poor design of e-Government project and it can also be a factor for e-Government failure. The result of the survey is described in the following Figure 4.11 and it can be said that regarding with design, most of the organizations agree that the project failure is, firstly due to the gap in user needs with mean value of 3.87, secondly due to the gaps in front-office and back-office operations with a mean value of 3.60, and due to design and reality gap with mean value of 3.66.

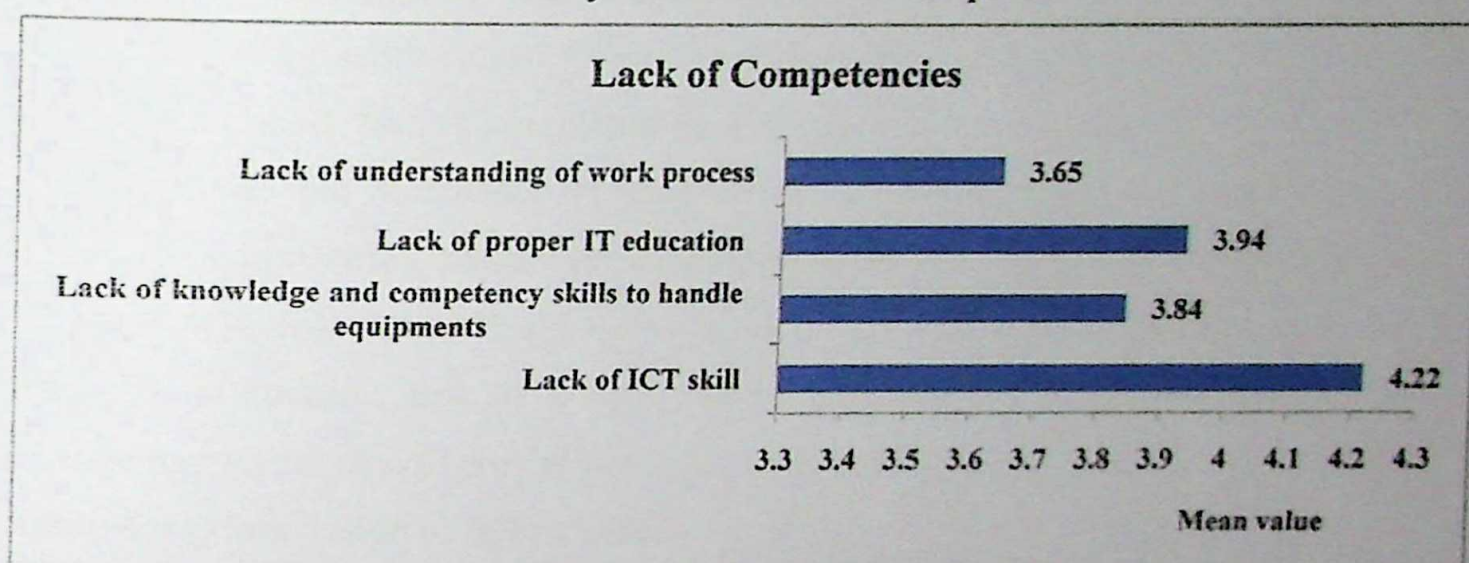
Figure 4.11 E-Government survey results on poor design of e-Government project



Source: Survey

ICT skill and knowledge and competency skills to handle ICT equipments are very important for improving competency of staff. The survey result shows that regarding with competencies, most of the organizations strongly agree that the project failure is due to lack of ICT skill with mean value 4.22; and they agree that it is due to lack of proper IT education and lack of knowledge and competency skills in equipment handling with mean value 3.94 and 3.84 respectively. The following Figure 4.12 mentions the survey result of lack of competency.

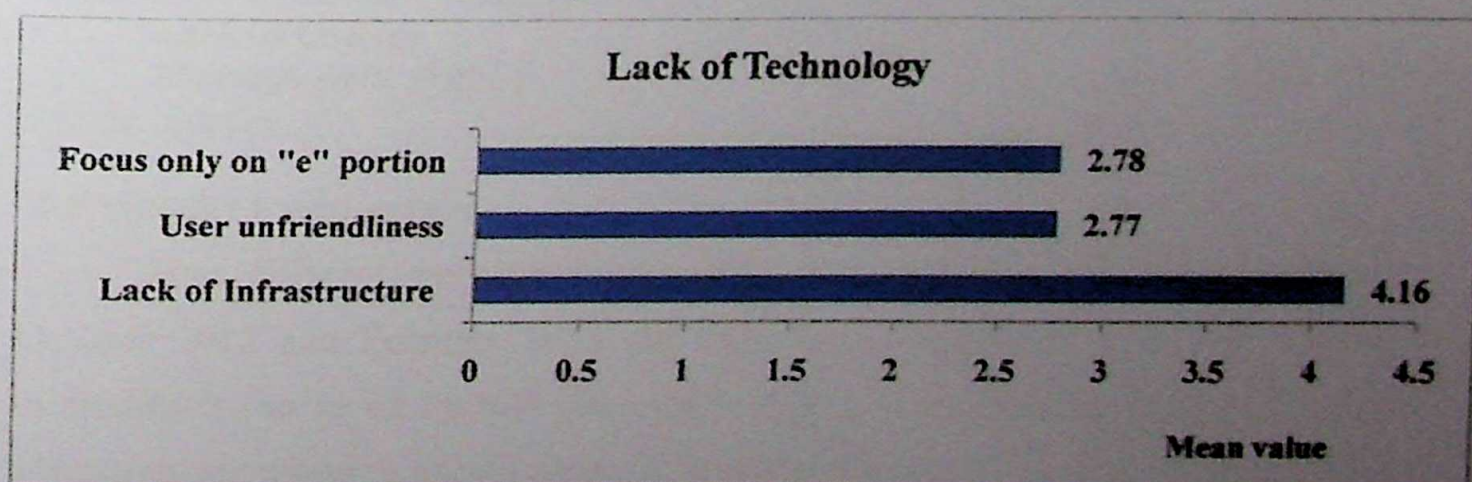
Figure 4.12 E-Government survey results on lack of competencies



Source: Survey

Lack of Infrastructure, user unfriendliness, and e-projects focus only on "e" portion are components of technology factor which can also contribute to the failure of e-Government projects. The researcher asked these components to the respondents and the result of the survey is that according to technology, most of the organizations strongly agree that project failure is due to lack of infrastructure with mean value 4.16. The following Figure 4.13 shows the survey result of lack of technology.

Figure 4.13 E-Government survey results on lack of technology



Source: Survey

It is necessary to analyze and find out the most contributing factor for e-Government failure in Myanmar. First, total score of each factor and total respondents of each factor is calculated. Then, rating score or mean value of each factor is sought. Total score divided by total respondents is equal to mean value or rating score. Mean value of 3 means neither agree nor disagree of the question. If mean value is more than 3 the respondent is likely to agree. If mean value is more than 4 the respondent is likely to agree strongly to the point raised by the question.

The following table 4.6 shows the prioritization of failure factors or the individual rating score (mean value) for each of seven factors against the cause of failure likelihood for e-Government in Myanmar. It can be said that respondents strongly agree that dominance of self interest and politics and lack of competencies are major contributing factors for e-Government failure in Myanmar with a mean value of 4.3625 and 4.0313 respectively. Moreover, respondents are likely to agree that lack of strategy, lack of drivers, poor design, lack of technology, and lack of change management skill are the root cause of e-Government failure.

Table 4.6 Prioritization of failure factors

No.	Factors	Total Score	Total Respondents	(Mean)
		(1)	(2)	(3)=(1/2)
1.	Dominance of self interest and politics	1095	251	4.3625
2.	Lack of Competencies	258	64	4.0313
3.	Lack of Strategy	430	127	3.3858
4.	Lack of Drivers	429	128	3.3516
5.	Poor Design	714	218	3.2752
6.	Lack of Technology	308	95	3.2421
7.	Lack of Change Management skill	717	222	3.2297

Source: Survey

4.8 Website based survey

Four different web based survey were conducted in different time during October 2012 and February 2014. By checking the uploaded information of the ministries it can be easily find out what is their e-Government development stage. Ministries are trying to improve their webpage performance and some of the websites of the ministries have already reached to e-Government stage 3, interactive stage.

The first website based survey covered 30 government organizations, whereas

second, third and fourth survey covered 40 government organizations. The total members of websites developed by these organizations are 69 and it not the single windows for user point of view. Single windows are the preferred choice for citizen in dealing with the government department. The second survey showed that e-Government development had taken place in Myanmar. Out of 40 organizations 10 of them are at the stage one, (it was 17 in the first survey), emerging stage, just delivering basic information of their organizations to the public. Then 19 websites at the enhancing stage, stage two. It can be said that after November 2012, ministries are regularly updating their websites with more complete information.

At the time of first survey and November 2012, only 3 organizations' websites had reached to the interactive stage, stage 3. However, the forth website based survey shows that 13 organizations' websites are at the stage 3 and it is, indeed, a good trend.

After conducting fourth web based survey, there is only 3 websites in stage one and the rest are progressing to stage two (17 websites) and stage 3 (14 websites). It can be said that senior management are taking care of their respective e-Government development and Myanmar e-Government is developing after 2012. Myanmar websites still need to try to reach to the higher stage of transactional level. It can be said that it is good development trend after a long period of stagnation in e-Government development of Myanmar. E-Government development stages of ministries over the period from November 2012 to February 2014 is describes in the appendix three.

Table 4.7 Web Based Survey of Ministries

	26.11.2012 1 st Survey	13.5.2013 2 nd Survey	26.12.2013 3 rd Survey	13.2.2014 4 th Survey
Organizations	30	40	40	40
Emerging Stage 1	17	10	6	3
Enhancing Stage 2	10	19	19	17
Interactive Stage 3	3	4	9	14
Transactional Stage	-	-	-	-

Source: Survey

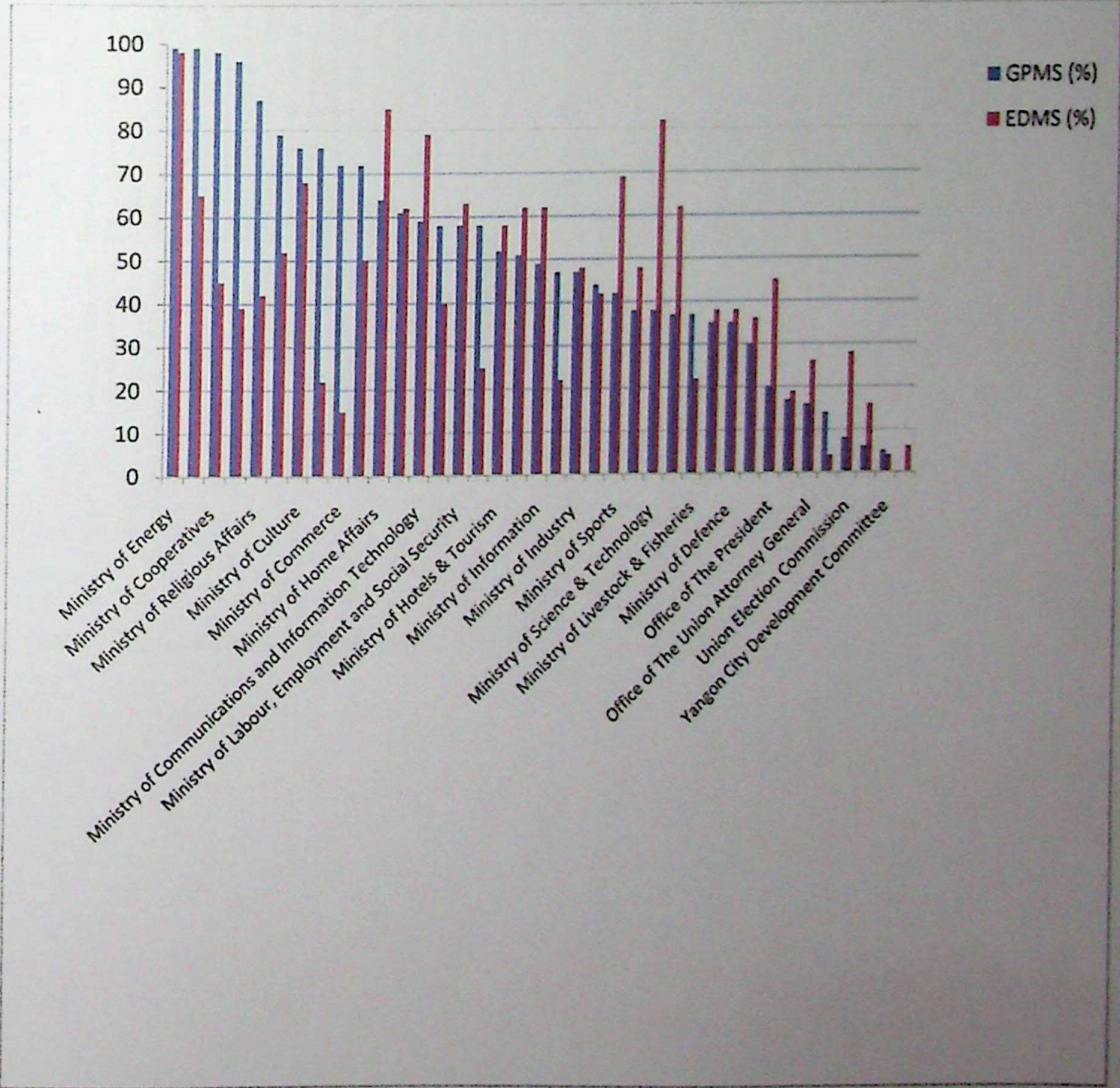
4.9 Survey on Basic e-Government projects

This study also conducted a survey on performance of Basic e-Government projects such as Government Personnel Management System (GPMS) and Electronic Document Management System (EDMS). These projects are very basic projects in

which every ministry need to transmit, transfer and exchange the information & documents for government administrative affairs, and IT department of MPT evaluated the performance of each ministry based on their usage of the storage capacity of the given e-Government system.

The following Figure 4.14 shows the GPMS and EDMS e-Government system utilization rate and only 7 ministries are using GPMS e-Government system over 70% of their capacity whereas for EDMS system only six ministries is using it over 60%.The rest of the ministries are not using the basic e-Government system effectively and efficiently.

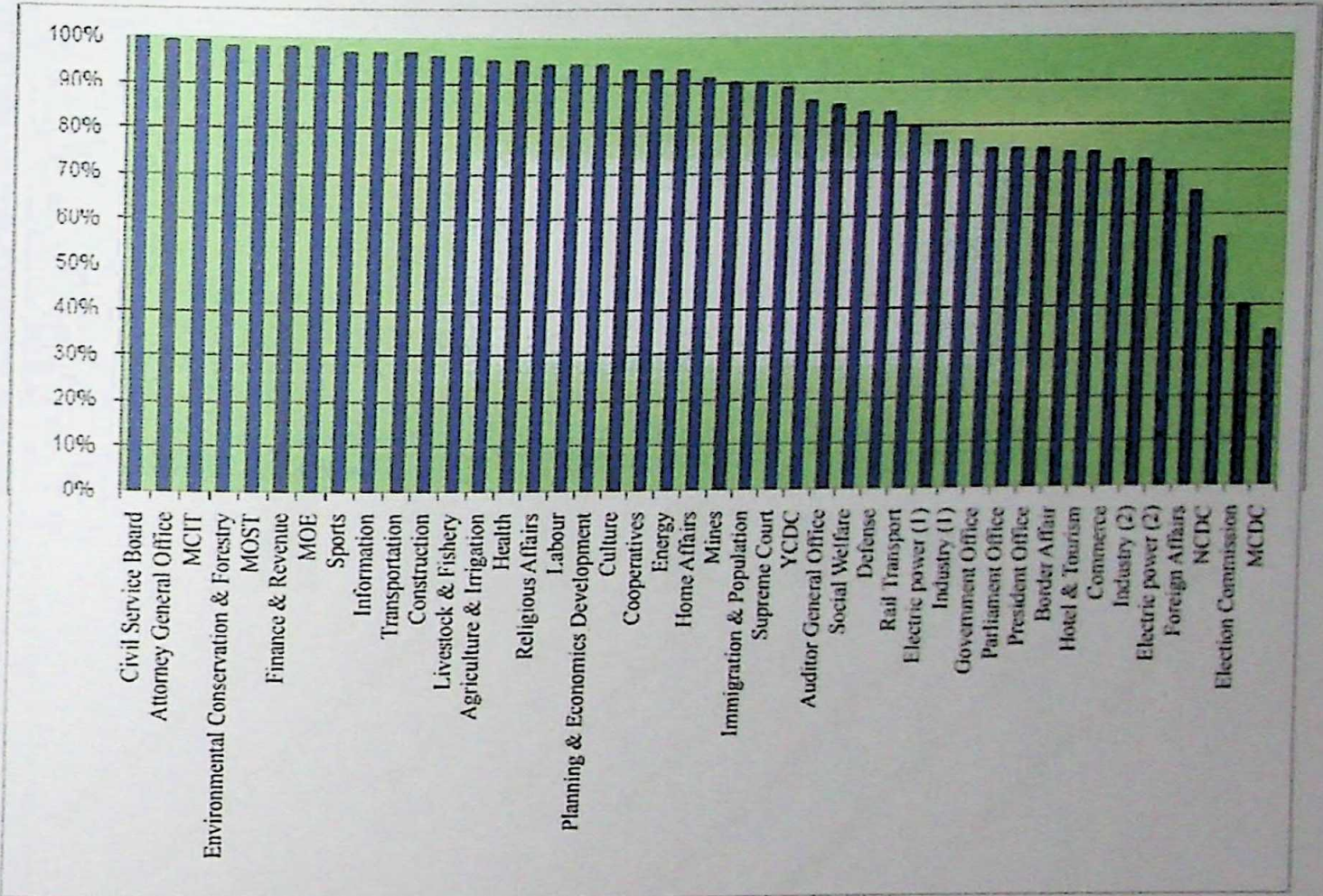
Figure 4.14 GPMS and EDMS e-Government System Utilization Rate (%)



Source: IT Department, Myanma Posts and Telecommunications

The following Figure 4.15 shows the usage of storage capacity for servers of respective ministries. It can be seen from these diagram that server storage capacity utilization is more than 60% in most of the ministries. It is an urgent issue for the ministry responsible for data storage to increase storage capacity for servers in the future.

Figure 4.15 Usage of Storage Capacity for Servers of respective ministries

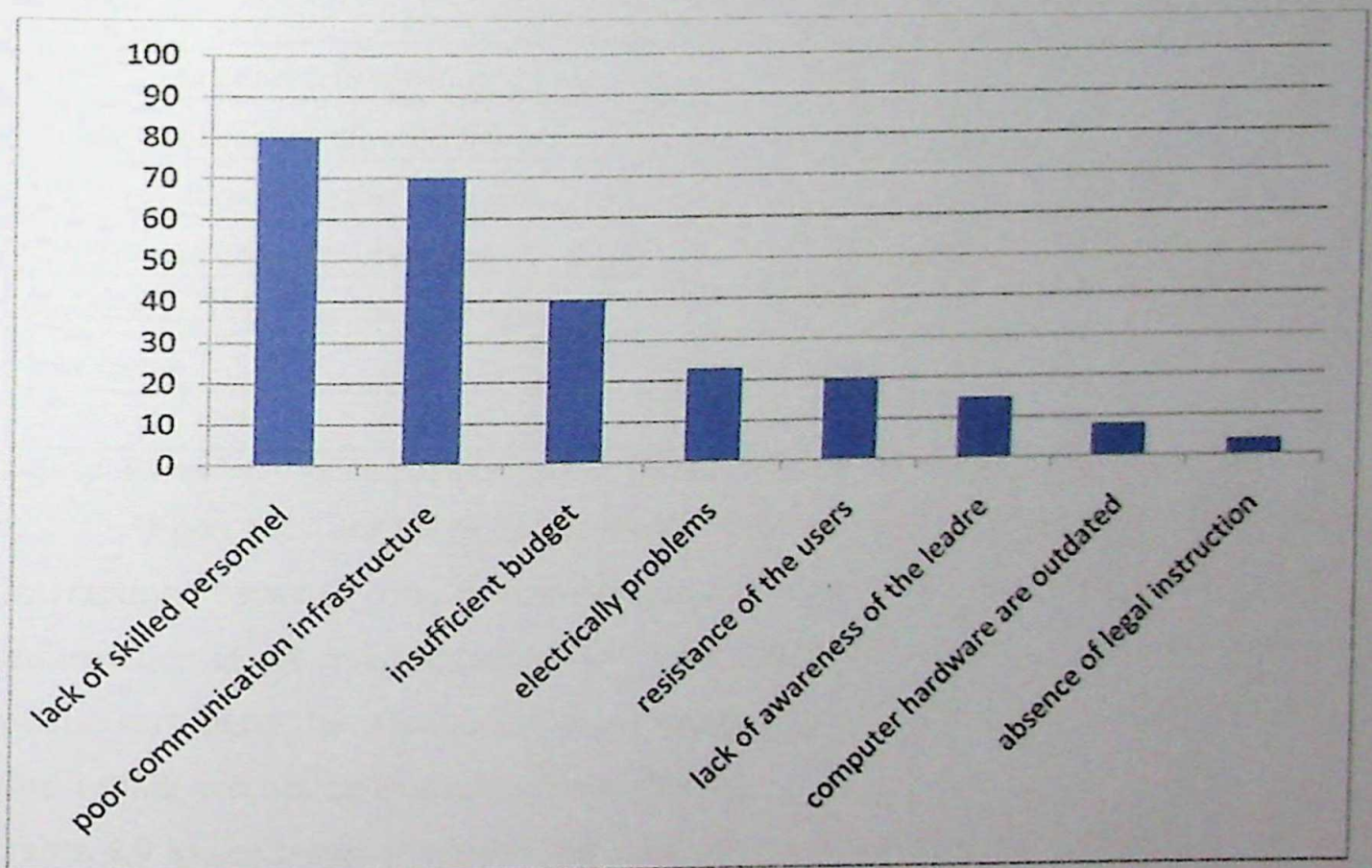


Source: IT Department, Myanma Posts and Telecommunications.

4.10 Obstacles to Operating Information Systems

In the year 2005 a survey was jointly conducted by Myanmar and Korea officials on e-Government and operating information system usage of Myanmar. When asked what are the obstacles to operating information systems, people pointed out the lack of skilled personnel as the first and poor communications infrastructure as the second. Insufficient budget was listed as the third. Other mentioned obstacles include electricity problems, resistance of the users, and the lack of awareness of the leader (Figure 4.16).

Figure 4.16 Obstacles to operating information system usage



Source: Korea Information Strategy Development Institute (KISDI)-Myanmar Joint survey 2005

4.11 Major Issues Related to Administration

When government officials are asked one of the most important issues to be addressed by e-Government, they listed efficiency improvement as the first, information sharing as the second, and time saving as the third. Government officials did not think cost saving as the major issue to be considered by e-Government.

Table 4.8 Major Issues to be considered by e-Government

Issues	Percent
improving efficiency	45.7
information sharing within organization	16.8
time saving	13.7
communication with local office	8.6
communication with the state/division	6.1
communication with other ministries	5.1
network and information security	2.5
streamlining duplicated work process	1.0
cost saving	0.5
Total	100

Source: Korea Information Strategy Development Institute (KISDI)-Myanmar Joint Survey 2005

When they are asked "what is one of the most important issues in improving interaction between the government and citizens", they answered that public information is the most important one. They listed reduction of procedure related to public services as the second and time reduction for public services as the third. They don't think corruption as a major issue for it.

Table 4.9 Major Issues for Improving Interaction between the Governments
And Citizens

Issues	Percent
public information	41.1
reducing time for public services	18.9
reducing procedure related to public services	16.8
citizens' participations	11.9
Transparency	7.6
increasing public safety	3.8
detering corruption	0
Total	100

Source: Korea Information Strategy Development Institute (KISDI)-Myanmar Joint survey 2005

4.12 Interview with ICT professionals

An interview was conducted on 13th December 2013 with ICT professional at MCPA (Myanmar Computer Professional Association) office. The objectives of interview was to review and analyze the past e-Government experiences and to seek the professional suggestions on future e-Government development of Myanmar. Some members of MCF (Myanmar Computer Federation) and MCPA took part in interview process.¹⁰⁴

Myanmar is no exception and encountered all the barriers that developing faced during e-Government implementation process. These barriers are leadership failure, financial inhibitors, digital divide and choice, poor coordination, workplace and organization inflexibility, lack of trust to government organizations, and poor technical design. ICT professionals did not satisfy with the current development stage of e-Government. It is the second lowest in ASEAN region. There is a need of "Government Led Leap Frog programme" in e-Government by providing sufficient budget for it. If it is possible alternative means of financing mechanism should be sought for future e-Government project such as PPP model or international financing arrangements.

Motivational factors are another issue and they are very important for successful implementation of e-Government. There should be Legal enforcement to use e-Government in all ministries together with ministerial competition on e-Government activities.

Another point of discussion during the interview process is upgrading the role of CIO in every organization. ICT development and emergence of e-Government call for more role of Chief Information Officer (CIO). Then what is the role of CIO in Myanmar. They don't play the important role, but they are just at the nominal role. The skills they acquired during the CIO training are not used productively by the government in their respective department until now. However, not many of them were placed in the decision-making positions. The CIOs need to be given important responsibilities instead of an assistant's role." The trained candidates were sent back to their respective departments instead of being appointed as CIOs.

¹⁰⁴ Professionals who took part in the interview were U Zaw Min Oo, General Secretary, MCF (Myanmar Computer Federation), U Ye Yint Win, Chairman, MCPA, U Min Zayar Hlaing, Chairman, MCIA (Myanmar Computer Industry Association), U Thaung Su Nyein, Secretary, MCPA, and U Min Oo, Joint Secretary, MCPA, and U Ye Kyaw Thein, EC member, MCPA.

There is no CIO mandate and no career opportunity for them. Once they were assigned as CIO of their organizations they felt that they are finished. There should be more roles for CIO in decision making process and it is essential for the CIO to be part of senior leadership. CIO unit in each and every organization with clear career development prospects will be a preferred solution for future e-Government. More training on CIO for project management skills as well as other necessary capacity building should be conducted extensively. Moreover, it is necessary to upgrade both financial and administrative power of CIO.

Another point of discussion is cash especially on budget issue. E-Government needs sufficient budget allocation for successful implementation. ICT professionals suggested that budget allocation for e-Government should be between 3% to 5% of the total budget. That percentage ratio of budget for e-Government is, indeed, too much. Republic of Korea, for example, which is the top country in world e-Government, spend only one percent of her budget for e-Government. ICT professionals also pointed out the sustainability issue of budget for e-Government. Cash injection and financial readiness are essential for sustainable e-Government.

Laws and regulations on e-Government are very important. Myanmar is at the infant stage in terms of e-Government law and regulation. The existing ICT laws are the Computer Science Development Law, 1996, the Electronic Transactions Law, 2004, and the Wide Area Network Order of Ministry of Communications, Posts and Telegraphs (MCPT)¹⁰⁵. There is no e-Government promotion law, informatization promotion law and ICT industry promotion law. There is no legal enforcement for it. There is no standardization for e-Government development. It is necessary to introduce and develop legal framework and standardization for e-Government. Standardization also calls for collaboration across the different ministries.

One of the important issues for e-Government is creation of central support agency. If the government chooses to create a central support agency, then it is necessary to define its role, location, mandate and size. Central agencies need to have a mandate to perform many tasks, including assessing and enhancing readiness, development a strategy and implementation plan, building share infrastructure, funding resources for reengineering, application development and change

¹⁰⁵ The Notification No.3/2002 of the MCPT

management, developing guidelines, standards and best practices forging PPP, indentifying departmental champions, monitoring progress and impact, and overseeing pilot projects.

For developing e-Government there is the need for a "*unique and independent impeller institution*" which is responsible for all e-Government affairs. This institution is responsible for scheduling and budgeting for all the stages of the "Creation process". Also, a set of laws, regulations, supervisor on systems development should be developed. Even more important is that before the architecture of e-Government structure, the integrated electronic systems have to be designed for user profiles, smart cards, authentication, and inquiry transactions so that there be a standard and widespread systems organizations dealing with these components.

Myanmar needs that kind of "Central Agency" for e-Government initiative. Each ministry developed their e-Government website without close co-ordination with related ministries. Guidelines, standardization, and funding is lacking for it. There is lack of interest for re-engineering and change management as well as lack of strategy and implementation plan. It is a sign of lack of coordination and collaboration among ministries. E-Government related budget is the first to cut whenever budget allocations are re-evaluated in most of the ministries even if there is a request for 3% to 5 % of total budget for e-Government acceleration.

Myanmar had e-National Task Force (ENTF) in the previous era. Now there is no institution like ENTF and ENTF itself was not a dedicated institution for e-Government. Korea, Singapore, India, and China have dedicated institutions for implementation and monitoring of e-Government project with high level involvement. Setting up a special dedicated institution, like "Steering Committee", with high level involvement for future e-Government activities is a preferable solution.

ICT education is also a point of discussion during interview process. There is a need of ICT education at the primary education level. Most of the developed countries start their ICT education at primary level and it also paves the way for ICT promotion in their systems. ICT education should be a part of curriculum in the primary, middle and higher education level, and only then Myanmar will be able to enjoy with e-literate educated people in the system. That kind of support from government will definitely increase the awareness of e-Government among citizen and younger generation. In short Myanmar needs to create the ICT users community with ICT usage promotion with high level involvement.

Myanmar e-Government development for the last 10 year is not satisfactory. One of the reasons is there is no evaluation on current status for a long period. Government needs to create monitoring mechanism. In order to clearly control the objectives and functions, identifying strengths and weaknesses of policies, architecture and other stages of e-Government creation process, the possibility of feedback should be provided from citizens; in a way that the possibility of the evaluation of e-Government systems at three levels: technical, conceptual, efficiency be provided . Feedback results will be useful for the improvement of all previous six stages of the e-Government creation process. E-Government monitoring mechanism is really needed to develop and create in focal ministry on permanent basic.

E-Government master plan is interesting point of discussion in the interview. Myanmar developed ICT master plans in 2001, 2005 and 2011. E-Government was a part of the ICT master plan. Implementation of ICT master plan was regarded as a fail effort. Myanmar ICT master plan was heavily criticized for being a paper document and it has never been implemented in reality. ICT master plan laid down action plan without any follow up implementation. This also shows lack of collaboration among stakeholders. Myanmar does not have e-Government master plan and e- government strategy at present. Government should have an e-Government master plan. Master plan on e-Government is necessary if there is a political will for it. E-Government has never been a major national agenda in the past.

E-Government should be one of the national major agendas. Government needs comprehensive e-Government framework. Drawing an e-Government master plan is the first thing to do. Myanmar has introduced a lot of e-Government efforts in different ministries at different period, and resulting to different e-Government stages. Some ministries still don't have e-Government website and they cannot even provide the necessary basic information website to the public. One clear point is that e-Government efforts are not integrated one. There should have a master plan for it. Without master plan government may lose direction. E-Government initiative should be part of broader administrative reforms to improve public sector performance in delivering service to citizen, delivering services to business and increasing efficiency.

A question on "Are you ready for e-Government?" is discussed in the interview. The answer is simply and definitely "No". Readiness depends on enabling environment that includes a:

- Mature technical infrastructure in various government department.

- Government staff willing to re-engineering, share information and treat citizens and business as customers.
- Deep internet penetration and/or presence of many public Access Centers.
- Legal framework that foster public confidence and supports a government mandate to conduct transaction online.
- Political commitment from departmental champions and leaders.
- Demanding, aware citizenry that understands its rights and willing to express them-and fight for them in case of laxity and inefficiency.

Myanmar is not completely ready on the entire above dimension. So Myanmar should build her e-readiness simultaneously. It means that Myanmar must build ICT infrastructure first. If there is not that kind of basic ICT infrastructure, future e-Government initiatives may not get the expected results. Infrastructure is the foundation for other e-projects later.

Then, another key question is what model government should use for delivering e-services. In industrial countries, the delivery model is based on self-service through the internet, while in developing countries it is hybrid of automated and manual process. An increasing popular model is being used in Bahia, Brazil, where citizen assistance service centers integrate federal, state and municipal agencies in a single location. The centers are in convenient locations, offer tremendous time savings, and deliver service with courtesy and professionalism.

To ensure effective co-ordination of inter-departmental initiative, many countries have opted for centralized implementation of e-Government efforts. This approach is more likely to succeed in small countries such as Dubai, Jordan, Mauritius and Singapore. But for most developing countries, where manual process remains the norm, a centrally driven strategy is complex and difficult. So government has to decide which delivery model is best suited: central or departmental.

The goal of e-Government is to facilitate more co-creation and interaction between the government, the people and the private sector to bring about greater value creation. There must be a coordinated creation process for better delivery of service to the stakeholders.

Developing e-Government policy should be done according to the contextual factors such as social and organizational culture, management maturity, economic conditions, electronic knowledge, demographic conditions, specialist human

resources, and technological infrastructures. Policymaking is like making a new track to achieve the selected functional goals and is affected by the nature of government intervention, technical and humanities aspects, and the key tools of e-Government development.

There are four main categories of e-Government policies such as decentralization/ democratization, normative / dystopian, socio-technical systems, and global integration. Decentralization and democratization e-Government policy will be the best fit policy choice for reform process.

In the e-Government creation process strategy development, identification of expected functions, identifying critical success factors (CSFs) and barriers, structure architecting, selecting the implementation method, and evaluation of results are necessary to consider.

CHAPTER 5

FINDINGS AND RECOMMENDATIONS

5. 1. Findings

E-Government is at the core of building a strategic sustainable development framework. Government is increasingly becoming aware of the importance of employing e-Government to improve the delivery of public services to the people. The most important task and priority of the government is to work together to create good governance and clean government. To achieve this all levels of government should be transparent, accountable and consistent with the constitution and existing law. E-Government will help to achieve the goal of good governance and clean government.

Critical Success Factors and factors contributing to e-Government success and failure are explored in chapter 2 and 3 of this dissertation. The critical success factors for leading countries in Asia especially Korea and Singapore, show that they have clear long-term vision of goal, strong government leadership, strong IT governance, delivery of customer-oriented services, performance based management system, technology support, sustained investment in e-Government budget, and establishment of informatization as a major national agenda. The first finding of this study is that these Critical Success Factors are lacking in Myanmar.

There are a lot of challenges faced in e-Government implementation. Finding from the first general survey on e-Government shows that the five key challenges are poor coordination, poor technical design, workspace and organization inflexibility, leadership failure and financial constraints.

Myanmar faced several barriers in e-Government implementation and they are leadership failure, financial inhibitors, digital divide and choice, poor coordination, workplace and organization inflexibility, lack of trust to government organizations, and poor technical design.

Myanmar e-Government development is stagnant for a long period of time. Its position is the second lowest in ASEAN region. E-National Task Force set up the

Myanmar Information Technology Master Plan in 2001 and e-Government, e-education and e-commerce projects are implemented according to these ICT master plans. The implementation was also regarded as unsuccessful. Myanmar does not have any mandated ICT master plan now.

CIO mandate is not specify in most of the ministries. E-Government related budget is the first priority to cut in the past if there is a need for the budget cut. The existing law and regulations are not sufficient for better use of e-Government in the system. Myanmar has enjoyed the era of no standardization, no standardized manuals, no guidelines, and no clear cut guidelines and procedures for e-Government implementation. It is also found out that there is no central coordinating and steering agency to develop, implement and monitor e-Government plan.

One of the findings is that ICT competency in all level is lacking and present e-Government service delivery model is a government centric.

Major findings of general survey are:

1. Most of the respondents (97%) believe that they need coordinating agency like special committee for e-Government or National Coordinating Agency to implement e-Government successfully;
2. (94%) believe that e-Government task will be sustainable; most of the departments (87%) have the partnership with private sector for e-Government; (84%) of respondents have trust in e-Government.
3. Team leaders of most of the organizations (48%) are Director/ Deputy General Manager, (29%) team leaders are Director General or Managing Director level.
4. Most of the organizations (94%) considered security issues in implementing e-Government; (76%) of the organizations believe that the delivery mechanism of e-Government are simple and easy for users; 66% of the organizations believe that privacy of customers data are more secured by e-Government service; and 65% of the organizations have internet/ user friendly environment.

This study finds out that e-Government failure in Myanmar is due to

- (a) Lack of ICT skill and lack of infrastructure,
- (b) Lack of commitment of leaders, blame game culture and procedures loopholes,
- (c) Lack of proper IT education,

- (d) Lack of knowledge and competency skills in equipment handling,
- (e) Gap in user needs,
- (f) Lack of change management skill,
- (g) Design and reality gap,
- (h) Lack of rules and regulations and the gaps in front-office and back-office operations,
- (i) Too much centralization, and finally
- (j) Lack of internal pressure.

Prioritization of e-Government failure factors shows that dominance of self interest and politics competencies is major factor and lack of competencies, lack of strategy, lack of drivers, poor design, lack of technology, and lack of change management are the other contributing factors for e-Government failure.

5.2 Recommendations

The potential of e-Government as a development tool hinges upon three pre-requisites such as a minimum threshold level of technological infrastructure, human capital and connectivity for all. The first recommendation is to build the ICT infrastructure. Building ICT infrastructure is building a connected society. Myanmar will be stronger and can go higher if Myanmar is connected. Moreover, Myanmar can reach her higher potential and her future will be brighter when most of the people are connected. The doors will also open if building of a connected society successful. Better infrastructure means better connectivity. Infrastructure building means connecting the people, citizens and all the stakeholders.

Myanmar need to address the issues of accelerating infrastructure development, adopting emerging technologies, partnering with private players, building capacity and effectively managing change, regarding the infrastructure.

International donor agencies such as ADB and World Bank and other donor countries are willing to support Myanmar for e-Government development. They have shown willingness to help Myanmar with technical and monetary assistance for better service delivery. Myanmar currently does not have e-Government master plan and it should be developed with the support of local ICT professionals and international agencies. E-Government master plan was neglected due to various reasons .Some of the reasons might be lack of sufficient fund, lack of cooperation and collaboration as well as lack of understanding of the benefit of e-Government among users and staff. It

should be the past. That master plan must provide clear long-term vision, goals and strategic direction accompanied by users and stakeholders community and feasible and workable action plan. E-Government master plan call for better collaboration and coordination with all the parties and stakeholders concerned.

All the top countries in e-Government normally regarded e-Government as major national agenda with high level support and engagement. Therefore, another recommendation is that e-Government should be a major national agenda in the future with the participation of all. If e-Government becomes a major national agenda the collaboration and coordination will also play a crucial role.

Korea, Singapore and India established a specific and designated agency to implement e-Government projects. In this regard, the researcher would like to recommend for institutional set up of a specific, designated institution and department, like central support agency or steering committee, responsible for formulating policy and implementation of e-Government projects. That institution should be headed by respected professionals.

Korea, Singapore and India also promulgated subsequent laws and regulations in support of E- government promotion. Creating enabling legal and regulatory environment for e-Government promotion is necessary if there is a will for it. Laws need to be in place for e-Government to succeed are law on privacy and related issues, law related to changes in business processes and information systems, law regarding the government information technology architecture and establishing an integrated computing centre. Government needs to give support on e-Government promotion law, informatization promotion law and ICT industry promotion law.

Lack of ICT skill, lack of proper IT education, lack of knowledge and competency skills in equipment handling, lack of change management skill, gaps in front-office and back-office operations, and lack of internal pressure are factors contributing to e-Government failure in Myanmar. These are the factors related to capacity building issue. It is highly recommended that capacity building should be the top priority in implementing e-Government.

In addition, the governments need to educate the upcoming ranks of government leaders, managers and administrators in planning and managing ICTs across all public sectors, focusing on access opportunity, economic development, and effective delivery of public information and services.

There is a need of ICT education at all education level and it will be more preferable if government systematically implement national informatization plan for the whole country since ICT is regarded as the engine of growth. This informatization plan and ICT education at all education level will surely increase the ICT user's community. The bigger the ICT user's community the higher the demand for ICT related products, and then it will contribute to the development of ICT industry with multiplier effect to the economy. At the same time it is necessary to build the capacity of all ICT users. At present Myanmar does not have the informatization plan. Informatization plan will increase e-users base and community together with a support to increase in capacity. Even if government does not have that kind of informatization plan at the national and macro level, all the ministries should have their own informatization plan at micro and ministries level with a ministries wide coordinated approach. It can solve the problem of lack of skill competency especially for the government staff.

A system of monitoring together with strong IT governance mechanism and performance base management system is also needed to develop for evaluation of future e-Government projects.

Government also needs to address 5 Key challenges. They are poor coordination, poor technical design, workspace and organization inflexibility, leadership failure, and financial constraints.

Connectivity, collaboration and coordination, community and capacity are not enough for long term sustainability of e-Government. Allocation of sufficient fund and cash, may be 1% of total budget like in Koreas, is a necessary condition for successful implementation of e-Government. Budget allocation for e-Government in the past is not sufficient. Budget cut in e-Government related works is the norm in the past and it should be avoided if Myanmar really likes to see e-Government development. In fact, considerable financial resources are required to establish, expand and constantly update ICT infrastructure and its networks. It is recommended that regular and sustained investment in e-Government should be the norm since e-Government is a continuous process.

Almost all of the ministries have developed their websites for providing more information to the general public. Despite the effort of National level governments, the effort at regional and state level government are lacking in this regard. Striking a digital balance between the central and local governments in term of e-Government is

one of the issues to be considered. An imperative of development today is to employ information and communication technologies (ICTs) to level the playing field for all. Moreover, it is really necessary to have high level political support at the national, state and local level.

Most of the government department considered only the supply side in service delivery. It is necessary to change the way of providing services to citizen. Government should consider both the demand and supply sides. Government approach now is citizen-centric approach and future e-Government service delivery model should be focus on customer-centric e-service delivery.

There should be a clearly defined role and responsibility for CIO. CIO skill upgrading schemes should be utilized. Besides, CIO mandate should be formulated and need to give more role for CIO in the future since success and failure of e-Government partly depends on the capacity of them.

The emergence of new ICT calls for fundamental rethinking and transformational shifts in the way of looking at e-Government. Myanmar will soon enjoy mobile revolution and more and more people, approximately 75% to 80% of the population, will use mobile phones in the future. Popular usage of mobile phones also calls for addressing the mobile applications for e-Government. Government needs to be proactive in this regard.

In the future public service will increasingly become the top priority of governments at various levels. *"A unified, people-oriented front-office plus an integrated and interconnected back-office"* should be the *"Model"* to be pursued. Government cannot do it alone. It should be coordinated and collaborated effort. In addition, more concerted efforts should go to the construction of information resources, including management systems, and internet culture which is also an important part of social formation.

There are three important typologies to identify the strategies of e-Government. They are the governance style, government intervention, and the state's open or closed approach to network and information architecture.

Since good governance and clean government is one of the goals of Myanmar government the first style; i.e.; *governance style will be more preferable*. Then, Myanmar should have a strategy for e-Government implementation. Myanmar e-Government strategy should be *"reform-oriented e-Government"* strategy.

The promise of e-Government is that it offers an historic opportunity to make impossible possible. E-Government is about opportunity, and to “leap frog” the traditionally longer development stages and catch up in providing a higher standard of living for her people.

The role of the government is being redefined to reform the governance systems through which services are delivered in a way that maximizes development and minimizes natural resource degradation.

In conclusion, Myanmar e-Government does not depend on a single factor. It relies on a combination of all the critical success factors which include strong government leadership, building of IT infrastructure, IT governance mechanism, providing customer-oriented services, sustained investment in e-Government, enabling legal and regulatory environment, a system of dedicated agency together with qualified ICT related human resources.

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APPENDIX ONE

Yangon Institute of Economics

Ph.D Programme

This survey is conducted with the intention of collecting data for preparing a Ph.D thesis.

E-Government Research Question (2)

	1	2	3	4	5
1. There are so many changes in technology	☐	☐	☐	☐	☐
2. There are many structural changes in the organization	☐	☐	☐	☐	☐
3. There are many changes in staff	☐	☐	☐	☐	☐
4. There are many changes in organization culture.	☐	☐	☐	☐	☐
5. There are many changes in workflow process of the organization.	☐	☐	☐	☐	☐

** Simple Answer

1. Strongly disagree	☒	☐	☐	☐	☐
2. Disagree	☐	☒	☐	☐	☐
3. Neither agree nor disagree	☐	☐	☒	☐	☐
4. Agree	☐	☐	☐	☒	☐
5. Strongly Agree	☐	☐	☐	☐	☒

Yangon Institute of Economics

Ph.D Programme

This survey is conducted with the intention of collecting data for preparing a Ph.D thesis.

E-Government General Survey Questions

(Please circle the answer that you choose)

1. Do your department/ ministry/ organization have e-Government website?
(a) Yes (b) No
2. What is the development stage of that e-Government website?
(a) Emerging (b) Enhancing (c) Interactive (d) Transaction (e) Seamless
3. Do you have separate team or group assign to implement e-Government task in your department?
(a) Yes (b) No
4. Who is the leader in that team or group?
(a) Director General or Managing Director
(b) Deputy Director General or General Manager
(c) Director or Deputy General Manager
(d) Deputy Director or Assistant General Manager
(e) Other rank
5. Is the rank of CIO sufficient enough and do they have sufficient full authority to implement e-Government task successfully?
(a) Yes (b) No
6. Do you have departmental orders and instruction to implement e-Government task successfully in your department?
(a) Yes (b) No
7. When did implementation of e-Government start in your organization?
Year _____
8. Are there any partnership with the private sector in your department for e-Government?
(a) Yes (b) No
9. Do your staff have the right to participate in decision making process of e-government implementation?
(a) Yes (b) No

10. Do you provide frequently Ask Question (FAQ) in your website?

(a) Yes (b) No

11. Do you have strategic vision for your e-Government projects?

(a) Yes (b) No

(If you have, please describe that vision) -----

12. Do you have short term/ long term plan for the e-Government?

(a) Short term plan (b) Long term plan
(1) Yes (2) No (1) Yes (2) No

13. Do you have trained and skilled human resources for successful the implementation of e-Government?

(a) Yes (b) No

14. Organization e-Government is

(a) Citizen – Centric (b) Department- Centric

15. Did you implement your e-Government with organization-wide e-business plan?

(a) Yes (b) No

16. Security issues are considered in implementing e-government?

(a) Yes (b) No

17. Do you have trust in e-Government of your organization?

(a) Yes (b) No

18. Do you have sufficient infrastructure for the implementation of e-Government process successfully?

(a) Yes (b) No

19. Do you have sufficient rules and regulations to implement e-government successfully?

(a) Yes (b) No

20. Do you have any secured system to protect customer's privacy?

(a) Yes (b) No

21. Do you do transparently in implementation of e-Government?

(a) Yes (b) No

22. Does your organization have record management system that can be extracted easily online at anytime?
(a) Yes (b) No
23. Do you educate and train your staff to implement e-Government in your organization?
(a) Yes (b) No
24. Do you believe that e-Government task will be sustainable?
(a) Yes (b) No
25. Do your organization allocated sufficient budget for implementation of e-government?
(a) Yes (b) No
26. Do you have a systematic regular evaluation assessment of e-Government project?
(a) Yes (b) No
27. Do you have any leadership support for organizations e-Government projects?
(a) Yes (b) No
28. Do you have any cost/benefit analysis for e-government task?
(a) Yes (b) No
29. Have you proactively considered about financing source for e-Government project?
(a) Yes (b) No
30. Do you think that your organization e-Government project can fulfill the needs of the customers?
(a) Yes (b) No
31. Do you have any basic plan on informatization of services?
(a) Yes (b) No
32. Do you have e-Government roadmap in your organization?
(a) Yes (b) No
33. Do you have e-Government master plan?
(a) Yes (b) No
34. Do you have strong legal ground to implement e-Government?
(a) Yes (b) No

35. Is your workplace environment internet/user friendly environment?
(a) Yes (b) No
36. Do we need co-coordinating agency like special committee for e-Government or National Coordinating Agency to implement e-Government successfully?
(a) Yes (b) No
37. Have you done any SWOT analysis in your organization for e-Government?
(a) Yes (b) No
38. Do you understand business-process-re-engineering?
(a) Yes (b) No
39. Did you have any arrangement to implement business process re-engineering?
(a) Yes (b) No
40. Do high ranking officer of your organization fully understand about e-Government?
(a) Yes (b) No
41. Do you have any R&D programme for e-Government?
(a) Yes (b) No
42. Do you have departmental coordination in between your department for e-Government implementation ?
(a) Yes (b) No
43. Are the technical design of e-Government good and sufficient enough for its objectives?
(a) Yes (b) No
44. Mindset of staff must change in implementation of e-government project. Have they really changed their mindset?
(a) Yes (b) No
45. Do you have systematic management for mechanism each department to implement e-Government project?
(a) Yes (b) No
46. Have you encountered any resistance from the staff in implementation of e-Government?
(a) Yes (b) No
47. Do you have any systematic standard measurement system to evaluate success and failure of e-Government system?
(a) Yes (b) No

48. Do you have more efficiency due to e-Government?
(a)Yes (b) No
49. Do you have more transparency due to e-Government?
(a)Yes (b) No
50. Do you able to provide better services due to e-Government?
(a)Yes (b) No
51. Do you able to decrease corruption due to e-Government?
(a)Yes (b) No
52. Do you able to increase revenue because of e-Government?
(a)Yes (b) No
53. Do you able achieve the organizational objectives because of e-Government?
(a)Yes (b) No
54. How many percentage of your services can be delivered by means of no direct contact with the customers ?
(a)Yes (b) No
55. Do you have any arrangement to deliver your service at any time with the desired standard of customers ?
(a)Yes (b) No
56. Are privacy of customer's data more secured by e- Government service?
(a)Yes (b) No
57. A re the delivery mechanism of e-government simple and easy for users?
(a)Yes (b) No
58. Can e-government services create an enjoyable experience for customers?
(a)Yes (b) No
59. Are the e-government of your organization trust-worthy?
(a)Yes (b) No (c) No alternative
60. Are you organization webpage safe and secure for customer's financial data in delivering e-service?
(a)Yes (b) No (c)No need for customer's financial data

First survey result with 60 questions

Q. No	Answer 1 to 60			
		Yes	No	Total
	Lack of Driver			
1	Does your department/ ministry/ organization has e-Government website?	29	3	32
27	Do you have any leadership support for organizations e-Government projects?	21	11	32
	Strategy			
8	Is there any partnership with the private sector in your department for e-Government?	27	4	31
10	Do you provide frequently ask Question (FAQ) in your website?	4	27	31
11	Do you have strategic vision for your e-Government projects?	9	18	27
12	Do you have short term/ long term plan for the e-Government?	4	0	4
	(a) Short term plan			
	(b) Long term plan	9	0	9
15	Did you implement your e-Government with organization-wide e-business plan?	12	21	33
17	Do you have trust in e-Government of your organization?	26	5	31
19	Do you have sufficient rules and regulations to implement e-government successfully?	3	28	31

Q. No	Answer 1 to 60	Yes	No	Total
24	Do you believe that e-Government task will be sustainable?	30	2	32
30	Do you think that your organization e-Government project can fulfill the needs of the customers ?	21	11	32
31	.Do you have any basic plan on informatization of services?	13	18	31
32	.Do you have e-Government roadmap in your organization?	11	22	33
33	Do you have e-Government master plan?	13	20	33
34	Do you have strong legal ground to implement e-Government?	2	29	31
36	Do we need co-coordinating agency like special committee for e-Government or National Coordinating Agency to implement e-Government successfully?	30	1	31
41	Do you have any R&D programme for e-Government?	15	16	31
	Management			
3	Do you have separate team or group assign to implement e-Government task in your department ?	27	6	33
5	Is the rank of CIO sufficient enough and do they have sufficient full authority to Implement e-Government task successfully?	23	10	33
6	Do you have departmental orders and instruction to implement e-Government task Successfully in your department?	26	7	33

Answer 1 to 60						
Q. No				Yes	No	Total
9	Does your staff have the right to participate in decision making process of e-government implementation?					
21	Do you do transparently in implementation of e-Government?					
25	Do your organization allocated sufficient budget for implementation of e-government?					
26	Do you have a systematic regular evaluation assessment of e-Government project?					
28	Do you have any cost/benefit analysis for e-government task?					
29	Have you proactively considered about financing source for e-Government project?					
37	Have you done any SWOT analysis in your organization for e-Government?					
38	Do you understand business-process-re-engineering?					
39	Did you have any arrangement to implement business process re-engineering?					
42	Do you have departmental coordination in between your department for e-Government implementation?					
44	Mindset of staff must change in implementation of e-government project. Have they really changed their mindset?					
45	Do you have systematic management mechanism for each department to implement e-government project?					
46	Have you encountered any resistance from the staff in implementation of e-Government?					
				19	14	33
				20	9	29
				14	16	30
				22	10	32
				9	22	31
				15	17	32
				7	24	31
				18	12	30
				7	23	30
				21	11	32
				4	26	30
				14	17	31
				2	29	31

Q. No	Answer 1 to 60			Yes	No	Total
48	Do you have more efficiency due to e-Government?			21	8	29
49	Do you have more transparency due to e-government?					
50	Do you able to provide better services due to e-Government?			25	5	30
51	Do you able to decrease corruption due to e-Government?			22	9	31
52	Do you able to increase revenue because of e-Government?			10	12	22
53	Do you able achieve the organizational objectives because of e-Government?			9	20	29
55	Do you have any arrangement to deliver your service at any time with the desired standard of customers?			14	13	27
	Design			15	14	29
16	Security issues are considered in implementing e-Government?					
20	Do you have any secured system to protect customer's privacy?			31	2	33
22	Does your organization have record management system that can be extracted easily online at anytime?			15	14	29
35	Is your workplace environment internet/user friendly environment?			13	20	33
43	Is the technical design of e-Government good and sufficient enough for its objective?			20	11	31
47	Do you have any systematic standard measurement system to evaluate success and failure of e-Government system?			14	20	34
				9	23	32

Q. No	Answer 1 to 60			Yes	No	Total
54	How much percentage of your services can be delivered by means of no direct contact with the customers?			6	20	26
56	Is privacy of customer's data more secured by e-government service?			19	10	29
57	Is the delivery mechanism of e-government simple and easy for users?			22	7	29
58	Can e-government services create an enjoyable experience for customers?			12	15	27
	Competencies					
13	Does you have trained and skilled human resources for successful the implementation of e-Government?					
23	Do you educate and train your staff to implement e-Government in your organization?			19	13	32
40	Do high ranking officer of your organization fully understand about e-Government?			20	13	33
	Technology			16	17	33
18	Do you have sufficient infrastructure for the implementation of e-Government process successfully?			11	21	32

APPENDIX TWO

Yangon Institute of Economics

Ph.D Programme

This survey is conducted with the intention of collecting data for preparing a Ph.D thesis.

E-Government Research Question (3)

Example for answer.

	1	2	3	4	5
1. Strongly disagree	☒	☐	☐	☐	☐
2. Disagree	☐	☒	☐	☐	☐
3. Neither agree nor disagreed	☐	☐	☒	☐	☐
4. Agree	☐	☐	☐	☒	☐
5. Strongly agree	☐	☐	☐	☐	☒

E-Government project cannot be effectively implemented and it was due to-

	1	2	3	4	5
1. Lack of External Pressure	☐	☐	☐	☐	☐
2. Lack of Internal Pressure	☐	☐	☐	☐	☐
3. Lack of Vision and Strategy	☐	☐	☐	☐	☐
4. Lack of e-Project Management Skill	☐	☐	☐	☐	☐
5. Lack of change management skill	☐	☐	☐	☐	☐
6. Individualism is top priority	☐	☐	☐	☐	☐
7. Design and reality gap	☐	☐	☐	☐	☐
8. Lack of ICT skill	☐	☐	☐	☐	☐
9. Lack of Infrastructure	☐	☐	☐	☐	☐
10. Lack of employee's willingness	☐	☐	☐	☐	☐
11. Lack of commitment of leaders	☐	☐	☐	☐	☐

	1	2	3	4	5
12. Lack of transparency	☐	☐	☐	☐	☐
13. Developers who are not users	☐	☐	☐	☐	☐
14. Employee's are not willing to provide information to the public	☐	☐	☐	☐	☐
15. Politicians	☐	☐	☐	☐	☐
16. Lack of knowledge and competency skills to handle equipments	☐	☐	☐	☐	☐
17. Lack of proper IT education	☐	☐	☐	☐	☐
18. Old Users	☐	☐	☐	☐	☐
19. Paper documents more preferable	☐	☐	☐	☐	☐
20. Lack of understanding of work process	☐	☐	☐	☐	☐
21. Lack of support within the department	☐	☐	☐	☐	☐
22. No enforcement	☐	☐	☐	☐	☐
23. User unfriendliness	☐	☐	☐	☐	☐
24. The gap in user's need	☐	☐	☐	☐	☐
25. Mindset of the government staff who are not willing to use e-Government	☐	☐	☐	☐	☐
26. Impossible mission	☐	☐	☐	☐	☐
27. Lack of political will of leaders	☐	☐	☐	☐	☐
28. Mismatch with the user needs	☐	☐	☐	☐	☐
29. developer's project	☐	☐	☐	☐	☐
30. Focus only on "e" portion	☐	☐	☐	☐	☐
31. No chance for employees' participation	☐	☐	☐	☐	☐
32. Rome cannot build in a day	☐	☐	☐	☐	☐
33. Procedures loopholes	☐	☐	☐	☐	☐
34. Gap in front-office and back-office	☐	☐	☐	☐	☐
35. Lack of sustainability	☐	☐	☐	☐	☐

	1	2	3	4	5
36. Egoism is at the top	☐	☐	☐	☐	☐
37. PPP is regarded as public money for private partners	☐	☐	☐	☐	☐
38. Lack of rules and regulations	☐	☐	☐	☐	☐
39. Too much centralization	☐	☐	☐	☐	☐
40. Blame game culture	☐	☐	☐	☐	☐

"Why e-Government Project fail?" Survey Result

Why e-Government Project fail?		Strongly disagree	Disagree	No idea	Agree	Strongly agree	Total
Lack of Drivers							
1	Lack of External Pressure	1	2	3	4	5	128
2	Lack of Internal Pressure	1	14	5	10	2	32
11	Lack of commitment of leaders	4	6	1	17	4	32
27	Lack of political will of leaders	1	3	4	11	13	32
Strategy		4	8	6	8	6	32
3	Lack of Vision and Strategy						32
26	Impossible mission	2	6	6	12	5	127
32	Rome cannot build in a day	9	18	4	1	0	31
38	Lack of rules and regulations	0	1	0	10	21	32
Change Management		3	2	4	17	6	32
4	Lack of e-Project Management Skill						32
5	Lack of change management skill	2	4	2	16	8	222
10	Lack of employee's willingness	0	4	2	21	4	32
12	Lack of transparency	4	6	5	11	6	31
14	Employee's are not willing to provide information to the public	3	7	4	12	5	32
		1	16	8	7	0	31
		163					32

Why e-Government Project fail?		Strongly disagree	Disagree	No idea	Agree	Strongly agree	Total
18	Old Users	3	11	5	13	0	32
21	Lack of support within the department	5	9	4	10	4	32
Dominance of politics and self interest							
6	Individualism is top priority	3	11	8	5		251
15	Politicians	9	15	7	1	4	31
19	Paper documents more preferable	2	3	5	17	0	32
25	Mindset of the government staff who are not willing to use e-Government	3	8	7	8	5	32
31	No chance for employees' participation	4	5	8	10	5	32
33	Procedures loopholes	0	1	7	16	7	31
35	Lack of sustainability	4	7	5	10	5	31
36	Egoism is at the top	7	6	12	4	2	31
37	PPP is regarded as public money for private partners	2	5	18	6	0	31
39	Too much centralization	0	9	7	8	7	31
40	Blame game culture	3	2	3	12	12	32
Design							
7	Design and reality gap	0	3	7	20	2	218
13	Developers who are not users	3	7	8	12	2	32

Why e-Government Project fail?		Strongly disagree	Disagree	No idea	Agree	Strongly agree	Total
22	No enforcement	5	5	3	11	8	32
24	The gap in user's need	0	2	6	16	6	30
28	Mismatch with the user needs	3	15	5	5	2	30
29	developer's project	5	10	8	6	3	32
34	Gap in front-office and back-office	0	5	7	13	5	30
Competencies							
8	Lack of ICT skill	0	4	0	13	15	64
16	Lack of knowledge and competency skills to handle equipments	1	4	3	15	9	32
17	Lack of proper IT education	1	2	3	18	8	32
20	Lack of understanding of work process	0	3	6	21	1	31
Technology							
9	Lack of Infrastructure	0	3	0	18	11	95
23	User unfriendliness	3	11	9	6	2	32
30	Focus only on "e" portion	3	9	12	8	0	31
							32

APPENDIX THREE

Table.1 E-government development stage of Ministries over time

No	Ministry	Website Names	First Survey 26.11.2012	Second Survey 13.5.2013	Third Survey 26.12.2013	Fourth Survey
1	Agriculture and Irrigation	www.moai.gov.mm	1	1	1	1
2	Commerce	www.commerce.gov.mm	2	3	3	3
3	Communications and Information Technology	www.mcit.gov.mm	2	2	3	3
4	Construction	www.construction.gov.mm	Near 2	2	2	2
5	Co-operative	www.myancoop.gov.mm	1	1	2	2
6	Culture	www.culturemyanmar.org	1	2	2	2
7	Defense	www.mod.gov.mm	-	-	-	-
8	Education	http://www.myanmar-education.edu.mm	2	3	3	3
9	Electric power	www.moep.gov.mm	1	1	1	1
10	Energy	www.energy.gov.mm	1	1	2	2
11	Finance	www.irdmyanmar.gov.mm	Near 2	2	2	3
12	Foreign Affairs	www.mofa.gov.mm	2	2	3	3
13	Forestry and Environmental Conservation	http://www.moecaf.gov.mm	1	1	2	2
14	Health	www.moh.gov.mm	2	2	2	2

No	Ministry	Website Names	First Survey 26.11.2012	Second Survey 13.5.2013	Third Survey 26.12.2013	Fourth Survey
15	Home Affairs	www.ccdac.gov.mm	1	2	2	2
16	Hotels and Tourism	www.hotel-tourism.gov.mm	1	2	3	3
17	Immigration and Population	www.mip.gov.mm	3	3	3	3
18	Industry	www.industry.gov.mm	1	1	1	1
19	information	www.moi.gov.mm	Near 3	3	3	3
20	Labour, Employment and Social Security	www.mol.gov.mm	2	2	2	2
21	Livestocks, Fisheries and Rural Development	www.mlfrd.gov.com	1	2	3	3
22	Mines	www.mining.com.mm	1	1	1	2
23	National Planning and Economic Development	www.mol.gov.mm	Near 2	2	2	2
24	Border Affairs		-	-	-	-
25	Rail Transportation	www.ministryofrailtransportation.com	1	2	2	3
26	Religious Affairs	www.mora.gov.mm	1	1	2	2
27	Science and Technology	www.most.gov.mm	1	2	2	2
28	Social Welfare Relief and Resettlement	www.mswrr.gov.mm	1	2	2	2
29	Sport	www.myasoc.org	1	2	2	3
30	Transport	www.mot.gov.mm	2	3	3	3
31	YCDC	www.yangoncity.com.mm	3	-	-	3

No	Ministry	Website Names	First Survey 26.11.2012	Second Survey 13.5.2013	Third Survey 26.12.2013	Fourth Survey
32	President Office	www.president-office.gov.mm	-	2	2	2
33	Auditor General office	www.oagmac.gov.mm	-	1	1	2
34	Civil Service Board	www.ucsb.gov.mm	-	2	2	3
35	Attorney General Office	www.oag.gov.mm	-	1	1	2
36	People Parliament	www.pyithuhluttaw.gov.mm	-	2	2	2