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Implementation of E-government Policy in Nepal: How far it is successful!

A thesis submitted in the partial fulfillment of the requirements of the degree of Master of Philosophy in Public Administration

To

The Department of Administration and Organization Theory

by

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Dedication

This thesis is dedicated

To

My Mother

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Abstract

E-government becomes a powerful tool to inform, interact, transact and network thereby contributing leaner, transparent and cost-effective government in the process of transformation. It can be seen as an important means to enhance value of services to the citizen. It can be a vehicle for economic growth of developing country like Nepal. The study has been an attempt to assess present status of e-government, efforts made in implementing e-government policy and challenges and opportunities associated with it. The study is also intended to understand and explore issues, factors, challenges and barriers and to identify best strategies for implementation of e-government policy in Nepal.

This study is case study research design relied on both qualitative and quantitative data. Mixed method approach has been applied using mail questionnaire survey, in depth telephone interview and documentary analysis. Three sets of survey questionnaire were designed for each group of respondents as: policymaker/academician, user of e-government and civil servant for collecting their views relating to various dimensions of e-government in Nepal. The study also involved purposefully selected twelve key respondents comprising of high level bureaucrats, middle level manager, academician, and user of e-government for interview. Based on the key outcomes of analysis the policy recommendations have been suggested for effective implementation of e-government policy in Nepal.

My research showed that implementation of e-government policy is moderately successful in Nepal. Despite low level of economic development, weak infrastructure and long political insatiability, Nepal has been trying to achieve its aim to place itself in the Global Map of Information Technology. Necessary laws and regulations have been enacted; several organizations have been created to accelerate activities relating to e-government development and deployment; most of the websites have been established after adopting e-government policy. Users are found highly interested in using e-government services. The number of visitors, the contents and the types of services are in increasing trend. However, the pace for development and deployment is slow due to low priority given to this sector; widened digital divide, weak infrastructure even shortage of

electricity and high cost of internet that limit the wide spread use of ICT. Nepal is in first and second stage of e-government maturity; still there is long journey to fully utilize transactional and transformational services.

Usefulness and ease of use of e-government services are found most influential factors that affect user decision to adopt e-government. Mainly political instability in the country undermines ability to implement policy effectively. Lack of political support, lack of policymaker and managerial understanding and willingness and traditional mind set of civil servants are most influential barriers to e-government policy implementation in Nepal. Although present law on IT is a mile stone for e-government implementation, it is insufficient and less conducive for effective e-government implementation. On these grounds, therefore, I conclude that not outstanding but notable achievements have been realized regarding e-government development and deployment so far. Putting e-government in top priority with strong political support, sensitization and behavioral modifications for changing traditional mind set, improving managerial understanding and willingness, coordinated effort, developing internal leadership and reducing gap between e-have's and e-have not's are most important issues need to handle strategically for effective implementation of e-government in Nepal.

Key words: Policy implementation; e-government development and deployment; user acceptance or adoption; e-government performance; e-readiness; e-champion; competing values

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List of Abbreviations

3G	Third Generation
ACEN	Association Computer Engineers Nepal
ADB	Asian Development Bank
ADSL	Asymmetric Digital Subscriber Line
ARC	Administrative Restructuring Commission
ASPA	American Society for Public Administration
B2C	Business to Citizen
C2C	Citizen to Citizen
CAN	Computer Association of Nepal
CBS	Central Bureau of Statistics
CDMA	Code Division Multiple Access
CPN(ML)	Communist Party of Nepal (Marxist and Leninist)
CPN(UML)	Communist Party of Nepal (Unified Marxist and Leninist)
DOI	Diffusion of Innovation
EDGE	Enhanced Data for Global Evolution
eGMP	Electronic Government Master Plan of Nepal
FNC	FOSS Nepal Community
FOSS	Free and Open Source Software
G2B	Government to Business
G2C	Government to Citizen
G2E	Government to Employee
G2G	Government to Government
G2N	Government to Non-governmental Organizations
GMPCS	Global Mobile Personal Communications Satellite
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communication
HeNN	Help Nepal Network
HLCIT	High Level Commission for Information Technology
ICT	Information Communication Technology
INGO	International Non-government Organization
IP	Internet Protocol
IT	Information Technology
MJAF	Madhesi Janadhikar Forum
MoF	Ministry of Finance
MoGA	Ministry of General Administration

MoH	Ministry of Home
MoIC	Ministry of Information and Communication
MoLD	Ministry of Local Development
MoST	Ministry of Science and Technology
MoTA	Ministry of Tourism and Aviation
MPP	Madan Puraskar Pustakalaya
NC	Nepali Congress Party
NGO	Non government Organization
NITC	National Information Technology Centre
NPC	National Planning Commission
NSP	Nepal Sadabhavana Party
OLE	Open Learning Exchange
OPMCM	Office of the Prime Minister and Council of Ministers
PSC	Public Service Commission
PSTN	Public Switched Telephone Network
RoNAST	Royal Nepal Academy of Science and Technology
RPP (Thapa)	Rastriya Prajatantra Party (Thapa)
RPP(Chand)	Rastriya Prajatantra Party (Chand)
RSAT	Regional Satellite Trunk
SAARC	South Asian Association for Regional Cooperation
SDH	Synchronous Digital Hierarchy
TAM	Technology Acceptance Model
TMLP	Tarai Madhesh Loktantrik Party
TQM	Total Quality Management
TRA	Theory of Reasoned Action
UN	United Nations
UTAUT	Unified Theory of Acceptance and Use of Technology
UTL	United Telecom Limited
VoIP	Voice over Internet Protocol
VSAT	Very Small Aperture Terminal
WB	World Bank
WLL	Wireless Local Loop
WWW	World Wide Web
Y2K	Year 2000

CHAPTER ONE: INTRODUCTION

1.1. Introduction

People of Solukhumbu and Myagdi district- a remote area of Nepal with no road connectivity- can have opportunity to get medical advice from the specialist doctor of Kathmandu Model Hospital. Similarly, "After successful use of telemedicine—an application in clinical medicine used for transferring medical information through interactive audiovisual media—in some districts such as Solukhumbu and Myagdi, surgeons in Kathmandu on late Friday night tested real time live surgery with those in Oregon (USA). This application of medical science is the first of its kind in Nepal" (the Kathmandu Post, 21 August, 2010).This becomes real because of Information Communication Technology (ICT). Not only telemedicine, ICT is used in number of other activities. Search for Excellency in public service lead Governments to explore potential use of ICT in their affairs.

The impact of ICT on the society, economy, and politics include extensive changes in the nature of work, business, education and training, entertainment, quality of life and mode of citizen participation (Heeks, 2003; Melitski, 2003; Kim and Kim, 2003). There are numerous researches on e-government in the world, but there is little research on this field in Nepal. This study highlights e-government status, e-government initiatives taken, issues and barriers to e-government in Nepal. I have formulated necessary background of my study in this chapter. This chapter comprises of statement of the problem, purpose of the study, research questions, research hypotheses, scope and significance of the study, organizations of overall thesis and conclusion.

1.2. Statement of Problem

According to Thomas L. Freidman the world is becoming flat due to extensive development and use of technology. The web of globalization in 21st century has been led by technology (Freidman, 2005). The extensive use of ICT is leading to transformational shifts in public policy, processes and functions. E-government is being developed and deployed not only to provide services but for increasing efficiency, improving transparency and accountability in government

functions and cost saving in government operation (UN e-government survey, 2008). In this view it is seen as leverage for the transformation of government.

E-government implications might have, on the on hand, it can be used to enhance efficiency and effectiveness as well as can be used as a means of increasing equity and encouraging greater citizen participation, on the other, it can be misused by terrorist organizations (Kim and Kim, 2003). Again, according to Freidman (2005) information technology is not only the vehicle of growth and achievement for "Infosis" but also for "Al-Qaida".

Not all e-government initiations are successful and able to produce greater efficiency, effectiveness, accessibility and improve quality of service. Many e-government projects, especially in developing countries, are failure. According to Heeks (2003) that in developing countries 35% projects are total failure, 50% are partial failure, and 15% are successes. These failures come at a high price for the world's poorer countries. In this regard, it becomes a serious concern for policymakers, academicians, implementers and other stake holders about how to make e-government project success thereby overcoming obstacles during implementation.

From the above discussion, the development and deployment of e-government is largely associated with the concern of its use and misuse, cost and benefit, challenges and opportunities. The success of e-government implementation would largely depend on other socio-economic policy, government reform initiation, organizational culture, leadership, knowledge and skills. E-government affects and affected by other policies of a country concerned. Insufficient number of professional trained staffs, behavior of civil servants, financial problem and lack of infrastructure, absence of the ICT organization, the inability to execute the plan, lack of transparency, and lack of cooperation among departments are major obstacles identified in Nepal (eGMP, 2006). The implementation of e-government policy is challenging and complex phenomenon. The success rate, as mentioned earlier, is very low and internal and external, technical and administrative, political and legal, economic and human factors largely affect successful implementation. Creating favorable environment for e-government implementation is challenging and problematic issue in e-government policy implementation in Nepal.

1.3. Purpose of the Study

The main objective of this study is to ascertain present status of e-government in Nepal, to explore implementation efforts of e-government policy and to assess challenges and opportunities associated with it. The specific objectives of the study are:

1. To examine the present status and potential impacts of e-government implementation in Nepal.
2. To identify level of citizen acceptance of e-government and e-government performance and its potential impact on e-government policy implementation.
3. To identify regulatory and institutional arrangements for the development and deployment of e-government in Nepal.
4. To identify the role of actors including e-champion in the process of implementation of e-government policy in Nepal.
5. To examine the main obstacles (barriers) and prerequisites related to the implementation of e-government policy in Nepal and identify potential solution to overcome those obstacles.

1.4. Scope and Significance of the Study

Nepal, now days, is in transition. After demolition of constitutional monarchy in 2008, it has been moving toward preparing new constitution. There are various political, social, economic and other issues in front of the country. Search for greater decentralized authority, greater participation in political process, accountability, equity and equality, representative governance, peace and security create even greater challenge to politician and bureaucracy. Political instability, rampant corruption, insecurity, poverty and loss of social cohesion are widely perceived problem and are responsible for country's underdevelopment. As mentioned earlier that e-government could have positive impact on efficiency, service quality, transparency, accountability and so on. Ultimately e-government improves governance and deepens democracy. This study has examined various issues related to e-government implementation and its finding would certainly be helpful to policymaker and other stakeholders relating to e-government implementation. The study on e-government implementation is negligible in Nepal, so importance of this study could be counted as adding one stone in the house of research on e-government implementation.

The study mainly focused on e-government status in Nepal, implementation issues and challenges relating to e-government policy implementation. However, the scope of the study will be within the role of policymakers, top executives and civil servants working in this field. E-government initiatives in the government agencies will also be the area of this study. Perception of professional working in government and non-governmental sector, and user of e-government will be within the scope of this study.

1.5. Research Questions

The following research questions need to be answered to achieve above mentioned objectives in this study.

1. What is the present status of e-government development in Nepal? How far e-government policy implemented successfully?
2. What factors affect the user acceptance of e-government in Nepal?
3. Who were/are the main influential actors in adopting and implementing e-government policy in Nepal?
4. To what extent is the present regulatory and institutional arrangement conducive to the implementation of e-government policy in Nepal?
5. What is the role of leader in the process of implementation of e-government in Nepal?
6. What are the main obstacles/barriers encountered in the process of implementation of the e-government policy in Nepal? How these barriers could be overcome?

1.6. Organization of the Thesis

This thesis contains seven chapters. The first chapter covers background of study, statement of research problem, objectives of the study, scope and significance of study, research questions, and organization of overall thesis. The second chapter contains review of literature on implementation research and e-government. On the basis of literature review this chapter also articulates analytical framework for the study which explains relationship between dependent and independent variable and their measurement. Third chapter describes methodology employed in the study. This chapter mainly explains approach of the study, strategy of study, research design, source of evidence, validity and reliability, ethical consideration, and limitation of the study.

Based on a mixed methods approach, the study used questionnaire survey instrument, interviews and documentary analysis for evidence. The fourth chapter explains present status of e-government in Nepal based on documentary analysis. This chapter covers evolution of e-government in Nepal, e-readiness index, e-government system used and initiation taken by NGOs and INGOs. The fifth and sixth chapter comes up with the analysis and findings of the study. The seventh chapter reshapes the findings in relations with the research questions and provides main conclusion and recommendations based on the findings.

CHAPTER TWO: THEORITICAL AND CONCEPTUAL FRAMEWORK

2.1 Introduction

In chapter one, basic idea has been developed for the study of implementation of e-government policy in Nepal. This chapter intends to develop analytical framework for this study. This chapter elucidates what e-government implementation basically entails. E-government implementation may have different approach and requirement than to implement other policies, because it entails not only socio-political and administrative dimensions but also technological one. In the course of doing so, I have started with theoretical concept of policy implementation, approaches, models and other dimensions of policy implementation. I have continued my discussion on concept of e-government and its dimensions. Later based on the literature review on policy implementation and e-government an analytical framework will be presented along with how to operationalise variables.

2.2 Concept of Policy Implementation

The concept of policy implementation research is relatively new. It begins from 1970s, however, due to its extensive importance; it becomes a sub-discipline of political science. Various contexts and contents; actors and activities; policy design and instruments, and implementation styles were studied and identified by various scholars. Attempts have been made to identify relation with cultural, organizational, political, governance, information and technological, administrative, democratic and other dimensions that enrich implementation research even it is relatively new concept. Implementation is not simply putting policy into practice, as earlier study assumed, but is a dynamic, interactive and complex process in which various political, administrative, and other environmental factors played crucial role in its success (Grindle and Thomas, 1991; Hill and Hupe, 2002; May, 2003; Howlett and Ramesh, 2003). Implementation has been defined as a process, as an intention, as an output, as an outcomes, as an administration, as a policy management, as an evolution, as a learning, as a structure, as a perspectives, as a political symbolism, as a coalition, as a responsibility and trust, as a pragmatization, as a design(instrument choice), and so on (Elmore,1978; Balch, 1980; Hog wood and Gunn, 1984;

Sabatier, 1986; Lane, 1987; Thomas and Grindle, 1990; Hill and Hupe, 2002; and Howlett and Ramesh, 2003). Mazmanian and Sabatier, well known scholars, defined implementation as;

> "The carrying out of a basic policy decision, usually incorporated in a statute but which can also take the form of important executive orders or court decisions. ….the process normally runs through a number of states beginning with passage of the basic statute, followed by the policy outputs (decisions) of the implementing agencies, the compliance of target groups with those decisions, the actual impacts-both intended and unintended- of those outputs, the perceived impacts of agency decisions, and finally, important revisions (or attempted revisions) in the basic statute" (1983:20-1 cited in Hill and Hupe, 2002:7).

According to this view, implementation converts expectation into reality. There are a lot of things between policy expectations and policy results. It is not just putting policy into practice. Indeed, the content and impact of policy may be modified, elaborated or even canceled during implementation stage (Hill and Hupe, 2002). The policy intension would be converted into reality through implementation. Implementation is not simply putting policy into practice, as earlier study assumed, but is a dynamic, interactive and complex process in which various political, administrative, and other environmental factor played crucial role in success (Grindle and Thomas, 1991; Hill and Hupe, 2002; May, 2003; and Howlett and Ramesh, 2003).

According to Lane (1987:98) policy implementation is "the bringing about, by means of outputs, of outcomes that are congruent with the original intention(s)". In this view implementation refers 'execution' as well as 'accomplishment'. He further mentioned that implementation includes three logically separate activities: (a) clarification of the objectives involved (the goal functions), (b) statement of the relationship between outputs and outcomes in terms of causal effectiveness (the causal function), and (c) clarification of the relation between objectives and outcomes in order to affirm the extent of goal achievement (the accomplishment function).

2.3 Approaches to Policy Implementation

2.3.1 Top-down versus Bottom-up Approach

Top-down approach assumes that the policy process as a series of chain of command where political leader articulate policy intention which is then carried out by administrative mechanism.

This approach was useful in setting out managerial and organizational principles which were expected to generate optimal match between political intention and administrative action (Howlett and Ramesh, 2003). On the other hands, the bottom-up approach to the policy implementation starts by identifying the network of actors involved in service delivery and ask about their goals, strategies, activities, and contacts. It then develops a network technique using contacts that identify the actors involved in the planning, financing, and execution of the relevant governmental and non-governmental programs. This provides a mechanism for moving from street-level bureaucrats to policymakers in both public and private sectors (Sabatier, 1986).

2.3.2 Mixed Approach

Top-down approaches to policy implementation gives emphasis on policymaker and ignores importance of street-level agency in implementation. It is essential to have sufficient authority to modify policy during implementation by implementer; however, absolute discretionary power of implementer may destroy policymakers' intention. To overcome shortcomings of both top-down and bottom-up perspectives, various scholars described mixed approach to policy implementation which synthesize best feature of two approaches.

Elmore (1980) describes two different approaches to implementation analysis, i.e. forward mapping and backward mapping. Forward mapping focused on considering how a policymaker might try to affect the implementation process. On the other hand, backward mapping is opposite of forward mapping in all important aspects. However, it shares with the notion of forward mapping that policymakers have a vested interest in affecting the implementation process and the outcomes of policy decisions.

Sabatier (1986:100) developed 'advocacy coalition' approach which offers a more holistic view of the policy process that comprises of actors from "various public and private organization who share a set of beliefs and who seeks to realize their common goals over time" Similarly, Goggin et al.(1990 cited in Hill and Hupe, 2003) develop communication model of inter-governmental policy implementation in line of mixed approach to implementation which explain various *constraints* and *capacity* as independent and intervening variables and state of implementation as dependent variable.

Another prominent scholar Richard E. Matland has presented an ambiguity-conflicts model based on policy's ambiguity and conflicts level and attempts to present an alternative model for reconciling the existing finding on implementation. The central feature of this model is that application of model (top-down or bottom-up) largely depends on the level of conflict (arise when different actors perceive a policy as directly relevant to its interest) between proposed goals of policy and means to achieve those goals and level of ambiguity in goal and means (leads to misunderstanding and uncertainties during implantation) (Matland, 1995).

2.4 Policy Implementation Models

Based on the policy approach discussed above, there are various models designed and presented to understand various dimension of policy implementation. However, this study is intended use interactive model of policy implementation presented by Grindle and Thomas (1991) as a principle analytical framework, the discussion on this section is related to that model.

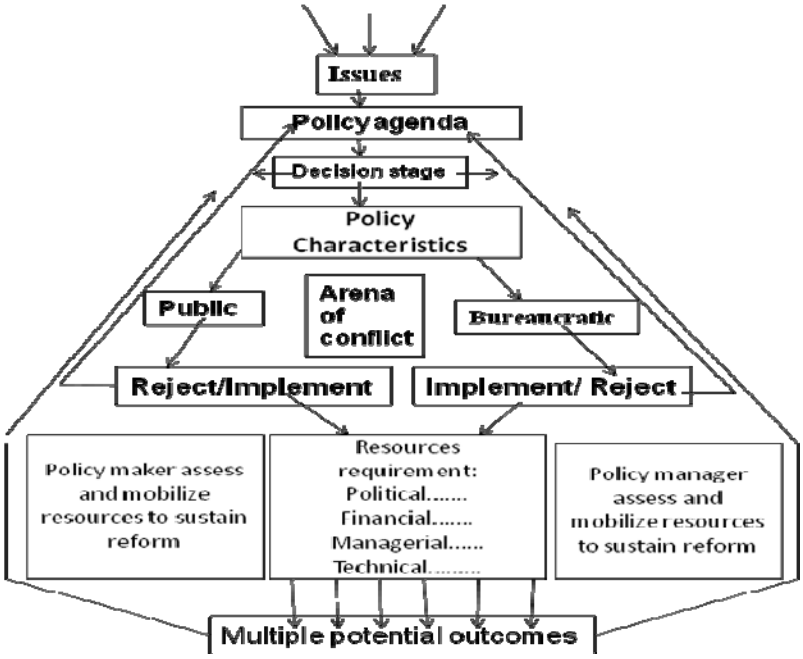
Interactive Model of Policy Implementation

Grindle and Thomas (1990, 1991) have discussed two separate models of implementation—**linear** and **interactive**. Their study was based on twelve case studies of different developing countries. According to them "the implementation phase of the policy reform process frequently determines the nature and success of a policy reform initiative. Often, in practice, the process of implementation leads to outcomes quite different than those intended and anticipated by analysts and decisions makers". They discuss on policy arenas of conflict, stakeholder's reaction and response, resources and their management (Grindle and Thomas, 1991:122).

Interactive model starts from the assumption that a state of equilibrium surrounds an established policy set. This equilibrium results from the acceptance of existing policy or institutional arrangements by those who are affected either positively or negatively by it. Efforts to alter existing policy upset that equilibrium and will elicit some response or reaction from the stakeholder affected by such change. Reaction to policy change may come at any point in the process of decision making and implementation. However, reactions are more visible if the impact of such change become more evident. The nature, intensity, and location of those reactions will determine whether the reform is implemented and sustained. The central element of this

model is that a policy reform initiative may be altered or reversed at any stage in its life cycle from the pressures and reactions of those who oppose it (Grindle and Thomas, 1991:125-126). The figure 2.1 presents interactive model of policy implementation.

Figure 2.1: An Interactive Model of Policy Implementation



(Source: M.S. Grindle and J.W. Thomas, 1991:127)

There are five major components of interactive model of policy implementation by Grindle and Thomas (1991). First, agenda setting which mainly influence by crisis and as usual situation. According to them crisis is often used to explain reason for adopting major changes in public policy. Certain kind of policy issues-for example devolution- comes into decisions maker's agenda when crisis situation exist. Classical model theorists argue that crisis allows the state more autonomy from societal actor; for public choice theorist, it is opportunity to break through rent-seeking behavior; and bureaucratic politics approach describe crisis as opportunity for personal and bureaucratic competition and bargaining (Grindle and Thomas, 1991). Other types of policy issues-for example decentralization- comes into notice under politics as usual circumstances. In this view, most of the policy issues get into policymaker's agenda when crisis conditions exist and as politics as-usual.

Second, decision making which mainly influenced by various criteria for choice. There are number of criteria for choices, number of actor involved and a number of concerns influencing decisions. The table 2.1 presents criteria for choices about policy and institutional reform.

Table 2.1: Criteria for Choices

"Lenses" of Policy Elites	Concerns Influencing Decisions	Influential Actors
Technical advice	Information, analyses, and options presented by advisors, experts	Technocrats, ministers, and other high level bureaucrats; foreign advisors
Bureaucratic implications	Career objectives of individuals; Competitive position of units; Budgets; Compliance and responsiveness	Ministers and other high-level bureaucrats; Mid-level bureaucrats; International bureaucrats and Advisors
Political stability and support	Stability of political system; Calculated costs and benefits to groups, classes, interests; Military support or opposition	Political leadership; Dominant economic elites; Leaders of class, ethnic, interest associations; military
International pressure	Access to aid; loans, trade relations	IMF, World Bank, USAID, other multilateral or bilateral agencies; Governments of former colonial powers; International banks

(Source: Grindle and Thomas, 1991:96)

Thomas and Grindle (1991) argue that decision maker elites filter policy options through at least four lenses: technical advice they receive, impact of choices on bureaucracy, implications on political stability and support and relations with international actors.

Third component is actors who support or oppose policy. Actors can be an individual or groups in the policy process. Policymaker can be divided into elected officials, appointed officials, interest groups, research organizations and mass media (Howlett and Ramesh, 2003). First two groups belong to the state and rest of to the society. Elected officials can be sub divided into executives and legislature, though the latter often play a minor role in policy process (Ibid, 2003). The appointed officials dealing with public policy and administration of policy referred to as 'bureaucracy'. Principally, they assist the executive in policy making, however due to having expertise knowledge and information, they can play crucial role in policy process.

Grindle and Thomas (1991) propose that the policy change in developing countries is largely shaped by policy elites. The policy elites refer to influential four groups: Head of the states and

ministers, the executive bureaucracy, legislatures, and representatives of societal interests. Business interests, religious interests, the military, organized labor, the media and the people are characterized as group of societal interests. However, not all general groups involve in policy process of a particular policy and the composition of the relevant policy elite may be distinct. For example, if the policy issue is related to e-government, the most prominent actors are likely to be minister of science and technology and minister of information and communication and Member of HLCIT in Nepal (Ibid, 1991).

Fourth, reaction and response mainly come from public and bureaucratic arena in the stage of policy process. According to Grindle and Thomas (1991) when policy decision has been made some kind of response or reaction likely to occur at any point in the process of decision and implementation either from public or bureaucratic arena and policy reform initiative may be altered or reversed at any stage in its life cycle. Distribution of costs and benefits, technical complexities, administrative reality, long or short-term impact of policy and participation required for implementation determine which of the arena mostly oppose or support the policy.

Fifth, Political, financial, managerial, and technical resources need to sustain reform initiative. Mobilizing these resources is a part of challenge to decision makers and policymakers (Ibid, 1991).

2.5 Concept of E-government

E-government refers to the use of information communication technology so as to transform government by making it more accessible, effective and accountable. E-government is not only related with technology, but with organizational structure and culture, management system and process, skill and staff, infrastructure, governance and democracy, participation and pluralism, information security, organization learning, efficiency and effectiveness and so on(Heeks, 2003; Kim, 2003; Melitski, 2003; Kim and Kim, 2003). Christensen and Lægreid (2008) described ICT-reform, structural, cultural, and demographic perspective to explain variables of ICT implementation.

Development of e-government is largely related with administrative development and reform in government in general. Total Quality Management (TQM) movement in 1980s and good governance, reengineering and reinventing government in 1990s have made attempt in searching

for excellence in public management and service delivery that led extensive use of ICT in service delivery and interaction between government, citizen and business (Fang, 2002). Numerous definition of e-government has been coined in literature. It is defined in term of use of technology in public service delivery; process and structure of all form of participation and interaction between government, society and business, and so on (Lane and Lee, 2001; Backus, 2001; Fang, 2002; Melitski, 2003; Kim and Kim, 2003).

World Bank define e-government as "… the use by government agencies of information technologies (such as wide area networks, internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government [www.worldbank.org]. Similarly, Gartner Group defines e-government in broader context rather than technological context as "*the continuous optimization of service delivery, constituency participation, and governance by transforming internal and external relationships through technology, the Internet and new media."*(Cited on Fang, 2002:3).

E-government can also be understood in accordance with interactions and relationships between government and its stakeholders. Fang (2002) describe eight relationships between government and stakeholder such as Government to Government(G2G), Government to Employee (G2E),Government to Business (G2B), Business to Government(B2G),Government to Citizen (G2C), Citizen to Government(C2G), Government to Non-profit organization(G2N), Non-profit organization to government (N2G). It can be sum up in five categories such as; G2G which provide government agencies cooperation and communication online to have an impact on efficiency and effectiveness. G2B drive e-transactions initiatives such as e-procurement for purchases; and carry out Government procurement tenders through electronic means. G2C drive to put public services online, in particular through the electronic service delivery for offering information and communications. G2E attempt initiatives that facilitate the management of the civil service and internal communication with governmental employees. G2N refers government provision of information and communication to nonprofit organizations, political parties and social organizations, Legislature, etc. (Fang, 2002:7).

Similarly e-government can also be described in term of its maturity. There are a number of e-government maturity models either developed by institutions or researchers. Gartner group, for

instance, described four stage model of e-government. The first stage is *web presence* in which agencies provide information to public through World Wide Web. The second stage is *interaction* facilitate public to contact agencies through website, access and download form or document. The third stage is *transaction* in which users can complete online transaction (i.e. application, payment etc.). And the fourth is *transformation* represents complete transformation of current operational processes with more efficient, integrated, unified and personalized service (Al-Khatib 2009:5-12).

Another famous e-government maturity model is presented by Layne and Lee (2001) which consists of cataloguing, transaction, vertical integration, horizontal integration. The Cataloguing refers providing government information by creating government agency websites, *transaction* refers online transactions with government agencies, *integration* government operations within functional areas in government and *horizontal integration* deals with integration of different functional within the same electronic system and put to use through a central portal. Similarly United Nation presents five stage models -emerging presence, enhanced presence, interactive presence, transactional presence, and seamless or fully integrated presence (Al-Khatib, 2009:5-12).

There is similarity about the stage of e-government maturity in general. Almost all models start with information provision to the public and then followed by interaction between government and stakeholder, online transactions and integrated form of data sharing. However, some of scholars talk about not only technological dimension but social, political dimension of e-government maturity. For instance Moon, M. Jae (2002) presents political participation as final stage of maturity and Siau, Long (2005) present e-democracy as last stage of his model (cited on AlKhatib, 2009).

2.6 Concept of E-readiness

E-readiness is a measure of the degree to which a country, nation or economy may be ready, willing or prepared to obtain benefits which arise from ICT. E-readiness is often used to measure ability of a country to take part in electronic activities such as e-commerce and e-government. Indices are used to represent e-readiness. E-readiness indicators provide an outline of a country's situation, and can easily form a basis for comparison and future planning. It also provides

information about the area of improvement and identifying area where external support is required. It is also useful to identify minimum levels of infrastructure, education and training and supportive government policies in order to get benefit from ICTs (Dada, 2006).

Molla and Licker (2005) proposed a model for e-commerce readiness in developing counties based on Perceived Organizational E-readiness (POER) and Perceived Environmental E-readiness (PEER). POER consists of awareness, human resources, business resources, technology resources, commitment and governance, where as PEER comprised of government e-readiness, market forces e-readiness and support industry e-readiness. These two measures formulate initial adoption which ultimately institutionalizes e-government efforts (cited on Dada, 2006). Similarly UN e-government readiness index comprised of three separate indices Viz. Human Capital index, Infrastructure index and Web presence index (UN e-government survey 2008).

2.7 The Concept of E-government Acceptance or Adoption

Modernization of public services through the adoption of ICT is in motion all over the world. Universal shift towards online public services and dynamic e-business environment caused the government around the world take notice of power of ICT. The resulting benefits of ICT could be among others as increase efficiency, increase transparency, less corruption, growth of revenue, save time and money, cost reduction, and efficient public sector management. However, the success of these efforts depends on how well the user for such services makes use of them (Colesca & Dobrica, 2008). User acceptance is defined as an "initial decision made by the individual to interact with the technology". And it comes after "direct experience with the technology and after an individual has decided to accept the technology" (Venkatesh et al., 2004 cited on AlAwadi and Morris, 2008:2).

There might be different reasons for the adoption of e-government: political, economical, social and managerial. According to Colesca and Dobrica (2008:204), from the political point of view e-government is used to provide public information so as to increase citizen participation in political processes. Economic reasons include increase revenue, decrease cost of operation, improve service quality, and so on. Social point of view it provides better service availability and delivery, improve easy access to all citizens on public service. Managerial reason behind

adoption of e-government include better public service and resource management, better interagency coordination and collaboration, efficient public sector management with increased accountability and transparency.

Governments all over the world employ e-government as powerful tool to inform, interact, transact and network. It can contribute toward a leaner, cost-effective government in the process of transformation. However, the real benefit of e-government lies not in the use of technology per se, but in its application to processes of transformation (UN e-government survey, 2008). Indeed, the success of e-government efforts depends on how the user for such services make use of them (Colesca and Dobrica, 2008). User adoption of e-government could be a success measurement of e-government implementation.

There are number of researches conducted on adoption of e-government. These researches explain and describe acceptance decisions of individual user applying social theory of decision making. Based on the theory of social auctioned, Fred Davis (1989 cited on Colesca and Dobrica, 2008:204) developed ***Technology Acceptance Model*** to explain how and when user accept and use technology. Main elements of this model are 'perceived usefulness' and "perceived ease of use". Everett Rogers (1995 cited on Colesca and Dobrica, 2008:204) develops the theory of **Diffusion Of innovations (DOI)** with the goal to analyze of the characteristics of technology adopters in the framework of the ***diffusion approach***. Diffusion refers to the dissemination of an innovation into society and an innovation is the new concept or technology. It is the model assumed that an individual's decision to use new technology is based on the perception of the characteristics of new technology. These characteristics include the relative advantage, complexity, image, visibility, compatibility, results demonstrability, and voluntariness of use of the innovation (Choudrie et al. 2009). Certain key constructs in innovation diffusion theory are analogous to the constructs in TAM (relative advantage is similar to perceived usefulness, complexity is similar to perceived ease of use). Similarly, Carter and Belanger (2005 cited on Colesca and Dobrica, 2008:204) investigated the effects of the relative advantage, compatibility, ease of use and image with regards to the citizen's intention to use e-government services.

To present a more complete picture of the acceptance process, Venkatesh, Morris, Davis and Davis created an integrated model called Unified Theory of Acceptance and Use of Technology

(UTAUT), in which eight models previously used in the information technology literature were merged. UTAUT helps managers assess the likelihood of success for new technologies as well as understand the drivers of technology acceptance (cited on AlAwadi and Morris, 2008). Similarly, based on TAM, Davis, Bagozzi, and Warshaw (1989) examined a model called the Theory of Reasoned Action (TRA) to discover "synthesizing elements of the two models in order to arrive at a more complete view of the determinants of user acceptance." (Cited on Dadayan and Enrico, 2005; Colesca and Dobrica, 2008; and AlAwadi and Morris, 2008).

Within the framework of TAM, DOI, TRA, UTAUT numbers of variables were studied as independent variables that affect decision for user acceptance of technology. Perceived ease of use, perceived usefulness, quality of e-government services, security and privacy, trust on e-government services, relative advantage, compatibility, awareness, behavioral intention, performance expectancy, effort expectancy, peer influence, facilitating conditions, academic courses, internet experience, reforming bureaucracy, cultural and social influence, technology issues were studied for identifying user acceptance of technology (Agrawal and Prasad,1997; Dadayan and Enrico, 2005; Colesca and Dobrica, 2008; and AlAwadi and Morris, 2008).

2.8 E-champion and E-government

Human resources, especially people having proper knowledge, skill, aptitude and leadership qualities are one of the critical factors for implementing e-government. Lack of e-champions who have such knowledge, skill and ability could be a reason of failure of implementation. E-champions refer here, not only the person or group of persons who have technical as well as managerial skill, but also have strong desire, commitment and initiation to develop and implement e-government application. Lack of e-champion in an organization leads to the under-utilization of the exciting opportunities offered by ICTs for improving quality of services to the citizens and businesses. Inadequacy of e-champions derive further complication by other problems like failure to conceptualize and design the appropriate financial, technical and business models, and lack of project management skills and capabilities within the government. Misra (2007) mentioned that the chief information officer (CIO) should play the role of e-champion in an organization which comprised of knowledge management, change management, e-government marketing, and e-government advocacy.

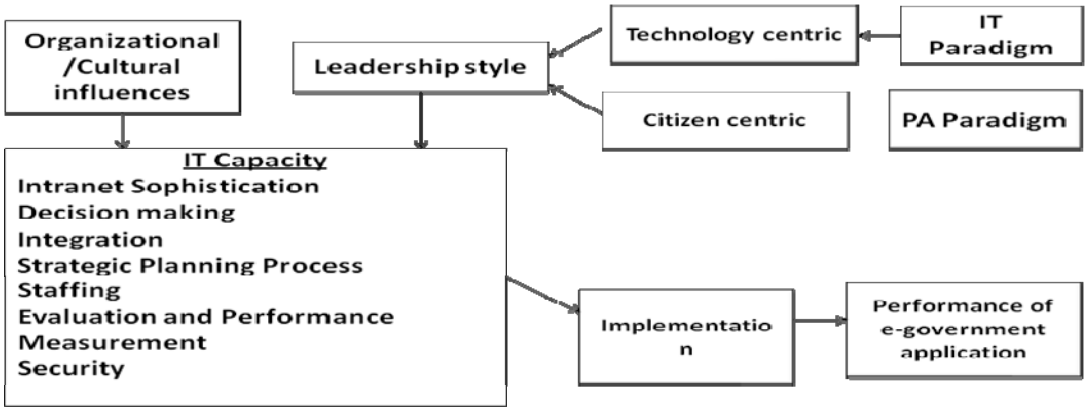
The role of e-champion assumed in this study similar to policy subsystem, policy community or advocacy coalitions. Howlett and Ramesh (2003) describe policy subsystems as groups of actors formed for playing dominant role in policy process. Policy communities refer to actors involved in policy process who share common policy focus. Network is the linking process within a policy community. An advocacy coalition refers actors from public and private institutions at all level of government who share common belief and seek to manipulate rules, budgets and personnel of governmental institutions (Howlett and Ramesh, 2003:143-152). The concept of e-champions, here, assumed as similar to the concept of advocacy coalitions approach of Paul Sabatier, where both state and societal actors share common view on e-government goal and means to achieve goals. These groups also seek to modify rules, budgets and try to change mind set of civil service.

2.9 E-government Models

2.9.1 E-government Implementation Model

Melitski (2003) developed e-government implementation model based on the examination of four agencies of New Jersey State aimed to determine the types of initiatives and investments in Information Technology (IT); and related capacity building public agencies should emphasize to increase the performance of their e-government initiatives. His study proposes two competing paradigms: the IT paradigm and the public administration (PA) paradigm. The "IT paradigm tends to be rational in nature and places the technology at the center of new initiatives and PA perspective places less emphasis on rational models and ideally (although not always) places the citizen at the center of new e-government initiatives" (2003:376).

Figure 2.2: Electronic Government Implementation Model



(Source: Melitski, 2003:378)

He further mentioned that "The IT perspective puts technology at the center of new initiatives, whereas the PA perspective places the citizen or program perspective at the center of new initiatives. These two perspectives along with organizational and cultural influences help to determine agencies' IT capacity. IT capacity is made up of factors internal to organizations that ultimately influence the performance of new initiatives" (2003:378). He analyzed different capacity variables in term of these two perspectives.

2.9.2 Competing Values and E-government Effectiveness Model

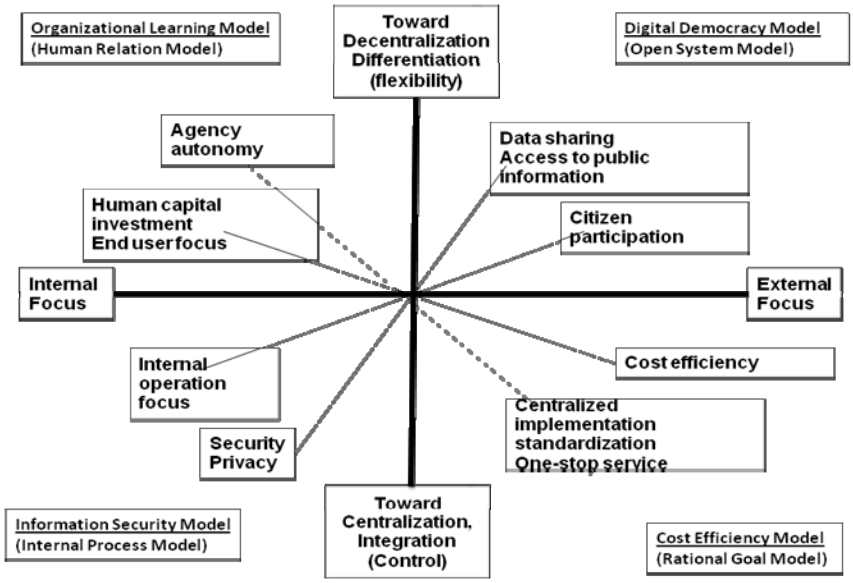
According to Kim and Kim (2003) there are a broad range of diverse and competing values in how public agencies evaluate e-government effectiveness and in determining the major values and objectives of e-government. The ASPA and the UN offered five guiding principles for e-government development: (a) building services around citizen's choices, (b) making governments and their services more accessible, (c) social inclusion, (d) information responsibility, and (e) the effective and efficient use of information technology (IT) and human resources (UN & ASPA, 2001 cited on Kim and Kim, 2003).

Quinn and Rohrbaugh (1981, 1983 quoted on Kim and Kim, 2003) developed a model called Competing Values Model (CVM). This model shows effective organizations sometimes pursue logically inconsistent objectives. According to the CVM model, there are four models with two dimensions of effectiveness which (a) reflect preferences for either flexibility or structural control and (b) focus on either external or internal constituencies. In the *human relations model*, flexibility and an internal focus constitute the dominant value orientation, with an emphasis on human resource development. In the *open systems approach*, flexibility and an external focus incorporate innovation as a central means for growth. In the *rational goals model*, a strong control value and external focus emphasizes goal setting as a means of enhancing productivity. The *internal processes approach* has a strong control value and an internal focus on formalizing communications and centralizing decision-making powers. All four approaches are found to some degree in modem organizations, with some more dominant than others (Kim and Kim, 2003).

Kim and Kim (2003) combined the CVM with current e-government issues to identify and categorize e-government values in terms of the four organizational effectiveness models (figure

2.3). They proposed *organizational learning model* (which emphasizes flexibility and internal focus) stands in contrast with *cost efficiency model* (which stresses control and external focus), whereas the *digital democracy model* (related with flexibility and external focus) runs counter to *information security goals* (characterized by control and internal focus). They further mentioned that the organizational learning and digital democracy models emphasize flexibility, whereas information security and cost efficiency models emphasize control. These competing values can be used to measure public officials' perceptions of e-government values and failures as well as appropriate consequences for officials responsible for those failures (Kim and Kim, 2003).

Figure 2.3: Competing Values and E-government Effectiveness Model



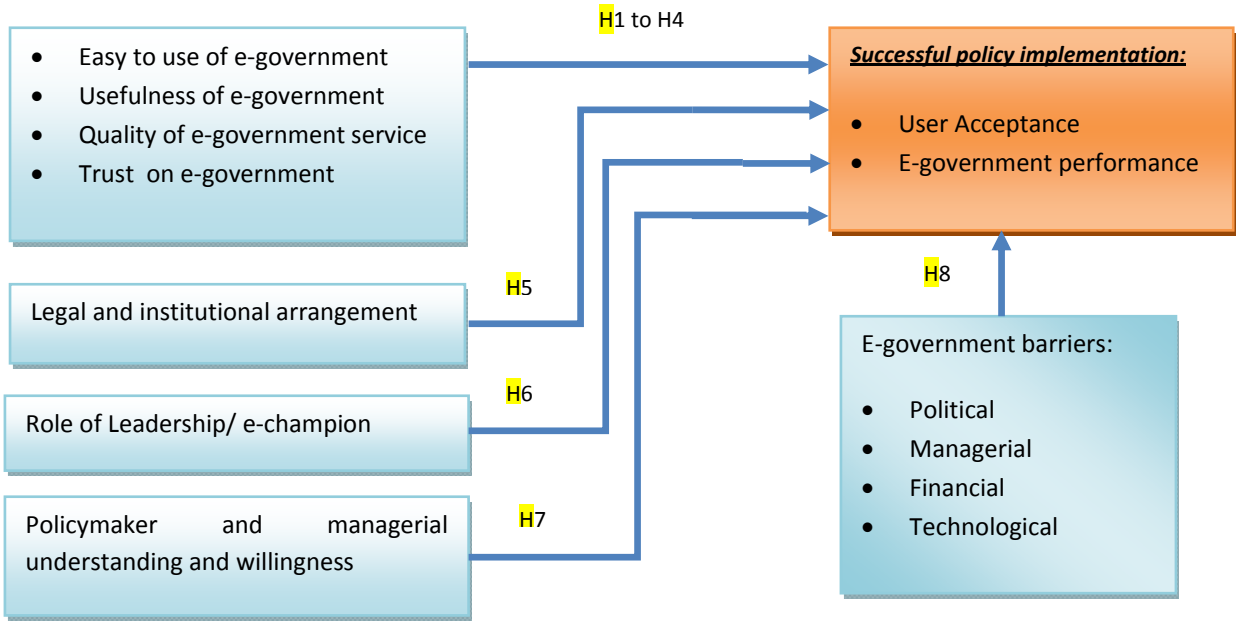
(Source: Kim and Kim, 2003:363)

2.10 Conceptual Framework: Variables and Their Operationalisation

In line with the reviewed literature on policy implementation and e-government, this section intended to develop a specific framework that guide the analysis of this research. The analytical framework developed here is the way of structuring inquiry into observed e-government implementation in Nepal. This framework tried to capture the best feature of both top-down and bottom-up perspective of policy implementation. In light of the review of literature on policy

implementation and e-government, two dependent variables and eight independent variables were identified in this study. The conceptual framework is presented in figure 2.4 below.

Figure 2.4: Conceptual Framework



It is essential to translate concept into variable or measurable factors. Operationalisation refers to the process of translating concept into variable. The following section describes how dependent and independent variables were operationalised.

2.10.1 Dependent Variable

The main dependent variable of the study was assumed as successful implementation of e-government policy in Nepal. There could be number of aspects of successful implementation among which level of user acceptance or adoption and e-government performance have been chosen for measuring success of e-government policy implementation. It has been operationalised by examining government's periodic plan and program, activities carried out by government agencies, reform initiatives taken by government that create conducive environment for e-government implementation and finally a questionnaire survey was conducted for assessing perception of policymaker/academician, civil servant and user of e-government toward various dimension of e-government.

2.10.1.1 User Acceptance or Adoption

User acceptance of e-government services is assumed as a success measurement of e-government implementation. The criteria for assessing e-government acceptance are;

1. **Intent to use:** Identifying whether citizens were using public service online or their intention to use public service online could be one of measure for their acceptance of e-government.
2. **Access to internet and computer:** Availability of internet and computer at home with affordable means could drive them to visit government websites for searching information and getting e-government services which ultimately demonstrate their intention to adopt e-government.
3. **Purpose of using internet.** Internet has a number of uses to citizen. Their priority to use internet for getting e-government services in term of online transaction is assumed as e-government acceptance.

2.10.1.2 E-government Performance:

Another aspect is e-government performance which shows success or failure of e-government policy implementation. There are number of ways of measuring public sector performance as inputs, outputs, activities, efficiency and productivity, service quality, and outcomes measures (Stowers, 2004). **Inputs** measures for e-government may be, among others, application development and maintenance cost, time and staff cost; **outputs** measures may be, number of visit, number of downloads, number of transaction completed, number of e-mail sent and request solved etc; **outcomes** measure may be accessibility of service, adequacy and reliability of service, ease of use, cost and time saving from e-government etc; **activity** measures may be number of commission meeting streamed to citizen, number of online chat session between user and officials; **service quality** measures may be accessibility, adequacy, reliability, response time required for information etc.; **efficiency** measure may be cost of each service per user, cost per transaction, total cost per session etc. however, e-government measure, in practice, are categorized as web/technology measures and service base measures (Ibid:12).

Interactions and relations with government and stakeholder is also an approach to measure performance. This approach describes e-government in term of relation with different actors, for

example, G2G, G2B, G2C, B2C, and C2C. However; much of the e-government literature that exists today builds on stages or maturity approach to e-government by which e-government begin by publishing static information to the internet and progress through other stages such as dynamic or interactive transactions, horizontal integration, and vertical integration, and finally comes in some form of organizational transformation (Lane and Lee, 2001; Fang, 2002; Melitski, 2003; and Al-Khatib, 2009).

The measures of e-government performance for ministries i.e. unit of analysis in this study are derived from the literature review mainly from Melitski (2003) and Stowers (2004). According to Melitski (2003) static or web presence stage refers information available in websites to read only; in interactive stage websites provide facilities to visitors to download and to transmit information to the agency using e-mail and other means; transactional stage is that where visitors can transact business with agencies on-line; and transformational stage represents complete transformation of current operational processes to provide more efficient, integrated, unified and personalized service. By analyzing the list of government services, this research develops following performance measures.

1. The number of user contact session of each ministry's website.
2. Total number of services conducted by each ministry, this serves as a proxy measure of efficiency (Total number of services).
3. Number of service available as static information, downloadable (form), transactional and transformative services. The total number of transactional service serves as a measure of effectiveness.

2.10.2 Factors Affecting User Acceptance or Adoption of E-government

In this study, as discussed previous section user acceptance or adoption and e-government performance are two dimension of understanding successful e-government policy implementation in Nepal. There could be number of independent variables that affect each dimension. In line with the literature review on policy implementation and requirement of e-government implementation other than general policy implementation, perceived ease of use, perceived usefulness, perceived quality, perceived trust on e-government services have been taken as independent variables that

affect user decision to accept or adopt new innovation or e-government services. Based on literature review, the following table presents factors affecting user acceptance of e-government and their criteria for measurement.

Table 2.2: Criteria Used to Measure Factors Affecting User Acceptance

Factors	Criteria
Ease of Use of e-government	User friendly(easy to use and easy to navigate around websites)
	Helpfulness (receive assistance when needed
Usefulness of e-government	Content and timeliness (receive precise and up-to-date, information)
	Transparency(express opinion to the government officials)
	Cost and time saving,
Quality of e-government	Quality of information (able to get accurate, reliable and relevant information)
	Access to information (able to get information when visiting websites)
Trust on e-government	Privacy(protect privacy when using e-government)
	Security(secure transaction when using e-government)
	Perceived negative consequence of e-government

Each factor (independent variable) is composed of two or more items. The total score of each independent variable has been derived by adding corresponding score of items concerned.

2.10.2.1 Perceived Ease of Use and User Acceptance or Adoption

Perceived ease of use is the degree to which a person believes that using a particular technology would be free from effort. Perceived ease of use influences user decisions about how and when they will use e-government system (Colesca and Dobrica, 2008; Agrawal and Prasad (1997). As discussed above, there were number of research work conducted to identify user acceptance of technology. Almost all research work described and tested ease of use as key element which determines how and when users accept new system. Ease of use has been taken as an important independent variable with the assumption of its positive relation with adoption of e-government. Two items- user friendly (whether e-government system is easy to use and easy to navigate) and helpfulness (received assistance when needed) - were taken for identifying user perception about ease of use. The hypothesis for this variable as;

Hypothesis 1: *'The perceived ease of use of e-government services has positive effect on user acceptance or adoption of e-government'*.

2.10.2.2 Perceived Usefulness and User Acceptance or Adoption

Usefulness of e-government services is another important determinant of user acceptance of e-government. Perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance. TAM observes perceived ease of use and perceived usefulness as fundamental determinants of user acceptance (Colesca and Dobrica, 2008). There could be number of items for measuring usefulness of e-government services. In this study, three items were taken for measuring usefulness of e-government service i.e. content and timeliness (enable to get precise and up to date information), transparency (able to express opinion to the government and communicate officials through e-government services) and cost and time saving. The pre-assumption regarding this variable as;

Hypothesis 2: *'The perceived usefulness of e-government services has positive impact of user acceptance or adoption of e-government.'*

2.10.2.3 Perceived Quality of E-government Services and User Acceptance or Adoption

Quality of e-government services could be the concern to user for their acceptance. If e-government services provide reliable, relevant, accurate information, certainly users accept those services and use it for their affair. Similarly, easy to understand information given by e-government services and how easily they receive information when visiting government websites could also be their concern for using e-government services (Colesca and Dobrica, 2008). Two items were taken for measuring user perception regarding quality of e-government services such as quality of information (e-government services provide accurate, reliable and relevant information) and access to information (able to get information when visiting government websites). The hypothesis regarding quality of e-government services as;

Hypothesis 3: '*The perceived quality of e-government services has positive effect on user acceptance or adoption of e-government.'*

2.10.2.4 Perceived Trust on E-government Services and User Acceptance or Adoption

Trust is a broad concept having number of interpretations; however, for the purpose of this study it is used as trust in the internet and e-government system. According to Belanger et al (2002 cited on Choudrie et al. 2009:2) that trust is 'the perception of confidence in the electronic marketer's reliability and integrity'. Protection of privacy and security of transaction could be great concern to user for using e-government system. Users might have concern to whether there is a negative consequence for using e-government system. Three items were taken for measuring level of user trust on e-government services such as Privacy (e-government services protect users' privacy), security (e-government service secure their transactions when using e-government services) and perceived negative consequences of e-government services. The hypothesis regarding trust on e-government services as;

Hypothesis 4: *'The trust on e-government services has positive effect on user acceptance or adoption of e-government.'*

2.10.3 Factors Affecting E-government Performance

There could be number of factors that affect performance of e-government in relation to availability, quality, accessibility, development and deployment of e-government. Legal and institutional arrangement, role of leadership/e-champion, policymaker and managerial understanding and willingness, barriers toward successful implementation have been taken as influential factor (independent variables) which affect the performance of e-government services. The following section deals with how each independent variable has been measured in this study.

2.10.3.1 Legal and Institutional Arrangement

Growing usage of IT in the work process become popular and effective across the world; paper document being converted into digital document; and people can get required services directly through the e-government without visiting physically to the offices. However, this type of change cannot be justified without having necessary laws and systems. Similarly, institutions that can effectively build and implement e-government system are also imperative for successful implementation of policy (eGMP, 2006). As discussed earlier, implementation process normally

begins with the passage of the basic statute followed by decisions, compliance and the actual impact (Hill and Hupe, 2002). So, a regulatory and institutional framework is basic requirement for policy implementation. However, it cannot be assumed that having legal and institutional arrangement for implementation will lead successful implementation. Conducive legal and institutional arrangement can lead successful implementation of e-government. Documentary sources of evidence were analyzed for assessing present legal and institutional arrangement, their role, responsibility and other related factors. The response from the respondents was an important source of evident for operationalising this variable. The pre-assumption regarding this variable as;

Hypothesis 5: Efficient and effective legal and institutional arrangement leads successful implementation of e-government policy.

2.10.3.2 Leadership/E-champion

As discussed above that the people within organization having technical as well as managerial skill with strong desire, commitment and initiation to develop and implement e-government are e-champion. Lack of such human resources in an organization leads to the under-utilization of available opportunity offered by ICT measure (section 2.8). According to Grindle and Thomas (1991) reactions and response comes from bureaucratic arena if the policy comprised of technical/administrative components. E-government policy mainly comprised of administrative/technical component, so the role of e-champion could be crucial for successful implementation. There is relation, as mention earlier, between e-champion and advocacy coalition or policy network in policy implementation. The role of e-champion in e-government implementation was assessed mainly through response from the policymaker/academician, civil servant and user of e-government. Similarly, literature on e-government implementation and policy implementation was also analyzed to identify their role on e-government implementation. The interview with key respondents was another important source of identifying e-champion's role in this regards. The pre-assumption relating to this variable as;

Hypothesis 6: *A critical mass of e-government champion in an organization leads successful e-government policy implementation.*

2.10.3.3 Policymaker and Managerial Understanding and Willingness

According to Grindle and Thomas (1991) mobilization of support and opposition and political and managerial resources is a key role of policy elite which lead to achieve potential outcomes of policy. Without knowing what e-government can do for improving public service, improving efficiency, transparency, accountability in public affair, it is difficult to mobilize resources properly. Policymaker and managerial understanding that e-government can be seen a lever for transforming government and their willingness to pay sincere effort for implementing e-government could be highly influential factor for successful implementation. It is believed in Nepal that there is lack of policymaker and managerial understanding especially in high level official of government, hence they do not pay their sincere effort for e-government development rather pay lip service to this issue. This variable was operationalised by analyzing document about what they deliver their effort to policy, plan, regulatory framework, and institutional arrangements. Similarly, priority given in policy, plan and annual budget to develop e-government was also analyzed for their understanding and willingness. The pre-assumption relating to this variable as;

Hypothesis 7: *Policymaker and managerial understanding and unwillingness affect e-government initiation and successful implementation of e-government policy.*

2.10.3.4 E-government Barriers

There are number of challenges associated with e-government implementation all over the world. As mentioned earlier there are only 15% success rates in e-government project. Failure of e-government creates burden of direct and indirect cost to the government (section 1.2). In this view identifying major challenges associated with e-government implementation in Nepal was one of purpose of this study. For this, by reviewing literature, Political, Managerial, Financial, Technological resources related problems were taken as independent variable which constitute barriers that affect successful implementation. The influence of these barriers was assumed as negative effect in successful implementation. Documentary analysis, interviews and response from policymaker/academicians, civil servants, and users were analyzed to operationalise these variables. The assumption regarding barriers to e-government as;

Hypothesis 8: *There are some implementation barriers to e-government policy which undermine ability to implement policy successfully.*

2.11 Summary of the Chapter

This chapter has mainly devoted to review literature and present conceptual framework on e-government policy implementation crucial for guiding this research. First part of the research focused on conceptual clarification of policy implementation, approach and model of policy implementation, concept of e-government, e-readiness, adoption and model on e-government. Second part of the study is devoted to develop analytical framework in which analysis of this research has been carried out. Pre-assumption related to each independent variable has also been discussed in this part. Two aspects -user acceptance of e-government and e-government performance were assumed for measuring successful e-government implementation. Ease of use, usefulness, quality and trust on e-government services have been taken independent variable that affect users decision to adopt e-government. Legal and institutional arrangement, the role of internal leadership (e-champion), policymaker and managerial understanding and willingness and barriers to e-government are other variable leading successful e-government policy implementation.

CHAPTER THREE: METHODOLOGY

3.1. Introduction

Social science research refers an attempt of making explanation of social situations that makes sense based on systematic use of evidence (King et al., 1994:12). In this chapter attempt has been paid to address methodological issues concerning my thesis. This chapter deals with research approach applied to this study, research design, research instrument, research setting in term of organization and participant, limitation of study, and ethical consideration of this study. An attempt has also been made to make it a creative process of insight and well-established structure of scientific inquiry.

3.2. Research Approach

Research approach can be quantitative, qualitative or mixed which provide general direction toward research work. Quantitative research uses numbers and statistical methods. It refers to the numerical measurements of specific aspects of phenomenon and seeks to test causal hypothesis and to measure and analyze that are easily replicable by other researcher. Qualitative research, on the other hands, covers a wide range of approaches and tends to focus on one or a small number of cases with intensive interviews or depth analysis of historical materials. It is discursive in method and concerned with comprehensive account of some event or unit (King et. al., 1994).

Based on the best feature, pragmatic researcher describes mixed methods combining both qualitative and quantitative methods in social science research into the research methodology. Researcher use various terminology while combining these two methods such as mono methods (quantitative and quantitative, plus all variants therein), multiple methods, mixed methods, multi-method study, triangulation of methods, methodological mixes, and so on (Tashakkori and Teddlie, 1998).

This study has adapted a combination of both methods in order to take advantages of both the approaches so as to minimize the limitations of any single approach. The primary data for the study were obtained through questionnaire survey and was supplemented with interviews of a

cross-section of selected respondents. By using mixed method approach, I have compared my quantitative findings with the results of semi-structured interviews to clarify and corroborate the results obtained through survey instruments. The perceived advantages associated with mixed approach in this study is; first it enabled me to examine overall status of e-government development and deployment in Nepal and to explore specific issues that are most influential for e-government implementation. Second, mixed approach allowed data collection from various sources that facilitate triangulation of methods, persons and sources and convergence line of inquiry that increase reliability of data (Tashakkori and Teddlie, 1998). Questionnaire survey and interview allowed me to identify policymakers, academicians, users and civil servants' value toward e-government. Multidimensional view on e-government in Nepal would enrich the study and its findings. Respondents view on adoption of e-government and e-readiness index were beneficial for identifying level of acceptance.

3.3. Research Design

The design of this research is case study, one of the strategies in social science research, involving analysis of e-government status and e-government policy implementation in Nepal. According to Yin (2003) case study is used in many situations to contribute to our knowledge of individual, group, organizational, social, political, and related phenomena. The present study combined qualitative and quantitative data collection methods. Written documents were used to understand and gain insight into the content, context, and efforts of the specific e-government initiatives. Questionnaire survey provided numeric descriptions to the identified variables and factors. Interviews were conducted to explore and understand the meaning, understanding, and views gained from their live experiences and to use the results of this exploration to corroborate the survey design. This process thus established a new data reference point which was used to triangulate the data and to some extent minimize potential research bias. The use of various sources and methods of data collection enabled me to overcome the weaknesses that are inherent in using one source. Case studies that use multiple sources of evidence in data collection is usually rated high in terms of overall quality compared to those relied on single source of evidence (Tashakkori and Teddlie, 1998 and Yin, 2003).

3.4. Research Setting and Participants

3.4.1 Organization

Ministries and Departments of Government of Nepal were unit of analysis for this study. There are 26 ministries and are responsible for carrying out specified function (appendix 6). Ministries are mainly responsible for policy making, monitoring and evaluation of programs, coordinating other agencies, managing human resources and so on. The organization structure of Government of Nepal starts from council of ministers (cabinet) at the top; ministries, departments, regional secretariat, district offices, and area offices at the bottom. Administrative point of view, Nepal is divided 5 regions, 14 zones, 75 districts, 927 areas and 3914 village[1]. All ministries do not comprise of all layers of offices; it depends on the nature of function they are responsible for carrying out. Due to the constraint of time and resources all e-government initiation taken by various agencies was not possible to analyze, so for this study ministries were taken as the area of study.

3.4.2 Participants

The participants of the study were selected from the top level bureaucrats, academicians, civil servants, general users of e-government, members of High Level Commission on Information Technology (HLCIT), members of National Information Technology Centre (NITC), members FOSS Nepal Community (FNC), Members of Computer Association of Nepal (CAN), and other stakeholders. Making research manageable, these participants were grouped into three categories- policymaker/academicians, civil servants and users of e-government. For each group separate questionnaire was developed and distributed through e-mail. In this study I used purposeful sampling method (non-probability) to select respondents so as to gather required information. Similarly, snow ball sampling method also used to select respondents and also tried to select respondents from different geographical area, from different agencies, and from different occupation so as to collect different views from different stakeholder. Around 225 questionnaires were delivered through e-mail; out of which 98 questionnaires (43.5%) were received. Very few

[1] Available at http://planetnepal.org/wiki/Administrative_divisions accessed on 10 April, 2011

respondents replied immediately after survey request; some were responded after first and second reminder. The reminder was made when response was not received in two weeks. Two reminders were made assuming they may forget to reply questionnaire. Later it was assumed that they might not be interested to reply survey questionnaire. I have also received help from friends to collect questionnaire, especially in Ministry of General Administration and Ministry of Information and Communication.

3.5. Survey Responses

An e-mail questionnaire survey was conducted in June and July, 2010. Three different set of questionnaires were designed for each group of respondents. A total 98 person responded the questionnaire. In comparison with total response received, user response rate is highest (53%) followed by civil servant (37%) and policymaker/academician (10%). Respondents were of different age group, education level and geographic location. The table 3.1 describes demographic characteristics of respondents.

Table 3.1: Age of Respondents

Age	User		Policymaker/ academician		Civil servant		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Up to 20	1	2					1	1
21-40	29	56	3	30	18	50	50	51
40-60	20	38	6	60	16	44	42	43
Missing	2	4	1	10	2	6	5	5
Total	52	100	10	100	36	100	98	100

(Source: Questionnaire Survey)

Dominant age group of e-government user (56%) and civil servant (50%) is 21-40, but large number of respondent from policymaker/academician fall in the age group of 41-60. Not a single response received from age group above sixty and only one respondent from the age group of below twenty. Educational background of respondents presented in table 3.2 shows that most of respondents have masters' degree or above (77%) qualification. Second largest group of respondents in relation to educational background is bachelor level (15%).

The respondents were selected purposely to those who have e-mail address, so there was much more chances of selecting educated respondents, especially in Nepalese context where only 1.41 person per100 are internet user (UN e-government survey 2010). The researcher tried to overcome this limitation by selecting people who do not have internet access at home for interview from user categories of respondents.

Table 3.2: Education of Respondent

Education	User		Policymaker /academician		Civil servant		Total	
	Freq	%	Freq.	%	Freq.	%	Freq.	%
High School	1	2					1	1
Higher Secondary	4	8					4	4
Bachelors	9	17			6	17	15	15
Masters or above	38	73	10	100	27	75	75	77
Missing					3	8	3	3
Total	52	100	10	100	36	100	98	100

(Source: Questionnaire Survey)

3.6. Source of Evidence and Collection Procedure

There are many sources of evidence including documents, records, interviews, observation (direct and indirect), and physical artifacts. Each source has certain strength and weakness, but single source is not sufficient for any research study (Yin, 2003). For the purpose of this study the following sources of evidence were used to collect data.

3.6.1. Documentary Review

Prior to administer survey questionnaire and conducting interviews, documents related to e-government implementation were analyzed. Priority was given to understand objectives, plan, programs, contents, contexts, efforts and effects of e-government initiatives. The documents reviewed were periodic development plan, ministries annual reports, annual budget, economic survey, news papers, reports on e-governments etc. Similarly E-government Master Plan (eGMP), Electronic Transaction Act 2006 and regulation 2007, information technology policy 2000, Telecom policy 2004, UN e-government surveys were reviewed as secondary source of information. Similarly along with above documents available television programmes on e-government and websites of all ministries, departments and private organizations were analyzed for textual analysis.

3.6.2. Questionnaire Survey

Survey is also one of the important methods of data collection in which selected key respondents are asked to answer variety of identical question (Baker, 1994:172). In early 70s, modern telephone and mail survey began due to massive technological development. After 90s mass e-mail survey became popular due to cost effective, mass coverage, time and location free access to the respondents (Dona et al 2007). After documentary review and identifying and grouping participants a set of semi-structured survey questionnaire was designed for each group of participants. The first set of questionnaire was designed for user of e-government aimed to gather information on access to internet, purpose of using internet, knowledge about provision of e-government services, their perception about e-government services and their rating on overall development of e-government. This group comprised of businessman, IT professionals, students, teachers, households etc.

The second set of questionnaire was designed for policymaker/academicians aimed to collect their views on policy objectives, function and outcomes of e-government, actors and their role of e-government policy making and implementation, influencing factors, barriers to e-government, prerequisite for e-government etc. This group comprised of joint secretaries of ministry, member of High Level Commission on Information Technology, member of National Information Technology Centre, Professors of Universities etc. The third set of questionnaire was designed for civil servants aimed to collect their views on e-government. This group was composed of middle and lower level civil servants, especially civil servants working in front line.

3.6.3. Interviews

Telephone interviews were conducted with selected respondents from different background so as to assess their views in depth inquiry related to various dimension of e-government in Nepal. Due to limitation of financial resources (because I am self financed student in the university) I faced problem to go in field study to collect data and conduct face-to-face interview. Telephone interview could be viable option to me for in-depth inquiry in e-government phenomenon. Telephone interview has its own strength and weaknesses. Its strength could be a respondent feel free to express his opinion without any hesitation. However, a researcher could not observe

respondent's expression in his face or body language while taking interview. The list of person interviewed has been presented in appendix 3.

3.7. Data Analysis and Presentation

Data itself does not produce any sense about research questions; it is the researcher who analyzes and interprets data that support claim. It is the process of bringing order, structure and meaning from mass of data. Data analysis and interpretation create value of data. "Data analysis consists of examining, categorizing, tabulating, testing, or otherwise recombining both quantitative and qualitative evidence to address the initial propositions of a study" (Yin, 2003:109).

Quantitative data collected from questionnaire survey and other sources was first entered into SPSS software and analyzed. Tables, figures, charts and boxes have been used to presents evidence wherever necessary. Mainly frequency distribution, cross tabulation, and correlation analysis have been used for analyzing data. Correlation analysis is based on respondents rating on scale both in individual items and total score of each independent variable. Similarly, qualitative information collected from interview was presented in different part of analysis. The collected data was used to explore policy implementation process descriptively and comparatively. In deed this study was also follow mixed method approach, so it is also descriptive, analytical, narrative and discursive analysis of evidence.

3.8. Statistical Tool for Data Analysis

In this study the assessment of e-government adoption is based on the respondents' view collected from the questionnaire survey. Similarly assessment of the performance of e-government is based on websites analysis, questionnaire survey and interview with key respondents. Level of adoption has measured in term of access to internet, having computer, purpose of using internet, and using public service online. Similarly e-government performance has measured as number of government websites, number of visitors of government websites, content in the websites etc. Univariate, bivariate and multivariate methods has been used for the analysis of data. Simple frequency distribution, mean, cross tabulation, correlation are the statistical tools applied to analyze data.

Non-parametric tests have been applied in this study because parametric tests need to satisfied assumption about the shape of population distribution, number of sample, linearity, normality etc. Non-parametric tests on the other hand do not have such requirements and do not make assumptions about distribution of population. It is more useful when data were measured on nominal and ordinal scales (Pallant, 2005). Due to small sample size, regression analysis could not be used for data analysis, even though it is important and powerful tool. According to Tabachnick and Fidell (2001) that at least N = 50+8m sample is required for applying regression analysis, where N is number of cases and 'm' is number of independent variables. There were only 52 cases (e-government user) which were not sufficient to apply regression analysis in this study.

3.9. Validity and Reliability

Validity and reliability are an important concern for any researcher. Validity can be construct validity, internal validity and external validity (Yin, 2003:97-105). Construct validity establish correct measures for phenomenon being studied. It can be increased by using multiple sources of evidence, creating a chain of evidence, and reviewing case study report by "key informants" (Yin, 2003:34). I tried to use multiple source of evidence and triangulation of data as far as possible and also tried to establish chain of evidence so as to increase construct validity. Internal validity refers to the causal relationship established between the variables (Yin, 2003). Correlation analysis and cross tabulation have been applied for establishing causal relationship between dependent and independent variable which increases internal validity to this study.

External validity provides sphere to generalize findings to other case study. Generalizations can be made, according to Yin, by using two methods. First is "statistical generalization" in which an inference is made on universe on the basis of sample data. Second is "analytical generalization" in which previously developed theory is used to compare the empirical result of case study. If two or more case study supports the same theory, replication can be claimed (Yin 2003: 33-47). In this study, effort has been made to analytical generalization by comparing empirical result with previously developed models on e-government implementation.

Table 3.3: Reliability Statistics	
Variable (N of Items)	Cronbach's Alpha
Ease of use of e-government services (2)	.848
Usefulness of e-government services (3)	.738
Trust on e-government services (3)	.711
Quality of e-government services (2)	.769
User acceptance or adoption (4)	.842

(Source: Questionnaire survey)

Reliability is "the degree to which a procedure for measuring produces similar outcomes when it is repeated" (Baker, 1994:127). Consistency between two measurements increases reliability. Reliability is an assessment of the degree of *consistency between multiple* measurements of a variable (Pallant, 2005). One type of diagnostic measure that is widely used and employed is the Cronbach's alpha. Generally agreed upon lower limit for Cronbach's alpha is 0.70 (Melitski, 2003; and Pallant, 2005). As the table 3.3 shows, the reliability analysis gave us alpha coefficients exceeding 0.70, which are regarded as acceptable reliability coefficients. Hence, the results demonstrate that the questionnaire is a reliable measurement instrument.

3.10. Ethical Consideration

The study on implementation of e-government policy in Nepal provides valuable information in this phenomenon and it will be certainly fruitful to the policymakers, implementers, academician and other researchers. While conducting the research I was fully aware about ethical dimension of what a researcher should bear in mind and careful about. The data and information collected during research has only been used for writing this thesis and will not be used in any of other purpose. The right to privacy of respondent, was/will be protected that subject's identities will not be disclosed in any way. Similarly, it is essential to respect the requirement of scientific community i.e. all evidence generated and analyzed will be made available to other for inspection and understanding. The finding of the research was fully based on evidence without omission of significant data. I was also fully aware about to provide full information and citations concerning scales and other measures used in this research.

3.11. Challenges and Limitations of the Study

There are number of challenges that I faced while conducting this research. The first and most important challenge was finance that limits the scope of this study. Due to financial problem I was unable to go to field visit for collecting data. I was unable to conduct face to face interview and observation. E-mail questionnaire survey could be an easy and easily reachable method to the respondent. However, researcher could not clarify confusion on the spot easily. They might sometimes forget to response questionnaire. They might ignore the importance of issue because not in touch physically with respondents. Telephone interviews were also bear limitation that respondents might be shy to response and researcher could not read his expression.

There was also a big challenge to collect secondary source of information. The only reliable method is internet for collecting secondary sources. Most of the government websites were not updated and many important documents were not uploaded in websites. However, I tried to use friends working in various agencies to collect secondary sources that could be useful to me for the study.

3.12. Summary of the Chapter

The study was intended to understand and explore issues, factors and challenges and barriers in implementation of e-government policy and identifying best strategies for implementation of e-government policy in Nepal with administrative and technological point of views. This study is case study research design relied on both qualitative and quantitative data. A mixed method approach has been applied for this study aiming to capture best feature of both method. Policymaker/academician, user of e-government and civil servants' view collected through questionnaire survey and interview were main source of primary data. A large number of documentary sources have been used for explaining various dimension of e-government. Attempt has also been made to follow all essential steps of research and aware about ethical dimensions of research.

CHAPTER FOUR: EVOLUTION OF E-GOVERNMENT IN NEPAL

4.1. Introduction

The concepts of e-government, policy implementation, e-readiness and e-champions have been discussed as a theoretical framework in Chapter Two and methodological issues in Chapter Three. I will continue my discussion in this chapter on historical evolution of e-government, policy context, current status of e-government, IT laws and regulations, IT organization, IT education and e-readiness index of Nepal. The main aim of this chapter is to discuss on reflect status of e-government in Nepal.

4.2. Evolution of ICT in Nepal: a Historical Perspectives and Current Status

Nepal starts its journey of using computer in its business in 1972's census with IBM 1401 a second generation mainframe computer. In 1974 a center for Electronic Data Processing, later renamed to National Computer Center (NCC), was established for national data processing and computer training. In 1982 Data Systems International (p) LTD, first Private Overseas Investment in Software Development Company was established for export and in 1990 Nepal liberalized policy on imports of equipments. Similarly, 1992 Computer Association of Nepal (CAN) was established in private sector for the purpose of development and deployment of information technology in Nepal. Establishment of the Ministry of Science & Technology (MoST) in 1996 and announcement of the first IT policy in 2000 were major initiation taken by the government in this field. Further initiation was taken in 2001 by establishing the National Information Technology Center (NITC), the High Level Commission for Information Technology (HLCIT) in 2003 and enactment of the Electronics Transaction Act in 2006. IT Park in Banepa, 30km east from Kathmandu, established in 2003 to attract foreign and domestic companies and provide facilities in one place. In 1992, Mercantile Communication started e-mail services and in 1996 it was registered as Internet Service Provider (ISP). The government owned Nepal Telecommunication Company Ltd start internet services in 2000 (eGMP, 2006).

Rapid development and use of new technology is one characteristic in communication sector. Nepal is aware and able to use these new modern technologies for better communication. Service provider in telecom sector are proving services based on digital, VSAT, GSM Mobile, CDMA, 3G, and IP technology. Telecom infrastructure has also improved using Optical fiber, Micro wave link and Satellite technology. Internet service is available to 75 districts through GSM and CDMA technology. Similarly users in Kathmandu city are able to get high speed ADSL internet service through PSTN line and Dial up services. UTL and Spice Nepal- other service providers in telecom sector- are also providing internet service using CDMA, GPRS and EDGE technology. Initially, people in Kathmandu, were able to get internet services, but now only 420 VDC are without internet out of 3900 VDC in 2008. Due to reduction of cost of infrastructure and benefits from 'economies of scale' internet become cheaper and people are able to get access at home. Those who do not have internet access at home are able get internet services from the cyber café and public tele-centers (ARC report, 2010; e-GMP, 2006). However, according to UN e-government survey 2008, with the proportion monthly income internet in USA is 250 times cheaper than in Nepal.

There are 164 service providers permitted to provide various telecom services, they are: three in basic telephone service, two in cellular mobile service, 38 in internet service, nine in VSAT Network service, 91 in regional access, 1 in video conferencing, two in international trunk telephone, 3 in GMPCS service, 2 in rural communication service, 1 in rural internal service, 12 in limited mobility. The transmission networks in Nepal consist of backbone link, microwave radio network and optical fiber network. Satellite network is preferred for linking geographically difficult terrain and very remote areas where it is difficult to establish Optical Fiber or Micro Radio network. In the case of optical fiber network, there is a ring-shaped 2.5Gbps optical fiber network in the Katmandu Valley and a SDH Optical Link along the East-West Highway. Also, an optical fiber networking between Nepal and India is in operation. To access links, WLL and mobile network have been used. For satellite network, earth stations, RSAT and VSAT are in use (eGMP, 2006; and ARC report, 2010).

4.3. E-government in Nepal: A Review of Policy and Regulatory Context

A. IT policy 2000 and 2010

Due to the growing importance of information technology for providing and improving quality of services, increasing efficiency and opportunity to improve health, education, agriculture, tourism, trade etc. using information technology, the government of Nepal formulate and implement first IT policy in 2000. This policy defines its vision as "To place Nepal on the Global Map of Information Technology within the next five years" with the objectives as: to make information technology accessible to the people and increase employment; to build a knowledge based society and to establish knowledge-based industries. The policy defined 15 strategic area and 17 policy priority to achieve above mentioned objectives. Major strategies were the government as a promoter, facilitator, and regulator; carry on research and development; encourage foreign investment; promote PPP in infrastructure and human resource development; develop favorable legal and institutional arrangement; promote e-commerce and so on (IT Policy 2000).

In 2010 the information technology policy was revised with new features. Through this revised policy the government recognized ICT as a powerful tool enable to provide effective, efficient, up-to-date public service to the citizen entitled to get such services by adopting basic assumptions of good governance such as rule of law; efficient and corruption free administration; decentralization; economic discipline; and efficient management of public services and resources.

Two fundamental basis of IT were assumed in this policy such as an opportunity to increase employment and a powerful resource that contribute to develop overall economic, social and administrative sector. The vision statement of this policy is "To replace Nepal as a knowledge-based society by placing it on the Global Map of Information Technology". Similarly its mission is to 'achieve social and economic objectives along with good governance and poverty reduction with the use of information technology' (IT policy, 2010).

IT policy 2010 incorporate such provisions which were not incorporated in IT Policy 2000 such as provision relating to free and open source software, broad band data networks, wireless network, service outsourcing, intellectual property rights, e-certification, information security and data protection, competitive environment among service provider, e-waste, standardization, voice

over internet protocol etc. (IT Policy 2010). The government of Nepal tried to make IT Policy compatible with the poverty reduction-the goal of three year development plan (2007/2008-2009/2010).

B. Telecommunication Policy 2004

The government of Nepal accepted telecommunication service as a basic prerequisite for development. The first telecom sector policy was formulated and implemented in 1999 which to some extent create favorable environment in this sector. With the experience of its implementation, the government revised and implemented in 2004 with the additional provision which were not incorporated in telecom policy 1999. This policy is focused on universal access to the telecommunication services; universal service obligation to all including rural people; development of corporate services; open licensing; liberalization of telecom sector, private sector participation; extension of telecom service and made cyber law; appropriate information communication technology made available to rural areas and so on.

C. Electronic Transaction Act 2006 and regulation 2007

An act was promulgated for electronic transactions in 2006 after six year of country's adoption of e-government policy. Before its promulgation it came into existence by ordinance in 2005. The preamble of the act describes its objectives as follows:

> ..it is expedient to make, legal provisions for authentication and regularization of the recognition, validity, integrity and reliability of generation, production, processing, storage, communication and transmission system of electronic records by making the transactions to be carried out by means of electronic data exchange or by any other means of electronic communications, reliable and secured (Preamble of Electronic Transaction Act, 2006)[2].

Many provisions have been made for regulating e-government activities such as formation of controller and certifying authority, functions, duties, and power of controller; provisions relating to electronic record and digital signature, provision relating to dispatch, receipt and

[2] Available at http://www.lawcommission.gov.np/index.php/en/acts-english?start=60 accessed on 10 April, 2011

acknowledgement of electronic records, functions, duties and rights of Subscriber, electronic record and government use of digital signature, provisions relating to network service, offence relating to computer, provisions relating to information technology tribunal etc. similarly Nepal Government framed Electronic Transactions Rules 2007 exercising the power conferred by section 78 of Electronic Transactions Act 2006.

D. Good Governance (Operation and Management) Act 2008 and Regulations 2009

Good governance (Operation and Management) Act 2008 section 37 made provision relating to information technology that 'every ministry, department and government agency and office may bring computerized information technology into practice based on the availability of their resources and means'. Good Governance(Operation and Management) Rules 2009 describe procedures for making information technology into practice by ministries, departments, government agency and office as: systematic storage of related information into computer; Citizen Charter, operation procedures, forms and publication and other related information should publish into websites as far as possible; use of information technology for making efficient and effective function of policy making, service delivery, security management and supervision; improve service delivery and complain management by taking feedback through information technology and so on[3].

E. E-government Master Plan 2006

In 2005, High Level Commission on Information Technology (HLCIT) and Korea IT Industry Promotion Agency (KIPA) had signed the MOU to prepare e-Government Master Plan for the government of Nepal realizing electronic governance as a prerequisite for service delivery in prompt and convenient manner and greater administrative work efficiency. Moreover, dynamic development of the ICT is changing our way of life and creating new business opportunities, bringing about diverse and rapid changes. On the basis of MOU, a project team including personnel of HLCIT, NITC and other government offices and Korean consultant prepared and submitted report to the government of Nepal in 2006 (e-GMP, 2006; and ARC report, 2010).

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[3] Available at http://www.lawcommission.gov.np/index.php/en/acts-english?start=80 accessed on 10 April, 2011

E-GMP identified e-government vision for Nepal as 'The Value Networking Nepal' through: citizen-centered service, transparent service, networked government, and knowledge based society. Similarly, a mission statement has been defined as: 'Improve the quality of people's life without any discrimination, transcending regional and racial differences, and realize socio-economic development by building a transparent government and providing value added quality services through ICT'. To realize the vision and mission, the consulting team worked out strategies and selected 33 projects in sectors comprising G2C, G2B, G2G and infrastructure. Initially 8 projects were chosen for implementation.

F. Three Year Interim Plan (2007/2008-2009/2010)

Three year Interim Plan(2007/2008-2009/2010) visualize its long term vision relating to information technology as 'to expand IT and make it within the reach of remote areas, ethnic groups (*Dalit*s, *Adibasi, Janajatis)*, persons with disability, women and senior citizens in an equitable and inclusive way; thereby maintaining regional balance. In addition to this through the development and use of IT, the Plan envisages social and economic development, employment generation and poverty alleviation and formation of information society and strengthening of e-government which would provide easy access of the people to public services' (Interim plan, 2007/2008-2009/2010:446). The plan identified and described various IT policy and working policies relating to people's access to IT; implementation of e-government; and institutional capacity strengthening. The plan identified various programs for plan period as IT park operation, construction of Government Integrated Data Center, tele-center establishment and management, policy formulation, e-government implementation, research and development, human resource development, enhancement in public awareness, institutional strengthening, and IT development and strengthening(Interim Plan 2007/2008-2009/2020).

4.4. E-government in Nepal: Institutional Arrangement

After adopting e-government policy in 2000, the government made necessary legal and institutional arrangement for implementing policy. Discussion on the following section will continue to analyze legal and institutional arrangement.

A. Ministry of Science and Technology

The National Science and Technology Council and the Royal Nepal Academy of Science and Technology (RoNAST) were established in 1976 and 1982, respectively, and the Ministry of Science and Technology was instituted on 1996 to make coordination and to accelerate the activities relating to science and technology in the process of national development thereby creating favorable environment for the proper development of science and technology (eGMP, 2006; and ARC report, 2010).

B. Ministry of Information and Communication

Ministry of Information and Communication is responsible for developing national-wide ICT infrastructure. The role and responsibilities assigned to this ministry as: formulate policy, acts and regulation relating to telecommunications, manage and monitor frequency spectrum, program, plan and monitor ICT development projects, provide telecommunication, security printing and postal service, provide press and information, radio and television broadcasting (eGMP, 2006; and ARC report 2010).

C. High Level Commission on Information Technology

The government of Nepal organized High Level Commission for Information Technology (HLCIT) in 2003 to provide crucial monitoring and policy guidance for the development of ICT sector in the country. HLCIT is in fact an apex body formed under the chairmanship of the Prime Minister of Nepal with a view to providing crucial strategic direction and helping to formulate appropriate policy responses for the development of ICT sector in the country to meet key developmental challenges and catalyze and stimulate economic growth for poverty reduction. Roles and Responsibilities assigned to HLCIT as: provide policy feedback, promote innovation and R&D works in IT sector, provide quality control support to the government, establish, develop, assist and manage IT parks, encourage national and foreign investment for IT infrastructure, help to prepare requisite legal, regulatory and operational instruments etc. (eGMP, 2006, and ARC report, 2010).

D. National Information Technology Center

NITC under the Ministry of Environment, Science & Technology has been designated as the secretariat of HLCIT in 2003. Its major functions are to provide computer related services to the Government agencies, serve as data depository, arrange coding and standardization methodologies required, and establish tele-centers in rural area (eGMP, 2006).

E. Office of the Controller of Certifying Authority

As per Electronic Transactions Act 2006, the Government of Nepal established office of the controller of certifying authority. The major functions, duties and powers of the controller are as: issue a license to the certifying authority, supervise and monitor activities of certifying authority, to fix the standards to be maintained by certifying authority, specify the conditions to be complied, specify the format of the certificate and contented included, maintain a record of information disclosed by certifying authority etc. (Electronic Transaction Act 2006).

F. Information and Communication Technology Development Project

Information and communication technology development project has commenced from 2009 for the implementation of e-GMP in assistance (grant) of ADB. There is a project management unit in Office of Prime Minister and Council of Ministers for effective implementation of the project. Eight priority project out of 33 project identified by e-GMP were selected for implementation which are: National ID, Driving License, Land Record Management, Human Resource Development, Strengthening Operation Procedure of Public Service Commission, Tele Centers establishment, Government Network, Rural e-community and Development of application Software. After the successful implementation this project the government is planning to extend the project into district areas (ARC report, 2010).

G. Information Technology Park Development Committee

After the adoption of IT policy in 2000, the government of Nepal constructed IT Park in Banepa, 30km east from Kathmandu city and formed IT park development committee for the purpose of providing all information communication services in one place for qualitative improvement in IT sector. The park is not in operation as expected (ARC report, 2010).

4.5. IT education

Development of IT human resource is another important factor that affects e-government implementation. Eight private schools offered computer science course as an optional subject for high school in 1992, and Katmandu University started offering Bachelor courses since 1994. Four universities and affiliated colleges provided ICT education courses. Now the total number of IT personnel in country is around 4,000 and the number of IT manpower is expected to reach 7,335 within the next five years, by the end of 2010(National IT Workforce Survey 2005, CAN cited on eGMP, 2006).

4.6. UN e-government Index and Nepal

One of the popular measures of country's utilization of ICT is e-readiness index. It is the degree to which a country, state or region is able to utilize opportunities provided by the Internet and ICT in general. E-readiness index varies from 0 to 1. The higher the index, the higher is the country's ability to utilize opportunity provided by ICT and vice versa. UN e-government e-readiness index comprised of Web measure index, ICT infrastructure index and Human capital index. In this section, the attempts have been made to analyze e-readiness index of world's top five countries, south Asian countries and Nepal. Moreover, the attempts have also been made to e-readiness index and its implication on e-government policy implementation in Nepal (UN e-government survey, 2003). UN e-government survey provides another important measure relating to information technology along with e-readiness i.e. e-participation index. According UN survey 2003 the e-participation Index composed of three components such as e-information, e-consultation, and e-decision making.

Table 4.1 presents Nepal's e-readiness index by year. According to UN e-government readiness survey Nepal's e-readiness indices are 0.268, 0.280, 0.3020, 0.2725 and 0.2568 in 2003, 2004, 2005, 2008 and 2010 respectively. Nepal's e-government readiness rank was 130, 132, 126, 150, and 153 out of total UN member countries in corresponding year respectively. Nepal's e-readiness indexes were improving up to 2005 and were deteriorating later. Web measure index were improving due to continuous efforts on operating and maintaining websites (eGMP, 2006; UN e-government survey, 2003, 2004,2005, 2008 and 2010).

Table 4.1: Nepal E-readiness Index and Rank in Global Perspectives						
year	Web Measure index	Infrastructure index	Human capital index	e-government index/ranking	e-participation	World average
2003	0.319	0.006	0.48	0.268/130	0.138/29	0.402
2004	0.336	0.006	0.500	0.2807/132	0.0656/33	0.4130
2005	0.400	0.0063	0.500	0.3021.126	0.0794/39	0.4267
2008	0.2876	0.0119	0.5176	0.2725/150	0.0227/152	0.4514
2010	0.0572 online service	0.0075	0.1921	0.2568/153	0.0571/127	0.4406

(Source UN e-government survey 2003, 2004, 2005, 2008, and 2010)

Table 4.1 shows that infrastructure index is negligible which create challenge to implement e-government policy due to lack of access to internet and other infrastructure. Human capital index is relatively strong; however, it does not indicate availability of sufficient and efficient IT friendly human resource that is essential for e-government implementation. E-participation index were also negligible in real term which shows lack of culture of e-information dissemination, e-consultation and e-decision making so as to increase citizen participation in governance process. In relation to e-participation, it was improving up to the year 2005 stands 39 rank in 2005. Later it was dramatically decreased to 152th in year 2008 and 127th in year 2010 which is evident that the progress in e-government development after 2005 was in reverse gear. As discussed earlier, e-readiness index is composed of web measure index, infrastructure index and human capital index. The table 4.2 presents service delivery by Stages (% of utilization) that determines web measure index.

Table 4.2: Service Delivery by Stages (% of Utilization) in Nepal

Year	Stage I: Emerging presence	Stage II: enhancing presence	Stage III: interactive presence	Stage IV: transactional presence	Stage V: connected presence	Total
2003						
2004	100%	35.6%	51.2%	0	9.3%	31.8%
2005	88%	49%	54%	0	17%	37.96%
2008	8	37	41	0	0	86 (26%)
2010	30 (44%)	22(19%)		0	1(2%)	54(13%)

(Source UN e-government survey 2003, 2004, 2005, 2008, and 2010)

UN survey 2008 defined utilization as services provided as a percentage of the maximum services in a category. According to UN e-government survey stage I represent emerging presence which belongs to presence of websites of the government agencies and basic information. Nepal utilized almost 100% in this stage. Stage II represents *Enhanced presence which* provides greater sources of current and archived information, such as policies, laws and regulation, reports, newsletters, and downloadable databases. The highest utilization percentage (49%) in this stage was in 2005. The stage III refers *Interactive presence* which enhances convenience to the consumer by providing downloadable forms for tax payment, application for license renewal. The government officials can be contacted via email, fax, telephone and post. Around 50% utilization was achieved in this stage. Similarly stage IV is transactional *presence* in which citizens are able to pay for relevant public services, such as motor vehicle violation, taxes, fees through their credit, bank or debit card. The utilization is zero in this stage. And the stage V is *networked presence* represents the most sophisticated level in the online e-government initiatives. In this stage the government encourages participatory deliberative decision making and is willing and able to involve the society in a two-way open dialogue. The highest utilization of this stage was 17% in 2005 (2004:17). The utilization of e-government in total was 32% in 2004, 38% in 2005, 26% in 2005 and 13% in 2010.

Another component of e-readiness index is infrastructure index. This index is derived by calculating internet user, telephone line, broad band, mobile, personal computer etc. the index is calculated as per 100 or 1000 of population. The table 4.3 presents these figures of Nepal.

Table 4.3: Nepal infrastructure index

Year	Internet user/100	Telephone line/100	Mobile/100	Broad band/100	Personal computer/100	Index value
2003	0.2639	1.41	0.09		0.35	0.006
2004	0.34	1.41	0.09		0.37	0.006
2005	0.3	1.57	0.21		0.4	0.006
2008	0.9	2.15	3.76	.00	0.49	0.012
2010	1.41	2.79	14.58	.04	0.48	0.023

(Source UN e-government survey 2003, 2004, 2005, 2008, and 2010)

Penetration of infrastructures which are important for developing e-government is increasing, but its pace is slow. Mobile penetration from 2008 to 2010 increased dramatically from 3.76 per 100 to 14.56 per 100 populations, other infrastructure increase gradually. UN e-government survey mentioned that internet user reached to 1.41 percent in 2010, but Telecom Authority claimed this figure reached to 6.78 percent in 2010. According to Nepal Telecommunication Authority report that internet user was increased three times from December 2009 to December 2010. Report claimed that there were 2.55 percent internet user out of total population in December 2009 and this figure reached to 6.78 percent in December 2010[4]. It could be because of data collection time of UN survey is one year before. The third component of e-readiness index is human Capital index which composed of adult literacy and gross enrollment.

Table 4.4: Nepal Human Capital Index

Year	Adult literacy	Gross enrollment	Human capital index
2003			0.48
2004			0.500
2005			0.500
2008	48.9	58.092	.5176
2010	56.5	61.62	.5821

(Source UN e-government survey 2003, 2004, 2005, 2008, and 2010)

Table 4.4 shows Human capital index increased gradually from 2003 to 2010. However in 2010 its increment was greater than before. Human capital index shows improving in human resources indicator that is essential for e-government. However, adult literacy and gross enrollment do not indicate availability of technical human resources essential for the development and deployment of e-government. E-literate population is not only essential for developing and deploying e-government service but also for using and adopting e-government services.

4.7. South Asia E-readiness Index and Nepal

There are eight member of South Asian Association of Regional Cooperation (SAARC). Afghanistan is eighth member joined in 2007. The table 4.5 presents the e-readiness index of each country by year and their corresponding ranking in global context. Maldives stands first position in South Asia from 2003 to 2010. Sri-Lanka stands second position in 2003, but in 2004 and 2005

[4] www.ekantipur.com assessed on 7 Feb. 2011

India became second position and again in 2008 and 2010 Sri-Lank regains second position. Nepal was in third position in 2003, fourth in 2004, third in 2005 and seventh in 2008 and second last in 2010.

Table 4.5: South Asia E-readiness Index and Nepal

Country	2003/rank	2004/rank	2005/rank	2008/rank	2010/rank
Afghanistan	0.118/168	0.1337/171	0.1490/168	0.2048/167	0.2098/168
Bangladesh	0.165/159	0.1788/159	0.1762/162	0.2934/142	0.3028/134
Bhutan	0.157/161	0.1590/165	0.2941/130	0.3074/134	0.2598/152
India	0.373/87	0.3879/86	0.4001/87	0.3814/113	0.3567/119
Pakistan	0.247/137	0.3042/122	0.2836/136	0.3160/131	0.2755/146
Maldives	0.410/79	0.4106/78	0.4321/77	0.4491/95	0.4392/92
Nepal	0.268/130	0.2807/132	0.3021/126	0.2725/150	0.2568/153
Sri-Lanka	0.385/84	0.3748/96	0.3950/94	0.4244/101	0.3995/111

(Source UN e-government survey 2003, 2004, 2005, 2008, and 2010)

The figure presented above indicates that in regional context Nepal's development in e-government was slow and even worse than before.

4.8. World's Top Five and Nepal in E-readiness Measure

The world's top five countries in e-readiness index in 2003 was the U.S. (0.927) is the world leader followed by Sweden (0.840), Australia (0.831), Denmark (0.820), the U.K. (0.814), Canada (0.806) and Norway (0.778). In 2005 the United States of America (0.9062) leads the global e-government readiness rankings followed by Denmark (0.9058), Sweden (0.8983), United Kingdom (0.8777) and Republic of Korea (.8727). Similarly, in 2008 Sweden (0.9157) leads the e-government ranking followed by Denmark (0.9134), Norway (0.8921), United States (0.8644) and Netherlands (.8631). Finally, in the 2010, Republic of Korea received the highest score (0.8785), followed by the United States (0.8510), Canada (0.8448), the United Kingdom (0.8147) and the Netherlands (0.8097). Nepal's position is negligible in global context. The highest e-readiness index of Nepal in 2005 was 0.3021 which was far below than top five countries (UN e-government survey 2003, 2004, 2005, 2008 and 2010).

4.9. Application Implemented in Government Agencies.

According to ARC report (2010) almost all central agencies of the government have connected with internet network with sufficient computer in their business and some of them developed and used application software in subjective areas. Mostly the use of computer in the government agencies limited to typing letters and data analysis. According to ARC report (2010) the following application software has been applied in various agencies.

- Communication System, Cabinet Meeting Hall Computerization, and Singhdurbar Gate Permit System in the Office of Prime Minister and Council of Ministers.
- Budget Management Information System, Government Accounting System, ASYCUDA, and Vat Management System in Ministry of Finance.
- Personnel Information System, Electronic Government Operation System, Library Management System, and Training Management System in MoGA.
- International Mail Accounting System(which is used in Bhutan also), Counter Automation System, Counter Automation System, Post Box Management System, Saving Bank Management System, Postage Stamp Management System, E-post and Money Order System in Department of Post.
- Unified Industry and Commerce System in Cottage and Small Industry Office.
- Vehicle Registration Information System, and Driver License Issuance System (developed, but not in used) in Ministry of Labor and Transport.
- Land Management system in Ministry of Land Reform and Management.
- Computerization of Citizenship information in Ministry of Home.
- Integrated Voter Registration Information System, District Voter Registration System in Election Commission.
- Education Management Information System and Teacher Management Information System in Ministry of Education.
- Government Accounting System and Financial Management Information System in Office of the Financial Comptroller General.
- One Stop Government Portal and Document Management Information System in Ministry of Environment, Science and Technology.

- Passport Information System in Ministry of Foreign Affairs.
- Human Resource Development Information System in Ministry of Health and Population.
- Personal Information System in Ministry of Forest and Soil Conservation.
- Geographic Information System, Arc GIS, ArcInfo, and Library Management System in Ministry of Local Development.
- Project Performance Information System, Medium Term Expenditure Framework, Accounting System, and Personnel Information System in Planning Commission.
- Records in Applicants in Public Service Commission.
- Birth and Death Registration and Marriage Registration System in Kathmandu Municipality.
- Personnel Record System, Criminal Record System, Incidents Reporting System, Inventory Management System, Vehicle Record System, and Intranet Nepol System in Nepal Police.
- Property Management System, Post Management System, and Personnel Management System in Department of Personnel Record.

Some of application software has reached in interactive level such as system applied in Nepal post, Ministry of Finance. However, due to lack of infrastructure such as Gateway Payment, Digital Signature etc. it is hard to reach e-government in interactive phase (ARC report, 2010).

4.10. Initiation from NGOs, and INGOs

Number of activities have been carried out by various national and international non-governmental organization (NGO and INGO) for the development and deployment of ICT in Nepal mainly in the field of open source technology. Madan Puraskar Pustakalaya(MPP)[5], a pioneer organization working on development of Nepalinux and local language computing has implemented its localized Nepalinux in 16 schools in various districts jointly with Nepal Telecommunication Authority and in Tele-centers since 2005 under PAN localization project conducted by MPP. PAN Localization Project Nepal started in the year 2004 funded by International Development Research Center (IDRC), Canada under its Pan Asia Networking (PAN) Program and run by Madan Puraskar Pustakalaya (MPP) (Gautam, 2011).

[5] The Madan Puraskar Pustakalaya(MPP) is the principle archive of books and periodicals in the Nepali language

Help Nepal Network (HeNN) is the largest charitable network of Nepalese around the world developed and deployed e-library in various schools in remote areas. OLE Nepal is another organization working on open source and open content. E-paath (open content) and e-Pustakalaya (digital library) are major efforts made by OLE Nepal. Various activities have been carried in collaboration with HLCIT and FOSS Nepal Community (FNC) such as celebration of software freedom day in 2007, 2008 and 2009; FOSS orientation program for HLCIT staff in 2007, FOSS *Info Mela* in 2009; and HLCT also worked in establishing Open Technology Resource Centre in 2009. Similarly, NITC another government organization has also been supporting FNC activities (Gautam, 20011). Association of Computer Engineers Nepal (ACEN) is also working in the development and deployment of e-government in Nepal.

4.11. Summary of the Chapter

This chapter has mainly focused to assess e-government status of Nepal. Mainly documentary sources of information have been used to assess e-government status. The discussion begins with a glimpse of historical evolution of e-government in Nepal and continues to policy and regulatory environment, organization, IT education, and e-readiness index in this chapter. Similarly, attempt has been made to access utilization of service delivery by e-government stages, infrastructure development, and human capital development. Although, Nepal starts its journey toward using ICT in its business in 1972 but is still in the preliminary stage of e-government development. The organized efforts begin only after the country adopts e-government policy in 2000. The legal and institutional arrangement has been established; various activities have been carried out such as websites and infrastructure development, training etc; and various NGOs also paid their effort on ICT development in the country. E-readiness has been improving initial phase, but due to political instability and other reason the pace for development become slow. There is still long way to fully utilize transactional and transformational stage of e-government.

CHAPTER FIVE: DATA ANALYSIS AND PRESENTATION OF FINDINGS: USER ACCEPTANCE AND POLICY IMPLEMENTATION

5.1. Introduction

The following two chapters contain analysis of data and present the findings of the evidence collected from primary and secondary sources. The attempt has been made to establish relationship between successful policy implementation- user adoption and e-government performance- and various factors that affect level of user adoption and e-government performance. User acceptance or adoption and its relation to e-government implementation will be discussed based on Technology Acceptance Model presented by Davis (1989) and Diffusion of Innovation by Rogers (1995). Similarly, e-government performance will be discussed in regard to the model presented by Grindle and Thomas (1991) as: agenda setting, decision making and policy characteristics and implementation and electronic government implementation presented by Melistki (2003). The discussion will continue on barriers to e-government. The analysis is based on qualitative and quantitative data collected from questionnaire survey, telephone interview and documentary sources.

5.2. E-government Adoption

As discussed earlier e-government can be a powerful tool to inform, interact, transact and network. It can contribute toward a leaner, cost-effective government in the process of transformation. However, the real benefit of e-government lies not in the use of technology per se, but in its application to processes of transformation (UN e-government survey, 2008). User acceptance of IT is deemed a necessary condition for the effective implementation of any IT project (section 1.1, 2.5 and 2.7). The attempt has been made to measure user acceptance or adoption in terms of intent to use e-government services, access to internet and computer and purpose of using internet at home (section 2.10.1.1).

The frequency distribution presented in table 5.1 shows number and percentage of respondents who have computer and internet at home, their purpose of using internet for online transaction

and usage of public service online. Empirical data shows that Nepalese people are interested in using information technology. Most of the users have computer (85%) and internet access at home (79%). 54% were using public service online and 46% acquired internet for the purpose of online transaction. People are ready to spend their resources to get access of internet not only for entertainment but for information, online transaction, education, communication, business and other purposes. The mean value of usage of public service online (1.46) and purpose (1.54) are below total average (1.66) and the mean score of computer at home (1.85) and internet at home (1.79) is above total average mean (table 5.1).

Table 5.1: E-government adoption

	Freq.	%	Mean
Computer at home	44	85	1.85
Internet at home	41	79	1.79
purpose of online transaction	24	46	1.46
Usage of public service online	28	54	1.54
N=52, Average mean value1.66			

(Source: Questionnaire Survey)

People may use computer and internet for different purpose. The table 5.2 presents their purpose of using internet at home. Those who mentioned online transaction as their purpose among other for internet were taken as a measure of their intention to use e-government services.

Table 5.2: Purpose of Using Internet

Purpose	Freq.	%	Purpose	Freq.	%
Information collection	43	83	Study	4	8
Entertainment	21	40	Communication	5	10
Online transaction	24	46	Business	6	12
Total N= 52			News, views and Sports	2	4

(Source: Questionnaire Survey)

Table 5.3: Age and Education of Respondents and Their Usage of Public Service Online

Age of Respondents	Usage		Education	Usage	
	Freq.	%		Freq.	%
Below 20	1	2	High school	1	2
21 to 40	29	58	Higher secondary	4	8
Above 40	20	40	Bachelor	9	17
			Master and above	38	73
Total	50	100	Total	28	100

(Source: Questionnaire Survey)

The table 5.3 presents distribution of respondents according to age, and education with their usage of public service online. Empirical data shows respondents who do not use e-

government services are generally characterized as older in age and low educated people. Majority of respondents from age group 20-40 were using public service online. Hither educated people used public service online in greater number than lower educated people in compared to total response of these groups.

Similarly, job and other information (62%), download form and document (44%) and regulation, law plan and programs (23%) are frequently used public services as shown in table 5.4.

Table 5.4:Frequently Used Public Services

Public services	Freq.	%	Public services	Freq.	%
Health	3	6	Download forms/document	23	44
Education	6	12	Law, Regulation, Plan and Programs	12	23
Taxes	6	12	Online application	4	8
Utilities bills	3	6	Notice and Circulars	2	4
Licenses	2	4	Exam Result	2	4
Municipality	2	4	Searching address	1	2
Total N=52			Job and other information	32	62

(Source: Questionnaire Survey)

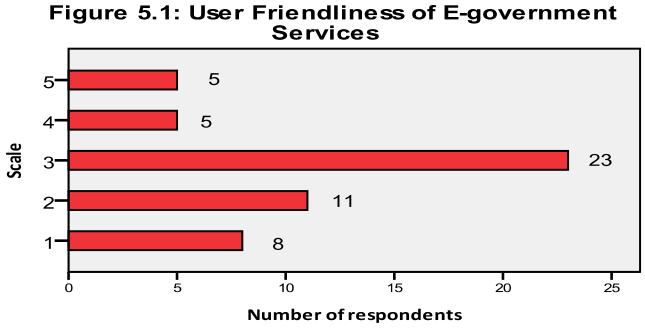
Increasing number of visitor to government websites could be another measure of their acceptance of e-government services. When analyzing various government agencies' websites, number of visitors was increasing day by day (table 6.2).

5.3. Factors Affecting User Acceptance or Adoption of E-government

There could be number of reasons for the adoption of e-government. Service quality, cost efficiency, accessibility, usefulness, security and privacy could be user concern that inspire them to decide how and when to use e-government services (section 2.5, and 2.10.1.1).In this study, based on the literature on e-government adoption a list of factors which affect user acceptance of e-government were identified as perceived ease of use, perceived usefulness, perceived trust on e-government, and perceived quality of services (section 2.10.2). The following section presents analysis of empirical data in relation to each independent variable. Attempts have also been made to establish causal relationship between dependent and independent variables.

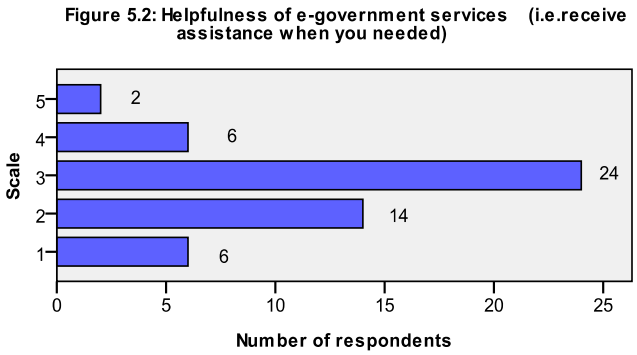
5.3.1. Ease of Use and Adoption

As discussed in chapter two, there were number of research work conducted to identify user acceptance of technology. Almost all research work described and tested ease of use as key element which determines how and when user accepts new system. Ease of use has been taken as an important independent variable assumed its positive relationship with adoption of e-government (section 2.10.2.1). Two items –user friendly and usefulness- were taken as shown in figure 5.1 and5.2 for identifying user perception about ease of use. The following interpretation has been used as 1: least, 2: not very much, 3: not high/not low, 4: quite a lot and 5: very much/always.



Toward the user perception about user friendly (easy to use and navigate) of e-government services, 15% respondents think it is least user friendly and 21% think not very much user friendly; on the other hand some 10% are quite a lot sure and 10% very much sure about user friendliness of e-government services. Similarly, 44% respondents are indifference in their perception (figure 5.1).

For helpfulness of e-government services 11% respondents think it is least helpful; 14% think not very much helpful; 46% are indifference; 12% believe it is quite a lot helpful; and only 4% believe it is very much helpful. In summary, in relation to both user friendliness and helpfulness respondents are less confident (figure 5.2).



Association between ease of use and e-government adoption can be analyzed by cross tabulation as shown in table 5.5. To make analysis simple and manageable respondents' highest, indifference and lowest rating is taken for analysis.

Table 5.5: Ease of Use and Adoption

		Computer at home	Internet access	Online transaction	Usage online
User friendly	Least perceived	62	62	13	13
	Some times	91	91	43	61
	Mostly perceived	100	100	46	100
Helpfulness	Never	67	50	33	33
	Indifference	96	92	54	71
	Always	100	100	100	100

(Source: Questionnaire Survey)

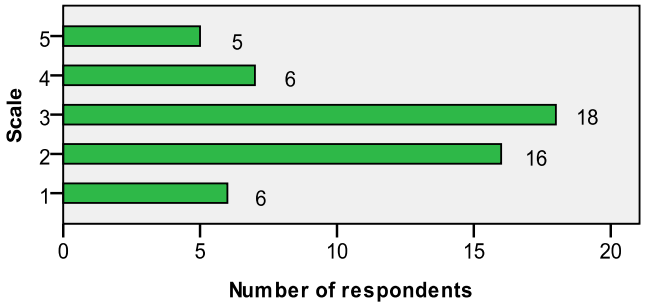
Table 5.5 shows user acceptance is increased with corresponding increase in user perception toward user friendliness and helpfulness of e-government. It was found that 62% respondents acquired computer and internet at home among those who were least satisfied with user friendly feature while such acquisition is 100% to those who mostly perceived e-government services were user friendly. Similarly, only 13% responding were using public services online among those who were least satisfied with user friendliness in contrast to 100% usage to those who mostly felt e-government services as user friendly. Similarly, the usage of public service online increased with their corresponding rating on helpfulness of e-government services.

There is positive relationship between ease of use (user friendly and helpfulness) and adoption. However, the respondents' initiation to acquire computer at home does not indicate significant relationship with user friendliness and helpfulness. But ease of use (user friendly and helpfulness) has significant influence on other components of adoption. The highest correlation coefficient between usage of public service online and helpfulness (r=0.382 at 0.01 levels) indicates helpfulness has highest influence on their usage of e-government services. Similarly, user friendly feature of e-government services also drive them to acquire internet access at home, hence it is second largest coefficient (r=0.363 at 0.01 levels) (appendix 4). The correlation coefficient between user acceptance and user friendly (0.305) and helpfulness (0.375) significant at 0.01 levels indicates positive relationship between ease of use and adoption. The relationship is medium in strength. According to Pallant (2005) correlation coefficient below 0.3 explains weak relationship; above 0.3 to below 0.5 explains medium and above 0.5 explains strong relationship.

5.3.2. Usefulness and Adoption

Perceived usefulness of e-government services has been assumed as an important reason for e-government acceptance on various previous researches (section 2.10.2.2). In this study, three items were taken for measuring usefulness of e-government service i.e. content and timeliness (enable to get precise and up to date information), transparency (able to express opinion to the government and communicate officials through e-government services) and cost and time saving (e-government services save time and money). The figure 5.3, 5.4 and 5.5 presents respondents perception toward these items.

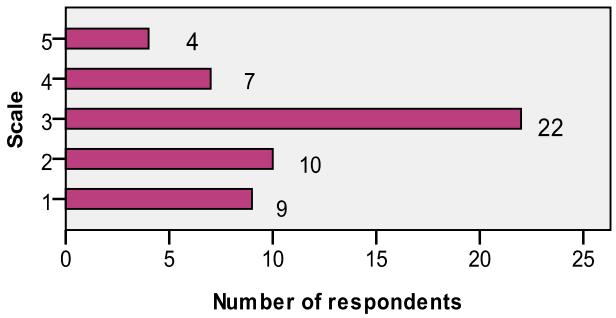
Figure 5.3: Content and timeliness (enable to get precise and up-to-date information when needed)

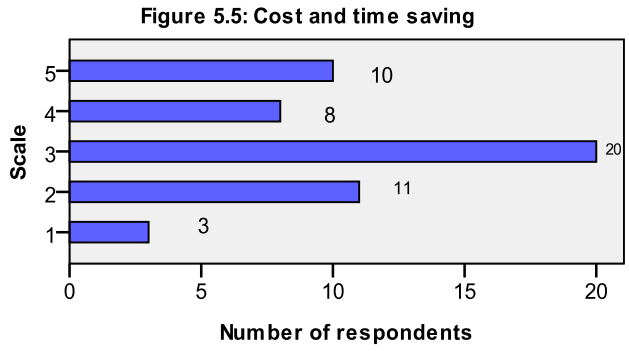


Toward content and timeliness of e-government services 12% respondents express their opinion that they were never able to get precise and up to date information and 31% not very much able to get such information. On the other hand, some 13% respondents express they were quite a lot able and 10% always able to get such information (figure 5.3). Mean value is 2.78 which is lower than overall average mean value (2.91) of three items indicates respondents perception toward content and timeliness is below average.

Regarding transparency 17% respondents express their opinion that they were never able and 19% were not very much able to express opinion through e-government services; on the other hand some 13% believe they were quite a lot able and 8% always able to express their opinion to officials through e-government services. 43% are indifference regarding transparency (figure 5.4). The mean value (2.75) is lower than overall average mean value that is evident of low level of perception about e-government's ability to promote transparency.

Figure 5.4: Transparency (i.e. able to express your opinion to officials)





In relation to cost and time saving, respondents express optimistic opinion. 6% respondents believe that it could never save cost and time and 21% percent not very much sure whereas 15% quite a lot and 19% always believe e-government save their time and money (figure 5.5). Mean value of item on cost and time saving (3.21) is greater than average mean value (2.91) that explains high level satisfaction toward e-government. The empirical data also indicates that there is positive relationship between items in usefulness and items in adoption. The table 5.6 is evident that level of adoption increased with corresponding increase in scale in the items of usefulness of e-government services.

Table 5.6: Usefulness of e-government services and adoption

		computer at home	Internet access	online transaction	Usage
Content and timeliness	Never	83	67	33	33
	Sometimes	89	83	50	56
	Always	100	100	80	80
Transparency	Never	67	56	11	11
	Sometimes	86	82	46	64
	Always	100	100	100	100
Cost and time saving	Never	100	67	0	33
	Sometimes	90	80	45	60
	Always	100	100	90	90

(Source: Questionnaire Survey)

Empirical data shows that 33% respondents used public service online among those who never satisfied with content and timeliness of e-government services whereas 80% used public service online among those who always satisfied with content and timeliness. 11% used public service online among those who rate lowest in transparency through e-government services in term of express opinion to officials while 82% used public service online who rate highest to transparency. Similarly, 33% respondents used public service online among those who never

believe it save time and money whereas 80% respondents use public service online among those who always believe e-government save their time and money. Other items on usefulness have similar indication in relation to relationship with adoption.

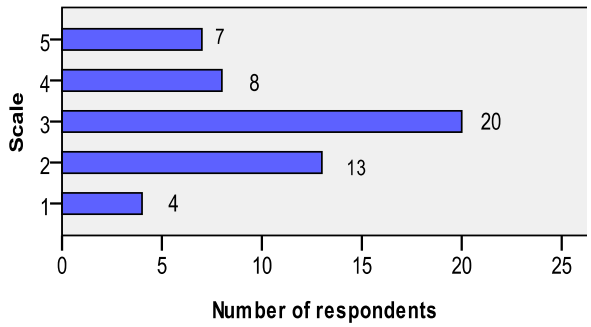
Correlation (Kendall tau b) analysis is presented in appendix 4 which shows that items on usefulness are positively correlated with items on adoption. Respondents were not much influenced by content and timeliness of e-government service for acquiring computer, hence coefficient is lowest among others (r=0.245). The highest coefficient (0.448 at 0.01 levels) between cost and time saving and online transaction (purpose of using internet) has been evident that higher ability of citizen to save time and money by using e-government services induced them to acquire internet for online transaction. The coefficients are greater than 0.3 significant at 0.01 levels shows the relationship has medium in strength.

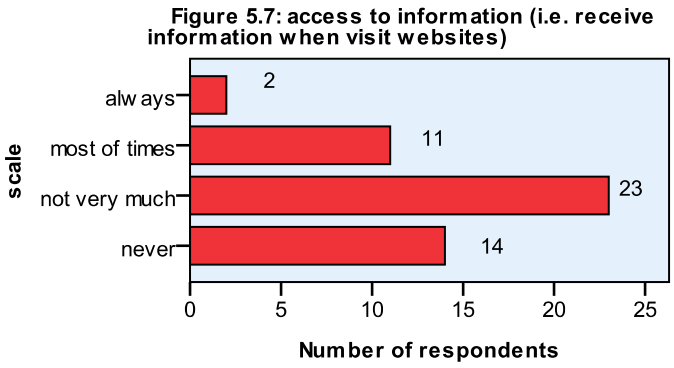
5.3.3. Quality of E-government Services and Adoption

Quality of e-government services could be the concern of users for their acceptance of e-government. Reliable, relevant and accurate information provided by e-government influence their decision to accept e-government (section 2.10.2.3). Two items were taken for measuring user perception regarding quality of e-government services such as quality of information (i.e. e-government services provide accurate, reliable and relevant information) and access to information (i.e. able to get information when visiting government websites). Figure 4.6 and 4.7 show user perception regarding quality of e-government services.

With respect to quality of information, 4% respondents express they never received and 13% not very much received such information. Some 8% respondents express quite a lot and 7% always received such information. 20% were indifference regarding quality of information (figure 5.6). Mean score (3.02) is greater than average mean score (2.98) indicates more than average respondents were satisfied with quality of information.

Figure 5.6: Quality of information (i.e. e-government services provide accurate, reliable and relevant information)





In relation to access to information 28% respondents express they were never able and 46% not very much able to get required information when they visit government websites. On the other hand some 22% were quite a lot able and only 4% were always able to get required information when they visit websites (figure 5.7). Empirical data shows that respondents were not very much satisfied toward accessibility of qualitative information hence mean value (2.94) is lower than average mean value. The cross relationship is examined by cross tabulation. Table 5.7 is an evident that user decision to acquire computer and internet, purpose of online transaction and usage of public services has been influenced by the quality of information and easy access to such information.

Table 5.7: Quality of e-government services and adoption

		computer at home	Internet access	Online transaction	Usage
Quality of information	Never	33	33	33	33
	Sometimes	85	79	42	55
	Always	100	93	60	60
Access to information	Never	90	90	60	70
	Sometimes	86	79	87	57
	Always	78	71	36	36

(Source: Questionnaire Survey)

The table presented above shows that only 33% user acquired computer and internet; used internet for online transaction and used public service online among those who not at all believed e-government provide qualitative information. On the other hand, the percentages of such users were 100, 93, 60 and 60 among those who rate highest scale on quality of information respectively. But, there is negative relation with access to information and user acceptance. For example, 60% users have purpose of online transaction for using internet among those who never get information while only 36% users have purpose of online transaction among those who always receive informed when visit websites. Similarly, 70% users used public service online

who never able to get information when needed whereas 36% used public service online who always able to get information.

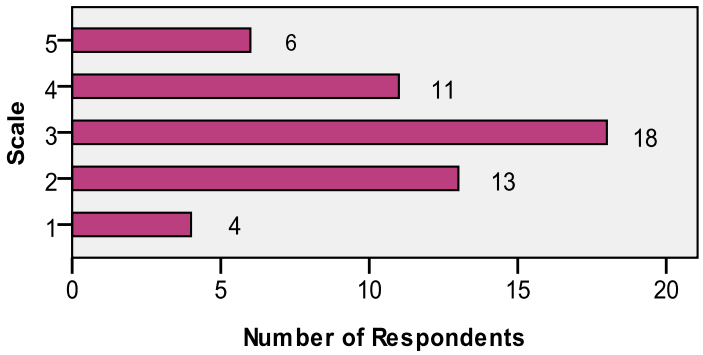
Quality of e-government services is positively correlated with user acceptance, but not all coefficients are significant at 0.05 levels. The correlation coefficient between quality of information and computer at home (.448), quality of information and internet at home (0.390), quality of information and online transaction (0.275), access to information and computer at home (0.343) and access to information and internet at home (0.294) significant at 0.01 levels reveals positive influence on adoption decision. There is no significance relation between usage of public service online and quality of e-government service (appendix 4). But, overall relation of quality of e-government services with user acceptance is positive.

5.3.4. Trust on E-government Services and Adoption

Trust is a broad concept having number of interpretations; however, for the purpose of this study it is used as trust in the internet and e-government system. Protection of privacy, security and its negative consequences could be great concern to user for using e-government system (section 2.10.2.4). Three items were taken for measuring level of user trust on e-government services such as privacy (e-government protect users' privacy); security (transaction is secure when using e-government) and perceived negative consequences of e-government services. Respondents' perception toward these items has been presented in figure 5.8, 5.9, and 5.10 below.

In relation to privacy protection, 8% respondents believe e-government never protect and some 25 % believe not very much protect privacy; whereas 21% believe quite a lot and 12% respondents believe e-government always protect their privacy. 34% are indifference about privacy (figure 5.8).

Figure 5.8: Privacy (e-government services protect privacy when using it)



Toward security of transactions, 8% respondents think e-government never secure their transaction and 27% believe in not very much secure while using it, on the other hand 13% respondents quite a lot satisfied and 12% always satisfied with security of e-government. 40% are indifference about security (figure 5.9).

Figure 5.9:Security (i.e. transaction is secure when using e-government services)

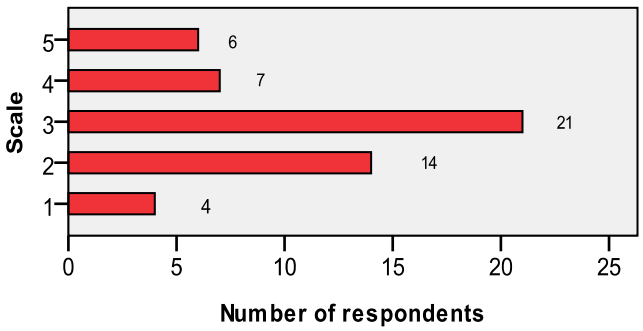
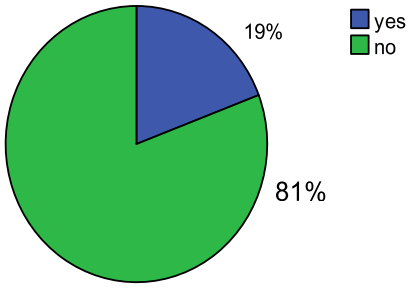


Figure 5.10: Do you think that there could be negative consequences from using e-government services?



About consequences of e-government services, most of respondents believe there are no negative consequences of e-government services. When asked about whether there are negative consequences, only 19% said yes and 81% said no i.e. they were fully convinced that e-government does not produce negative consequences (figure 5.10).

For examining association the cross tabulation analysis is presented below. The table 5.8 is the evident that use of public service online increased according to their corresponding increment in rating about privacy, security and consequences of e-government.

Table 5.8: Trust on e-government services and adoption

		computer at home	Internet access	Online transaction	Usage
Privacy	Not at all	25	25	0	0
	Sometimes	89	78	50	55
	Always	83	83	50	50
Security	Not at all	25	25	0	25
	Sometimes	90	81	38	47
	Always	83	83	50	50
Negative consequences	Yes	50	3	10	10
	No	93	90	55	64

(Source: Questionnaire Survey)

Empirical data shows that 25% users acquired computer and internet among those who never believed that e-government services protect their privacy and secure their transaction, while 83% users had such acquisition among those who believed e-government services always protect privacy and secure their transaction respectively. Similarly, users did not use public services online who never believe that e-government services protect privacy and secure their transaction, while 50% users used public service online who believed e-government services always protect their privacy and secure transaction. 64% used public service online who believed in positive consequences of e-government services while only 10% used public service online who believed in negative consequences of e-government.

However, correlation analysis does not produce similar result as discussed above. User perception toward consequences of e-government has significant positive relationship with adoption, but user perception toward privacy and security does not show significance positive relationship with adoption. User perception on privacy protection does not have significant relationship with all items in adoption. Security is positively correlated with computer and internet at home (0.252), but is not in significant with other items. Consequences of e-government have positive significant correlation with computer at home (0.468), internet at home (0.584), online transaction (0.354), and usage (0.429) at .01 levels (appendix 4). Looking at the appendix 4, consequences of e-government (0.415) is the most influential factors affecting user decision to adopt e-government followed by cost and time saving (0.422), helpfulness (0.375), content and timeliness (0.341), quality of information (0.316), and user friendly (0.305). The following section continues discussion on overall causal relationship among and between dependent and independent variable relating to user acceptance.

5.4. Causal Relationships Among and Between Constructors of User Acceptance

Table 5.9 below shows there is a positive relationship between the e-government adoption and ease of use, usefulness, quality, and trust on e-government services. Usefulness has highest significant contribution on user decision to adopt e-government services (0.447) followed by ease of use (0.314), quality of services (0.30), and trust toward e-government services (0.229). Quality of services and trust in e-government have weak relation with adoption, (hence r≤ 0 .30) and it is medium with rests of variables.

Table 5.9: Correlation Coefficient (Kendall tau b) between and among constructor of User Acceptance

	ease of use	Usefulness	Trust	Quality of services
ease of use	1.000			
Usefulness	.288**	1.000		
Trust in e-government	.339**	.412**	1.000	
Quality of services	.242*	.443**	.336**	1.000
Adoption	.314**	.447**	.229*	.300**

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

N=52

Cross tabulation and correlation analysis described above explain the decision on how and when user decide to use e-government service is largely depends on how they perceive about ease of use i.e. whether e-government services are user friendly and helpfulness; usefulness i.e. content and timeliness of e-government services, transparency and cost and time saving; trust on e-government services i.e. their perception about privacy, security and negative consequences; and quality of e-government services i.e. their perception about quality of information and access to information.

5.5. Summary of the Chapter

In the first part of this chapter, measure of successful policy implementation (dependent variable) has been discussed in term of e-government adoption. It was found that users are highly interested to use e-government system. However their level of adoption still measured in average level due to various reasons. In part two factors influencing user decision to adopt e-government have been discussed. Respondents' perception on these factors was found in average level. Most of respondents were indifference in their perception. In part three causal relationship between and within the dependent and the independent variables have been discussed and try to identify association between them. Ease of use, usefulness, quality and trust on e-government services are positively correlated with their acceptance, but the relationship is medium and weak in strength. Usefulness of e-government service has greatest correlation coefficient with user acceptance among others hence it is the most influencing factor than others.

CHAPTER SIX: DATA ANALYSIS AND PRESENTATION OF FINDINGS: E-GOVERNMENT PERFORMANCE AND POLICY IMPLEMENTATION

6.1. E-government Performance

There are number of ways of measuring public sector performance. Inputs, outputs, outcomes, activities, service qualities and efficiency measure of e-government performance could be the measure of performance. Another measure of e-government performance is in term of its development stage as static or web presence, interactive transactions, horizontal integration, and vertical integration (section 2.10.1.2). The measures of e-government performance for ministries i.e. unit of analysis in this study are derived from the literature review mainly from Melitski (2003) and Stowers (2004).

Table 6.1: Establishment of websites

Established year	No of agencies	%
2000	2	3
2001	2	3
2003	1	1
2004	9	11
2005	3	4
2006	9	11
2007	9	11
2008	10	12
2009	17	21
2010	19	23
total	81	100%

(Source: Website Analysis)

By analyzing websites of ministries and other agencies, most of central government agencies have their own websites. 25 ministries out of 26, 43 departments out of 63, five constitutional bodies, Nepal army, Nepal police, HLCIT, NITC and other central agencies have websites. All together 114 websites have been analyzed for this study. By analyzing present websites of government agencies 81 agencies have mentioned date of commencement of website and 32 agencies provide information of how many visitors visit their website from the beginning. Out of 81 agencies those who have website and commencement date most of them (82%) were established after 2005 and rests of websites were established between 2000 and 2005.

The study found that almost all websites were established after 2000. The year 2000 is that when e-government policy was launched. This scenario indicates that most of e-government activities

were carried out after the policy was adopted. It can be assumed as one of the proxy measure of success of policy implementation. However, there is lack of information in this regards, because some of agencies do not disclose their date of commencement of website and types of services they provide.

Another e-government performance measure is number of user contact session. User contact session was counted in three different time period i.e. in 15 October 2010, 1st January, 2011 and 2nd February, 2011, so as to calculate increment or decrease of visitor of government websites. The table 6.2 presents average number of visitors per day in two different time period. The detail of hit counts of each websites is presented in Appendix 7.

Table 6.2: Visitors of Government Websites

Number of Visitors	**15 Oct. 2010 to 1st Jan., 2011**		**2nd Jan. to 2nd Feb., 2011**	
	No. of agency	%	No. of agency	%
up to 50	11	34	8	25
51 to 100	7	22	4	12
101 to 500	11	34	16	50
501 to 1000	1	3	1	3
1001 to 3000	1	3	1	3
3000 and above	1	3	2	6
total	32	100%	32	100
Average visitor	481.39/day		568.35/day	

(Source: website of government agencies)

Average visitors of all agencies from 15 October 2010 to 1st January, 2011 was 481.39 per day and from 2nd January, 2011 to 2nd February, 2011 was 568.35 per day. The total visitors of all government agencies were counted 8.8 million in 15 October, 10.1 million in 1st January, and 10.8 million in 2nd February, 2011. When analyzing agencies website those disclosed user contact session 34% agencies have less than 50 visitors per day; around 50% agencies have less than 100 visitors per day; above 100 to 500 visitors have been visiting around 34% agencies' websites and there were only 12% websites visited greater than 1000 visitor per day. This figure was counted during 15 October, 2010 to 1st January, 20011. Similarly, during 2nd January to 2nd February, 2011, less than 50 visitors visit

25% websites which is 9% below than previous count. Similarly, 37% websites have less than 100 visitors and 50% agencies have above 100 to 500 visitors.

The highest visitors were of Public Service Commission (more than 10,000/day) followed by Nepal Army (3900/day) and Nepal Law commission (2500/day). The highest number of visitor of Public Service commission could be because of job information and exam results. The analysis of government websites indicates that the policy was successfully implemented in term of website development and information available on websites. Visitors were increasing because of increased access to information and higher level of adoption. However, there was lacking in regular update and security of websites; it was found while analyzing websites some of them were not updated from one year and some of them were found hacked.

Most of the websites provide static information and downloadable material, feedback mechanism and some of agencies provide transactional services too. Static information mainly contains as policy, program, functions, organizational structure, personnel, progress report, notice, citizen charter and other relevant information. The downloadable materials include policy paper, forms, laws and regulations, periodic plans, publications, and other relevant information. When analyzing 114 websites of various agencies, there were 3036 static information, 4568 downloadable material, 123 communications (e-mail, feedback and contact information) and 78 transactional services (appendix 7). Most of these services fall in stage I and II of maturity level of e-government. According to ARC report 2010, though the activities in e-government development and deployment have increased, there is still lot of thing need to do to make e-government in transactional phase. Similarly, Secretary of MoIC expresses his opinion in interview that *'though there is still shortcoming in e-government policy implementation due to lack of clarity of responsibility and coordination, the policy is moderately successful in developing e-government in Nepal. We start almost from nothing in 2000 and achieve some material result in this field improving infrastructure and web application'.*

The success of e-government policy implementation could also be measured by assessing effectiveness of e-government implementation and overall development of e-government as shown in table 6.3. Civil servants were asked to rate effectiveness of e-government

implementation in their organization and e-government users were asked to rate overall development of e-government in Nepal.

E-government users were not very much satisfied with the overall development of e-government in Nepal. Only 6% users believe the pace for e-government development is very good whereas 37% feel it is poor. 43% users express the pace for development is average in the country. Similarly, when civil servant were asked to rate effectiveness of e-government implementation in their organization 33% rate most effective while 36% rate not at all effective (table 6.3).

Table 6.3: Overall Development and Implementation Effectiveness

Development	Freq.	%	Effectiveness	Freq.	%
Very good	3	6	Not at all effective	14	36
Good	4	8	Not very much effective	9	23
Average	22	43	Indifference	7	18
Poor	19	37	Quite a lot effective	4	10
Don't know	3	6	most effective	5	13
Total	51	100	Total	39	100

(Source: Questionnaire Survey)

Table 6.4: Overall Impact and Achievement of E-government Policy in Nepal

	Freq.	%
good	5	11
average	9	19
poor	33	70
Total	47	100
How far objectives of e-government policy have been met?		
Yes	3	7
No	34	75
Don't know/no comment	8	18
Total	45	100

(Source: Questionnaire Survey)

Two subsequent questions were asked to policymaker/academicians and civil servants about their views in relation to overall impact and achievement of e-government implementation. Respondents were not satisfied with implementation of e-government policy in Nepal. 70% believe overall impact of e-government policy for the development and deployment of e-government in Nepal is poor and only 11% believe it is good. Similarly, 75% express their opinion that e-government policy does not meet its objectives and only 7% believe it has been met its objectives (table 6.4).

On the basis of empirical data presented and discussed above, it is hard to draw conclusion that whether the e-government policy was implemented successfully or not. In term of citizen adoption (demand side), it is in increasing trend. Users are interested to use e-government services. They frequently visit government websites for getting services mainly for information (job and other), download form, law and regulations. In term of e-government performance (supply side), most of the websites of government agencies were established after implementing e-government policy in 2000. The contents, types of services and the numbers of visitor are in increasing trend. However, the pace for e-government development is slow; information does not meet the requirement of citizen; websites are not updated regularly; and efforts were made in isolation. Even policymaker/academician and civil servant were not satisfied toward its pace for development. They believe, e-government policy does not meet its objectives and overall impact of e-government policy for developing e-government in Nepal is poor.

6.2. Factors Influencing E-government Performance and Policy implementation

There are number of influential factors in policy implementation process that shape performance of e-government in term of various measurable components. E-government measurements have discussed earlier. In this section attempts have been made to discuss on factors that affect e-government performance and policy implementation based on the interactive policy implementation model presented by Grindle and Thomas (1991). The model argues that most policy processes consist of three sets of activities- agenda setting, decision making and implementing in which reform issues come from many sources on the policy *agenda* for action; some issues attract policymakers attention and *decision* making activities takes place; once, the decision is made it needs to be *implemented.* However, once the affirmative decision is made, it may be revised at higher level or at some point of implementing process.

6.2.1. Agenda Setting

Agenda setting is initial stage of policy making process. It is the process to put issues into government notice. Grindle and Thomas (1991) describe issues come into the notice when crisis situation exist and policymaker initiation as politics as-usual situation (section 2.4.2). When discussing e-government policy in Nepal, more or less it stands as politics-as-usual. However,

there were some pressures for adopting e-government policy in Nepal. For example, when Nepal liberalized after 1990 many policy initiatives were taken for reform. The concept of good governance, transparency and accountability create pressure on government for improving service delivery. As discussed in section 2.7 most of the governments all over the world use e-government as a powerful tool for improving quality of public service, improving transparency and accountability, reducing corruption, increase efficiency, saving time and money, improving communication and coordination between agencies. In this regard, pressure for better and efficient government led to adopt e-government policy in Nepal. Most of the public services in Nepal are ineffective due to lack of modern technology they used during their operation. E-government is not end in itself, it is assumed as leverage for betterment. Ineffective public services demand more initiatives on e-government for improvement (eGMP, 2006).

Another factor that creates pressure for reform was massive use of ICT in private sector as demonstration effect. Their capacity of software development creates pressure on government to use technology in its business too. However, these pressures were not crisis-ridden but cognitive pressure for betterment. Non-crisis reforms are characteristics as decision makers has opportunity to take up the initiative or ignore it; bureaucratic agencies actively engage in supporting and opposing reforms; initiatives are considered more or less routine matter; and changes is largely incremental; and no pressure for 'do something' at short time (Grindle and Thomas, 1991).

6.2.2. Decision Making and Policy Characteristics

Decision making is important stage for any policy and it does not happen suddenly. Different actor play different role according to their interest. There may be number of criteria for choices. Thomas and Grindle (1991) argue that decision maker elites filter policy options through at least four lenses: technical advice they receive, impact of choices on bureaucracy, implications on political stability and support and relations with international actors (section 2.4.2). As discussed earlier in non-crisis decisions bureaucratic implications are important concern for policy elites. Empirical finding of this study support this argument that 58% respondents believe that high level officials are most influential actors in adopting e-government policy in Nepal (table 6.5). However, technical advice has sufficient influence on decision making relating to e-government policy. For example, there were active involvement of foreign advisor while formulating e-

government policy 2000 and e-government master plan 2006 along with Nepalese experts (e-GMP, 2006).

6.2.3. Actors

Actors can be an individual or groups in the policy process. Elected officials, appointed officials, interest groups, research organizations and mass media could be some of actors in the policy process. However, not all general groups involve in policy process of a particular policy. The composition of elite actor may be distinct for different policy. For example, if the policy issue is related to e-government, the most prominent actors are likely to be minister and secretary of MoST and MoIC and Member of HLCIT in Nepal. In contrast, in case of agriculture issue minister of agriculture and his division chief will be key actors in the policy process (section 2.4.2). The respondents from policymaker/academician and civil servant were asked about who were the most influential actors in adopting e-government policy in Nepal. The table 6.5 presents their highest preference about influential actor.

Table 6.5: Actor and Their Role in Adopting E-government Policy in Nepal

Political leader		**Higher level officials**		**Donor community**		**Private sector**		**Others**		**Total**	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
7	16	26	58	4	9	4	9	4	9	45	100

(Source: Questionnaire Survey)

Majority of respondents (57%) believe that the most influential actors in adopting e-government policy in Nepal are higher level government officials followed by political leader (16%). Their responses toward role of other actor in the policy process are less applicable in adopting e-government policy in Nepal. Bureaucratic arena will be most influential in the change process if the policy involves high technical/administrative contents (Grindle and Thomas, 1991). Due to the technical content of e-government policy high level bureaucratic especially IT experts were largely involved in the policy process. However, contribution of donor agencies was seen in adopting e-government policy. One of respondent during interview expresses his opinion that while formulating e-government policy technical assistance from ADB and Korean government was taken. In short it can be argued that all actors in the policy arena have influence on policy process, however most influential role is of bureaucrats especially IT experts.

In late 1990 when policymakers realized that the computer systems on which they had become dependent to manage public programs might not be able to recognize the year 2000 which named Y2K. Public organizations all over the world began investing in IT initiatives to solve Y2K problem. As a result of increased budget and effort on IT development, IT managers gained influence and become the part of decision making process (Melistki, 2003). In this view it can be justified that bureaucrats especially IT specialist have much more influential role in e-government policy making process in Nepal.

In relation to implementation of e-government policy in Nepal respondents from civil servant and policymaker/academician believe that higher level government official (40%) are most influential actors in implementing e-government policy followed by middle level officials (23.2%), e-champion (9.3%), front line personnel (7%) and private sector (7%). The table 6.6 presents details of respondents view on role of actors.

Table 6.6: Actors and Their Role in E-government Policy Implementation

Political leader		**Higher level officials**		**Middle – level officials**		**Front line personnel**		**e-champion**		**Private sector**		**Total**	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
6	14	17	40	10	23	3	7	4	9	3	7	43	100

(Source: Questionnaire Survey)

6.2.4. Implementation Arena and Reaction and Response

The policy decision cannot be assumed free from support and opposition. Grindle and Thomas (1991) explain these supports and oppositions come from public and bureaucratic arena according to characteristic of policy. Dealing with these support and oppositions the policy intension would be converted into reality through implementation. Political, financial, managerial, and technical resources needed to sustain reform initiative (section 2.4.2). As discussed earlier e-government policy is characterized as non-crisis policy initiative, the reactions and responses are likely to come from bureaucratic arena. One of member of High Level Commission for Information Technology expressed his opinion as:

"When e-GMP was finalized with technical and financial support from ADB and Korean Government in 2006, the next process began to implement identified projects. There were altogether 33 projects identified in e-GMP and estimated cost of the projects was 61.5 million US Dollar. World Bank was ready to finance in the projects on the basis of loan plus grant. But Ministry of Finance was not convinced to take loan in this sector. They argued that ICT sector was not in priority to take loan. Finally, only eight projects were selected for implementation."

In this view it can be argued that the reaction or support comes from bureaucratic arena in case of e-government policy in Nepal. IT experts and administrative staffs involving in the development and deployment of e-government support e-government initiation, but other administrative staff oppose or indifference in this regard.

6.2.5. Legal and Institutional Arrangement

After adopting e-government policy in 2000, the government made necessary legal and institutional arrangement for implementing policy. As discussed on Chapter Four, an act was promulgated for electronic transactions in 2006 after six year of country's adoption of e-government policy. Before its promulgation it came into existence by ordinance in 2005. Good Governance (Operation and Management) Act 2008 and Regulations 2009 have also made some of provisions relating to employ e-government initiatives in Nepal. High Level Commission for Information Technology (HLCIT), Ministry of Science and Technology (MoST), National Information Technology Center (NITC), Ministry of Information and Communication (MoIC), Office of the Controller of Certifying Authority are main responsible agencies for the development and deployment of e-government in Nepal.

However, eGMP 2006 identified insufficiency of present legal arrangement. According to eGMP the government should establish a systematic foundation to accelerate change resulting from growing usage of ICT. So it is first necessary to institutionalize and reform related laws and systems. For this the government should create laws on information promotion, e-government creation, information disclosure, promote software industry, promote online digital content industry, e-transaction, automation of trading, intellectual property rights, personal information

protection, e-signature, ICT networks usage(e-GMP, 2006). Respondents were asked about sufficiency and conduciveness of the present legal and institutional arrangement; the result has been presented in figure 6.1 and 6.2.

With respect to sufficiency of the present policies, statutes and regulations majority of respondents (61%) believe it is not sufficient. Some 27% respondents believe it is sufficient. 12% were indifferent. The figure 6.1 is evident that majority of respondents believe that present policies, status and regulations are not sufficient for promoting e-government. This result confirms e-GMP's finding regarding regulatory arrangement.

Figure 6.1: Do you think that existing policies, statutes and regulations are sufficient to promote e-government in Nepal?

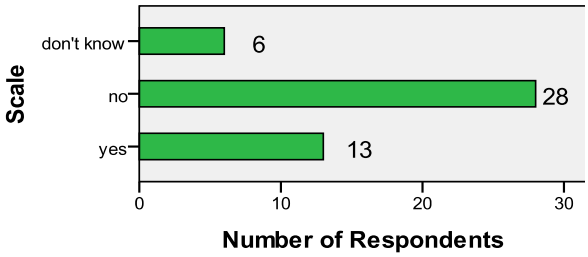
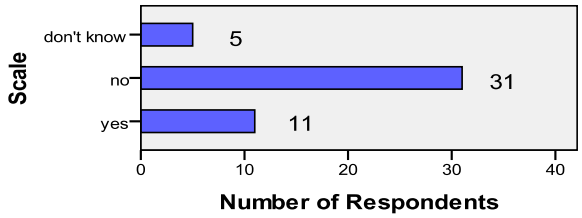


Figure 6.2: Do you think that present legal and institutional provisions are conducive for the successful implementation of e-government policy in Nepal?



In relation to conduciveness of present legal and regulatory arrangement 66% respondents believe legal and regulatory provisions are not conducive to successful implementation. Only 23% think it is conducive for effective implementation of e-government.

Secretary of Ministry of Information and Communication expressed his opinion in interview relating to legal and institutional arrangement as:

> *"Electronic Transaction Act is mile stone in e-government development; however the present legal and institutional arrangement is not sufficient for the development of e-government in Nepal. There is debate on whether MoST or MoIC is the most appropriate responsible line agencies for e-government development and deployment. It is better to assign responsibility to MoIC, because it is responsible for ICT infrastructure development which is essential for e-government too".*

On the other hand Secretary of Ministry of Science and technology satisfied about present institutional arrangement, however, it is essential to pay attention for strengthening their

capability to develop and deploy e-government initiatives. Similarly, respondents were asked if the present policies, statutes and regulation are not sufficient, what changes are required in the policies, status and regulations. The summary of their views in presented in box 1.

Box 1: Suggestive argument of respondents

- Digital signature should be implemented. It is the foundation for all types of policies to be implemented.
- There should be provisions of mandatory application of e-governance procedures as far as possible. Every aspect of automation and e-process must be addressed by the policies and regulations.
- Strong law on e-government is imperative.
- IT Policy should be implementable, security in e-environment should be assured, and proper capacity should be developed.
- Need to change the mindset of the government employee. Strict implementation of policies and regulation is very important.
- Responsibility should allocate clearly
- Nepal nonetheless has basic legal and regulatory provisions in place for e-government. Attention needs to be given on assessing enforcement mechanisms for such instruments where gaps are evident. For example, even though we have Digital transaction act, Nepal has yet to witness formation of institutions to implement the provisions of the Act, like Cyber tribunal etc.……

6.2.6. Leadership (E-champion)

Supply side and demand side explanation of e-government implementation is essential for establishing relationship between e-champion and e-government performance. Policy success does not mean availability of e-government services; rather it is the concern of content, quality, security, privacy, and of interface e-government services. Similarly it is the concern of users knowledge about these features and their intention to adopt it. If government supply e-government services according to users requirement and if people adopt it, then we can say policy is implemented successfully. In the supply side there are influential group of people who made e-government service available with sufficient content, quality, security, privacy, and interface to the users; and they also make people aware about e-government services.

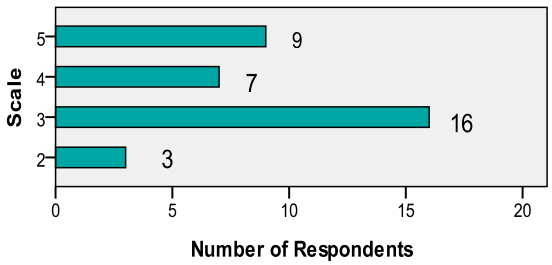
E-champions are assumed as a strategic group of people inside and outside the government. There are e-government focal person in each ministry and they become informal group of e-champion.

HLCIT and MoST coordinate their monthly meeting. They discuss on various issues relating to e-government implementation and try to create conducive environment for implementation. Similarly, a group of voluntary members (FOSS Nepal Community) are also working in this field. They involved promoting e-government activities jointly (section 2.8).

The respondents were proposed a statement defining e-champion and their role in an organization for their agreement or disagreement, the statement as *'e-champions not only the person or group of persons who have technical as well as managerial skill, but also have strong desire, commitment and initiation to develop and implement e-government application.'* Role of e-champion in an organization comprised of knowledge management, change management, e-government marketing, and e-government advocacy.' 60% respondents are agreed with this statement, 13% disagreed, 19% agreed but suggest redefine it and 2% were unknown about it.

One of respondent redefines the concept of e-champion as '*e-Champions are basically change agents who are passionate about leveraging ICTs to achieve goals of agency transformation and driving efficiency through the system. They do as such have strong desire and commitment to see e-government applications deployed successfully. They by nature tend to mount advocacy thrust to secure buy-in from higher-ups in the bureaucratic echelons for making strategic use of ICTs to achieve organizational objectives'* (questionnaire survey). This statement is more or less similar to proposed concept of e-champion with some new features such as e-champions are the player who makes sure of strategic use of ICT in an organization. The role of e-champion during preparation of e-GMP and project selection was visualized more precisely. A member of consultant of e-GMP preparation project mentioned his view in interview that *'it was e-champion who shape e-GMP and will shape its future implementation.'*

Figure 6.3: How do you perceive the role of e-champion for developing and implementing e-government systems in Nepal?



When respondents were asked about e-champion's role in development and implementation of e-government, 26% respondents believe that their role is most important; 20% believe quite a lot important and only 9% believe not very much important. Not a single respondent believes e-champion's role as not at all important. Around 46% respondents are

indifference regarding the role of e-champion (figure 6.3). In summary, respondents believe that the role of e-champion is to some extent important for developing and implementing e-government successfully. However, One of respondents expresses his opinion that "…*In Nepalese context the role of higher level bureaucrats is crucial rather than e-champion in terms of adopting the changes and creating environment including persuading political leaders.…"*

Another respondent mentioned that in "*Nepalese Context, we have not reached in that level to create e-champion groups to implement e-Governance. In my personal observation and experience, success of e-government largely depends on how efficiently we use the current employee using ICT in office work. Unless, every employee of the organization realizes it, it will not take momentum. However, there is very good development in Nepal that at this point that each employee has shown interest in learning computer. The need for this hour is to consolidate the desire of the employee towards institutional goals"*. From the above discussion, it can be conclude that the role of e-champion is important for the development and deployment of e-government except in some exception.

6.2.7. Policymaker and Managerial Understanding and Willingness

Policymaker and managerial understanding about what e-government can do for improving public service, improving efficiency, transparency, accountability in public affair and their willingness to pay sincere effort for implementing e-government could be highly influential factor for successful implementation. It is believed in Nepal that policymakers especially high level official of government are not much aware about power of e-government for improving governance, hence they do not pay their sincere effort for e-government development rather pay lip service.

To identity respondents' view regarding policymaker and managerial understanding two types of response were requested in this regard as: whether it is prerequisite for success of policy implementation or barriers to implementation. Empirical data indicates that 55% policymaker/academicians believe that policymaker and managerial understanding and willingness is a prerequisite for successful implementation. If there is lacking this behavior converts into barriers. However, only 32% civil servants believe that their understanding and willingness will be prerequisite, but in relation to barrier 54% civil servants believe they become

barrier if there is lacking of sufficient understanding and willingness (table 6.7 and 6.10). In this view policymaker and manager need to be aware and internalize about how e-government could produce better government and their willingness to pay sincere efforts also matter in implementation.

Most of high level bureaucrats are not familiar with the concept of e-government said Secretary of MoST in interview; and their traditional mind set need to be changed for developing and deploying e-government initiative. He also mentioned that various activities have been carried out, for example, workshop for behavior change, computer training for higher officials, parliamentarian etc. for improving their knowledge in this field and initiating them for change. As a result, some of young parliamentarians have shown immense interest in development of e-government in Nepal. Gagan Thapa, one of the popular political leaders among youth, has been lobbying in the Assembly and Government to place ICT in priority sector. According to him ICT should be assimilated with each developmental activity, it should not be treated as separate developmental issues (eictnepal, 2010).

6.2.8. Barriers to E-government Implementation in Nepal

A favorable environment is being created for e-government throughout the world, but e-government development and deployment is not free from constraints and challenges. There are number of challenges associated with e-government implementation all over the world. As mentioned earlier there are only 15% success rates in e-government project and failure of e-government creates burden of direct and indirect cost to the government (section 1.2). This section mainly deals with obstacles and prerequisites encountered with e-government in Nepal that were noticed by our respondents and other sources such as published reports, study reports and civil servants' perception toward competing values regarding e-government. Hence, the section is a combination of facts and opinions of the respondents.

Backus (2001) examine the challenges of e-government for developing countries in term of political aspects, economic aspects and technological aspects. Political aspects related to e-government include 'strategies and policies, laws and legislation, leadership, decision making processes, funding issues, international affairs, and political stability'. Economic aspects related

to e-governance are 'funding, cost savings, business models, e-commerce, and spin-offs of e-governance'. And technological aspects involve 'software, hardware, infrastructure, telecom, IT skilled people, and maintenance, safety and security issues'. Similarly, barriers e-government could be grouped into legislative, financial, managerial and technological barriers.

Thomas and Grindle (1990:1166) have also mentioned some implementation-related issues that affect the implementation of policies. They argued the effect of the change become more visible when implementation proceeds which create support and opposition from affected persons or actors. According to them the distribution of costs and benefits of a policy, its administrative intensity, its short-or-long-term impact, and the degree to which it encourages participation determine whether the reaction or response occurs in public or bureaucratic arena. E-government policy implementation is a long-term policy issue and takes a long time to implement in full scale. So the barriers discussed here are the problem encountered in the process of e-government implementation as shown in table 6.7.

Table 6.7: Barriers to Policy Implementation

	Policymaker / academician (N=11)		Civil servant (N= 36)		Total (N=47)	
	Freq.	%	Freq.	%	Freq.	%
Lack of support from politician	5	50	6	19	11	26
Lack of policymaker and managerial understanding and willingness	6	54	19	54	25	54
Lack of technology	1	10	2	7	3	7
Lack of sufficient and efficient human resources	3	27	3	9	6	14
Lack of leadership(e-champion)	2	18	4	12	6	14
Civil servant mindset	4	36	8	23	12	27
Digital divide			1	3	1	2
Lack of financial resources			2	7	2	5
Lack of collaboration and cooperation among departments	1	9	3	10	4	10
Lack of specified policy for e-government			1	3	1	2

(Source: Questionnaire Survey)

Policymaker/academicians and civil servants were asked to order their preference relating to some of obstacles/barriers encountered with successful implementation of e-government policy and specify other obstacles if they perceived. Some of respondents rate their highest preference to more than one item. The respondents' highest preference regarding barriers to successful e-government implementation is presented in the table 6.7.

Lack of policymaker and managerial understanding and willingness (54%), lack of support from politician (50%) and civil servant mind set (36%) are mostly perceived barriers by the policymaker/academician. Furthermore, according to them lack of sufficient and efficient human resources (27%), and lack of leadership (18%), lack of technology (10%), and lack of collaboration and cooperation among departments (9%) are other barriers to e-government implementation. Similarly, the highest numbers of civil servant perceive lack of policymaker and managerial understanding and willingness (54%) as barriers to e-government implementation. Other barriers, according to civil servant, are civil servants mind set (23%), lack of support from politician (19%), lack of leadership (12%), lack of collaboration and cooperation (10%), lack of sufficient and efficient human resources (9%), lack of financial resources (7%), and lack of technology (7%). Digital divide (3%) and lack of specified policy for e-government (3%) are least influential barriers to e-government implementation, according to civil servant. The problems that respondents pointed out have been classified into different groups and discussed in brief in the following sub-sections. Both groups perceive policymaker and managerial understanding and willingness, civil servant mind set and lack of political support as most influential barriers.

A. Problem Related to Political Resources

Most of the respondents perceive the greatest barrier to successful e-government is lack of support from politician. 50% policymaker/academician and 19% civil servant rate lack of support from politician as barrier to e-government implementation. There could be number of reason regarding low level of political support. Most important reason behind lack of political support to Anup Baskota, director of NITC expressed in interview, is lack of political stability and commitment. According to him other barrier could be managed and are under the control of technocrat especially technical matter, but political stability and their commitment is far from bureaucratic capability. He further mentioned that only 2% of total budget has been allocated in

e-government development and for such insufficient resources how could accelerate e-government activities in the country. It is mainly due to lack of political support and commitment. Similarly, secretary of MoIC mentioned in interview about barriers to e-government as lack of political commitment; lack of better environment for investor; low priority given to e-government. Donors are willing to support in e-government development but it is difficult to materialize due to lack of clear work division to whom they can contact. He further mentioned that there is no strong demand side in this sector that creates pressure to develop e-government services.

According to Grindle and Thomas (1991:100-101) decision makers supposed to protect the interests of particular organization. They also seek the political support from the regime they represent or from its leadership. Political instability is the prime pre-requisites for the successful implementation of any policy. For example, in Nepal, since the restoration of the multiparty system in 1990, in total 19 governments of different forms, structures and ideologies have come into power, even four different types of government in one year (appendix 5). Frequently, change in government undermines political support for smooth functioning of e-government activities in the country. It also undermines to manage resistance to change behaviors of civil servant.

Another political resource for implementing reform, according to Grindle and Thomas (1991), is organized group of people who support and oppose policy. The group of people inside and outside the government creates favorable pressure for adopting e-government policy and its implementation. The e-champions were assumed as such coalition groups who create pressure for e-government development; make people aware; and enhance demand side. A computer officer of MoGA in interview remembers that the success of Personnel Information System in office of Civil Service Record was because of such key player's initiation despite of top level bureaucrat's enough understanding and willingness. 18% policymaker/academicians and 12% civil servants perceive lack of leadership (e-champion) is barriers to successful e-government implementation (table 6.7). Similarly, when respondents were asked whether the role of e-champion is important in successful policy implementation around 46% believe their role is important; some 45% are indifferent; and only 9% believe not very much important (figure 6.3). Mahibir Pun, a Magasese

Prize winner, social workers who engaged in developing ICT in Rural area in Magdi district mentioned in a talk show organized by BBC Nepali Service on 31st January, 2011[6] that politician has different priority than IT. They prefer to talk about road, water and sewage, hospital etc than information technology. If they give due priority to ICT, information highway can be developed within two three years.

B. Problem Related to Managerial Resources

Managerial resources are important for smooth e-government initiation in the country. One of respondents mentioned that *'the Government must focus on the management, storing and updating of official data so that the people gradually rely and practice on it'*. Similarly, another respondent suggests '*E-government is more management than technology. So emphasis should be on creating critical mass who believes on e-government.'* Lack of efficient and sufficient human resources, lack of collaboration and coordination among departments, lack of policymaker and managerial understanding and willingness, and civil servant mindset could be grouped into this category. Most of the respondents- 54% policymaker/academician and 54% civil servant- perceive policymaker and managerial understanding and willingness is imperative to accelerate pace for e-government development and deployment (table 6.7). According to Secretary of MoST, however, the efforts were paid to create awareness in top level bureaucrats, but their level of understanding and willingness is still in low level regarding e-government. He further mentioned that it could be because of failure of making them realized e-government as key instrument of accelerating success in other social and development area. E-government should be tied up with poverty reduction, peace and security etc which are priority sector for the government. Similarly, for Korean advisor in NITC, officials and corruption are most influential barriers to e-government development and deployment (interview).

Lack of sufficient and efficient human resources is another problem in developing e-government in Nepal. According to CAN National IT Workforce Survey 2005 there are around 4,000 IT workforce in the country and the number of IT manpower is expected to reach some 7300 within the next five years, by the end of 2010. Of which, only 44% workforce are graduate or greater

[6] Available at http://www.bbc.co.uk/nepali

educational degree (e-GMP, 2006). In government sector there are hardly 100 high skill workforces who are responsible for technical solution said computer officer of MoGA in interview. Empirical data shows 27% policymaker/academician and 9% civil servant perceive lack of sufficient and efficient human resources are barriers to e-government implementation in the country (table 6.7). One of participant in talk show organized by BBC Nepali Service on 31st January, 2011[7] states that the government websites were hacked 126 times before. This is mainly because of lack of efficient human resources in government sector.

There is problem of integrating different system due to their isolated effort which will create great problem in the future. Due to lack of collaboration and cooperation among departments, duplication of efforts and resources frequently occurs. There is also issue of clear responsible agencies regarding e-government development and deployment. As mentioned earlier, Secretary of MoIC feels lack of collaboration and cooperation among department due to lack of clear responsibility given to particular agency. 9% policymaker/academicians and 10% civil servants believe collaborative and cooperative effort of department is essential for successful e-government implementation (table 6.7).

Civil servants in Nepal assumed as status quo oriented. It is may be due to lack of confidence and perceived fear for loosing opportunity, they intentionally create resistance to change. Performance is not become strong criteria for reward and punishment. It is the criteria only in word, not in practice. According to Jamil and Dangal (2009) nepotism, favoritism and personal contact (Chakari, Chaplusi and Afno manche) are strong mechanisms for getting undue favors and privileges. Such administrative culture develops status quo-oriented behavior. They don't want to take risk of failure of doing new and innovative job. 36% policymaker/academician and 23% civil servant believe that civil servants' positive mindset is essential for e-government development (6.10). If civil servants internalize and take ownership of the system, its sustainability will certainly be increased. A computer officer in MoGA said financial information system used successfully in office of financial Controller; Personnel Information System (PIS) in office of

[7] Available at http://www.bbc.co.uk/nepali

Civil Service Record, but Vehicle Registration System in Transport Management Office was failure due to resistance created by personnel.

C. Financial Resources Related Problem

Lack of financial resources is also a problem in developing e-government system in Nepal. Lack of financial resources e-government activities could not be carried out efficiently. As mentioned earlier, only two percent budget was allocated to e-government development which indicates less priority given to this sector. However, according to secretary of MoIC donors are willing to support for the development and deployment of e-government, but due to lack of specified responsible agencies and low priority given to e-government sector, the donor assistance could not be utilized properly(interview). Empirical finding shows that respondents did not assume lack of financial resources as influential barriers; only 7% civil servant perceive lack of financial resources as barriers to e-government implementation (table 6.7). The concept of PPP was incorporated in e-government policy for better management and financial sustainability of the e-government project, but the concept is not implemented properly. Former president of CAN in a talk show (organized by BBC Nepali Service on 31st January, 2011)[8] said that the private sector has played excellent job in developing ICT in the country; we are ready to invest more financial resources in this sector, but the government should recognize ICT sector as industry and should facilitate accordingly.

D. Technical Resources Related Problems

As discussed earlier e-government policy implementation mainly contains technical/managerial component than political. Both managerial and technical resources should manage properly for successful implementation. According to Grindle and Thomas (1991) the capacity of technical analysis is an important resource for implementing reform. Capacity of technical analysis as well as ICT know-how and capacity of developing system and providing support are important for e-government policy. Digital divide and lack of technology were placed as barrier to the respondents for their rating. 10% policymaker/academicians and 7% civil servants perceive lack

[8] Available at http://www.bbc.co.uk/nepali

of technology as strong barriers but only 3% civil servants perceive digital divide as strong barrier (table 6.7). However, regarding digital divide, one of respondent expressed his opinion as "*there is already a digital divide between the peoples within the country. The e-governance will, instead of bridging it, widen it. The deprived class will always be using same traditional service.* Similarly, another respondent mentioned that *'in Nepal most of general people have no access with computer and Internet facilities. Only few higher level of personnel, businessmen, IT-professionals are enjoying Net facilities and on -line services'*. Again, one of the respondents indicates digital divide may create dissatisfaction towards governance (questionnaire survey).

As mentioned in Chapter Four there are 14.56 mobile user per 100 and 6.78 percent internet user in the country. The figure shows there are big number of population away from internet and mobile service which indicates strong digital divide between those having access to IT and hot having such access (i.e. e-have's and e-have not's).

6.2.9. Necessary Prerequisites for E-government Implementation in Nepal

Policies have been made for putting into action. Policies cannot be implemented automatically. The political, financial, managerial and technical resources need to be strategically mobilized for sustaining reform initiatives. They also recognize that policies might be revised during implementation according to reaction and response from the public and bureaucratic arena (Grindle and Thomas, 1991). Only administrative actions and organizational arrangements need not to map. 'If political feasibility is a problem, one can describe the major political actors and the agreements necessary among them at each level. If the implementation of policy require adoption of some form of technology (for example, emission controls, medical equipment); one can describe the state of technology necessary at each stage' (Elmore, 1980:603).

The implementation of e-government policy in Nepal has encountered so many problems that have discussed in the previous sub-section. Here, the attempts have been made to find out necessary prerequisites for effective e-government implementation. The policymaker/academician and civil servant were asked to express their opinion regarding what could be the most important factors to be considered while implementing e-government policy. The table 6.8 shows their highest preference on factors needs to consider while implementing policy.

Table 6.8: Prerequisites for Effective E-government Implementation						
Prerequisites	Policymaker/ academician (N=11)		Civil servants (N=36)		Total (N=47)	
	Freq.	%	Freq.	%	Freq.	%
Conducive political and legal environment	4	36	8	24	12	27
Strong Political Support	6	54	13	36	19	40
Strategic planning for e-government	3	27	13	36	16	34
Policymaker and managerial understanding and willingness	6	55	11	32	17	38
Coordination and cooperation among departments			4	12	4	9
Developing internal leadership (e-champion)	2	18	2	6	4	9
Infrastructure development			1	3	1	2

(Source: Questionnaire Survey)

Political support (40%), Policymaker and managerial understanding and willingness (38%), strategic planning (34%), and favorable political and legal environment (27%) are mostly perceived important prerequisite for successful policy implementation. Coordination and cooperation (9%), developing internal leadership (9%) and infrastructure development (2%) are other prerequisites for successful e-government implementation to the respondents. However, to NITC advisor expressed opinion in interview, funding is the most essential prerequisite for success of e-government in Nepal.

Similarly, respondents were asked to rate their preference to influential factors/issues important for the development and deployment of e-government in Nepal. The table 6.9 shows their highest preference for the issues. Civil servant mind set (54%), strategic plan (36%), inter departmental coordination (30%), support from political leader (30%) and personnel issues (30%) are mostly perceived issues by policymaker/academician for the development of e-government in Nepal. Similarly, strategic plan (33%), support from political leader (26%), organizational culture (23%) and mind set of civil servants were highly perceived issues by the civil servants. Strategic orientation, civil servant mind set and political support are most important to both respondents. Similarly, for NITC advisor expressed his opinion in interview, willingness to accept changes i.e. civil servant mindset is most important issues for the development and deployment of e-government in Nepal.

Table 6.9: Influential Issues/Factors Important for the Development and Deployment of E-government

	Policymaker/ academician N=11		Civil servants N=36		Total N=47	
	Freq.	%	Freq.	%	Freq.	%
Inter departmental coordination	3	30	4	12	7	16
Strategic/formal plan	4	36	12	33	16	34
Support from political leader	3	30	9	26	12	27
IT expertise (organizational and individual)	2	18	7	21	9	20
Organizational culture	3	27	8	23	11	24
Finance	2	20	3	10	5	12
Rapid change in technology	2	22	3	10	5	12
Personnel issues	3	30			3	7
Internal leadership(e-champion)	1	9	2	6	3	7
Mind set of civil servants	6	54	7	22	13	30
Unwillingness of high level officials	1	9	1	3	1	2
Traditional bureaucratic pattern			1	3	1	2
Lack of citizen awareness			1	3	1	2

(Source: Questionnaire Survey)

6.3. Competing Values and Objectives in E-government Implementation

According to Kim and Kim (2003) there are number of diverse and competing values in how public agencies evaluate e-government effectiveness and in determining the major values and objectives of e-government. Activities related to e-government development and deployment is subjected to internal and external focus; flexibility and control in relation to their dealing (section 2.9.2). Based on the work of Kim and Kim (2003) the following eleven issues regarding values and objectives of e-government development were selected for empirical analysis. The issues related the **organizational model** (based on flexibility and internal focus) included the development of internal leadership (e-champion), and employee participation. Fast internal operation, a mechanism for reliable, relevant, and up-to-date information and easy and convenient to use were related to **information security model** (based on internal focus and centralization or control). In the area of **digital democracy model** (based on decentralization or flexibility and external focus)**,** the issues were addressed as citizen involvement and participation, effective communication and information sharing and citizen access to government information. And

issues related to **cost efficiency model** (based on external focus and centralization or control) included as cost efficiency, standardized software program and centralized e-government structure. The civil servant were asked to rate the 11 values and objectives items along a 5-point Likert-type scale from 1 being not at all important to 5 being very important. The descriptive statistics and correlation coefficient between items were presented in table 6.10.

Table 6.10: Competing Values and Objectives in E-government Implementation

Criteria(value)	M	SD	Criteria(value)	M	SD
Citizen involvement	3.79	1.42	Centralized structure	3.39	1.39
Mechanism for reliable, relevant, and up-to-date information	3.74	1.33	Effective communication and information sharing	3.34	1.30
Citizen access to information	3.54	1.43	Standardized software program	3.33	1.26
Easy and convenient to use.	3.46	1.27	Fast internal operation	3.32	1.49
Cost efficiency	3.45	1.45	Internal leadership (e-champion)	3.28	1.50

(Source: Questionnaire Survey)

The empirical data show that the respondents express equal importance to all values mentioned in the table because mean score falls within 3.28 to 3.79 out of 5 point scale. However, they express citizen involvement and participation (3.79) as their top priority in e-government development followed by mechanism for reliable, relevant, and up-to-date information, citizen access to information, cost efficiency etc. the least preferred value to them for e-government development was internal leadership(3.28). The highest standard deviation of internal leadership (1.5) show greatest dispersion of data from the mean value and the lowest standard deviation 1.26 were related to standardized software program. However, standard deviation shows similar pattern of dispersion of responses which indicates their equal importance of values regarding e-government development.

There are conflicts between these competing values and objectives relating to e-government effectiveness. As mentioned earlier, some of values stress flexibility and internal focus while some other stresses the control and external focus. Similarly, some of them stress flexibility and external focus whereas some other paying attention toward control and internal focus. So, while developing e-government system there should be some short of compromise and negotiation

between these values and objectives. Causal relationship among e-government values; the result of correlation coefficient suggests a number of potential conflicts as shown in table 6.11.

Table 6.11: Correlation (Kendall tau b) between Competing Values and Objective in E-government Implementation

	1	2	3	4	5	6	7	8	9	10	11
1. Internal operation	1										
2. Citizen participation	.138	1									
3. Cost efficiency	.271	.158	1								
4. communication and information sharing	.082	.250	.290	1							
5. Citizen access to information	-.259	.342*	.072	.400*	1						
6. Mechanism for qualitative information	-.159	.125	.200	.607**	.447**	1					
7. e-champion	.159	.250	.305	.439**	.185	.444**	1				
8. Standardized software program	.356*	.171	.210	.087	-.073	.130	-.009	1			
9. Easy and convenient to use.	.257	.331*	.308	.074	.004	.273	.191	.327*	1		
10. Centralized e-government structure	.095	.070	.059	.047	-.133	.049	.120	.486**	.422**	1	
11. Organization's e-government effectiveness	.071	-.390*	-.040	-.179	-.198	-.165	.090	-.078	-.259	-.176	1
12. e-government implementation effectiveness	.092	-.326*	-.075	-.104	-.178	-.195	-.019	.010	-.182	-.093	.985**

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). N=36

Internal operation was found positive significant relationship with standardized software program (r=0.356); citizen participation was positively correlated with easy and convenient to use (r=0.331) and citizen access to information (r=0.342); communication and information sharing was positively correlated with mechanism for qualitative information(r=0.607) and internal leadership(r=0.439); and centralized structure has positive relationship with easy and convenient to use (r-0.327). When analyzing causal relationship between e-government values and e-government effectiveness it was found that the respondents were almost indifference because there is no significance relationship observed between them except citizen participation and e-government effectiveness. Citizen involvement and participation was found negatively associated with e-government implementation effectiveness and organization's effectiveness ($p<0.05$). It

could be because of their perception that citizen participation might undermine technical matter in e-government development.

6.4. Summary of the Chapter

In this chapter, measure of successful policy implementation (dependent variable) was discussed in term of e-government performance. E-government performance can be seen in user contact session of government websites, total number of services available, types of e-government services which has discussed in first part of this chapter. Most of the websites have been established after adopting e-government policy in Nepal; the visitors, the contents and types of services are in increasing trend; but still the pace for development is slow; information does not meet the requirement of citizen; and efforts were made in isolation.

In part two, actors, leadership, legal and institutional arrangement, policymaker and managerial understanding and willingness, prerequisites and barriers to e-government development and deployment were discussed as independent variable that affects performance of e-government. High level bureaucrats are found most influential actors in the e-government policy process followed by political leader. Support and opposition mainly comes from bureaucratic arena; especially, e-champions as well as technical personnel support e-government policy where as non technical personnel create obstacles due to their traditional mind set. Legal and institutional arrangement is not found sufficient and conducive for effective e-government implementation; many other legal provisions need to incorporate. Policymaker and managerial understanding and willingness have been perceived most influential barriers and most essential prerequisites for successful policy implementation. There are number of barriers encountered in the e-government policy implementation. Among them lack of policymaker and managerial understanding, lack of political support, civil servant mind set are highly perceived barriers in relation to e-government policy implementation. In part three competing values and objectives have been analyzed in relation to effective policy implementation. Respondents express equal importance to various competing values and objectives toward e-government effectiveness which indicates some short of compromise and negotiation between these values and objectives is required.

CHAPTER SEVEN: IMPLEMENTATION OF E-GOVERNMENT POLICY IN NEPAL: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

7.1. Introduction

As mentioned in chapter one the main objective of this study is to ascertain present status of e-government in Nepal, to explore the implementation efforts of e-government policy and to assess challenges and opportunities associated with it. In this regard, an attempt has been made to discuss evolution of e-government in Nepal. Attempt has also been paid to examine level of user acceptance, e-government performance and level of e-readiness in the country. The aim of this chapter is to summarize major findings of the research, draw conclusion and to recommend for future research. Findings of the study have been presented in relation to research questions posed in chapter one and variables (dependent and independent) presented in chapter two.

7.2. Summary of Research Finding

There were six research questions posed for seeking answer in this study as;

- What is the present status of e-government development in Nepal? How far e-government policy implemented successfully?
- What factors affect the user acceptance of e-government in Nepal?
- Who were/are the main influential actors in adopting and implementing e-government policy in Nepal?
- To what extent is the present regulatory and institutional arrangement conducive to the implementation of e-government policy in Nepal?
- What is the role of leader in the process of implementation of e-government in Nepal?
- What are the main obstacles/barriers encountered in the process of implementation of the e-government policy in Nepal? How these barriers could be overcome?

The discussion on research finding has been based on these research questions.

7.2.1. The Present Status of E-government in Nepal

However, a center of electronic data processing named National Computer Center was established in 1974 and various activities were carried out for the development and deployment of information technology; it was found that major e-government initiatives were taken only after the adoption of e-government policy in 2000. Nepal has adopted this policy aiming to make information technology accessible to the general public and increase employment through this means, to build a knowledge-based society, and to establish knowledge-based industries in the country. Chapter four has devoted to figure out the present status of e-government in term of infrastructure (telecommunication, internet and other), legal and regulatory arrangement, e-readiness measure, IT education, and e-government application used in various agencies. This section has devoted to draw summary of present status of e-government development and how far e-government policy has been implemented in term of level of user acceptance and e-government performance.

A. Status of E-government Development

After adopting IT policy in 2000, the National Information Technology Center in 2001 and the High Level Commission for Information Technology in 2003 were established; Electronic Transaction Act in 2006 was enacted; IT Park in Banepa, 30km east from Kathmandu, was established in 2003 to attract foreign and domestic companies and provide facilities by one door and e-government master plan was formulated in 2006. Besides IT policy and Electronic Transaction Act, Telecommunication Policy 2004, Good Governance (Operation and Management) Act 2008 and Three year interim plan (2007/2008-2009/2010) have also given importance to e-government and made provisions to enhance e-government initiatives in the country. Ministry of Science and Technology, Ministry of Information and communication, HLCIT, NITC, Office of the Controller of Certifying Authority, ICT development project, and IT Park Development Committee are responsible organizations working in developing and deploying e-government (section 4.2, 4.3 and 4.4).

Development of infrastructure for e-government was another consideration of e-government policy. Internet service is available to all 75 districts in the country; out of 3900 VDC only 420

VDC are without internet. There were 164 telephone service providers, 38 internet service providers, 9 VISAT network service providers, one video conferencing etc (section 4.2).

After adoption of e-government policy e-readiness index was improved up to 2005, but latter due to political and other reasons it was decreased substantially. In 2002 Nepal's e-readiness index was 0.268 which was improved to 0.302 in 2005. But it was decreased to 0.026 in 2010. Compared to global position, Nepal was in 130th position in 2002, 126th in 2005 and 153th in 2010 (table 4.1). Based on UN e-government survey, utilization of e-government by stage was counted around 45 to 100 percent in stage one; 20 to 50 percent in stage two, 40 to 55 percent in stage three, zero percent in stage four and 2 to 17 percent in stage five in various year (table 4.2). However, some of government agencies provide transactional services for example, e-tender by Ministry of Physical Planning and e-pan number by Ministry of Finance (appendix 7).

Similarly, in 2010 telephone line per hundred reached to 2.79; internet user 1.41 percent, mobile user 14.58 percent, broad band 0.04 percent and personal computer 0.48 percent (table 4.3). These infrastructure indexes are quite low for accelerating e-government initiatives in the country. However, according to ARC report (2010) in 2010 internet user reached to 2.55 percent and telephone user to 6.78 percent which indicates the country is doing well in developing e-government infrastructure. Compared to South Asian countries Nepal was in fourth rank in 2005, but in 2010 the rank was decreased to seventh out of eight countries which indicates disappointing situation in e-government development (table 4.5). In comparison with world's top five Nepal's e-readiness index is three times lower (section 4.8)

Human Capital index of Nepal is improving during the period which was 0.48 in 2002 and reached to 0.58 in 2010 (table4.4). Both components of human capital index i.e. adult literacy and gross enrollment have improved. But adult literacy and gross enrollment is not sufficient condition for efficient and sufficient human resource for e-government development. Evidences from documentary sources show that only eight private schools offered computer science course as an optional subject for high school level in 1992. Four universities and affiliated colleges provided ICT education courses. Total number of IT personnel in country was around 4,000 and the number of IT manpower was expected to reach some 7300 within five years, by the end of 2010 (section 4.5). Similarly, various application systems were used in number of government

agencies covering G2G; G2B and G2C services mainly after e-government policy implemented in 2000 (section 4.9). But, service delivery by stages covers only to stage I and II. There is still long way to go for transactional and transformational services which cover wide variety of e-government activities (table 4.2). In summary, the present status of e-government development is not satisfactory; however, it is not fully disappointing situation because we have started from ground in 2000 and get some short of achievements in this field.

B. Status of E-government Policy Implementation

There are number aspects of e-government policy success. In this study, the success of e-government policy implementation has been figured out in term of level of user acceptance or adoption and e-government performance as dependent variables. As discussed in section 1.1, 2.5, and 2.7 user acceptance is deemed a necessary precondition for effective implementation of any e-government project. Whatever government provides e-government services would be useless until the user accepts and uses it.

Empirical data shows that 85% users have computer and 79% users have internet access at home. Similarly, 46% users acquire internet access for the purpose of online transaction among others and 54% involved in using e-government services (table 5.1). Internet and computer is one of pre-condition for using e-government services. Respondents are highly equipped with such requirement, their actual usage is in average, but their purpose of using internet is even below average. The scenario indicates citizens are willing to use e-government services, but there should also be efficient supply side which can provide e-government services according to user requirements. So, we can draw conclusion that e-government policy was moderately success in relation to level of user acceptance of e-government services.

Highest numbers of respondents (67%) were from age group 21 to 40 who use public service online and 82% respondents having master and above education use public service online (table 5.3). The data shows that educated and young people mostly use e-government services. There is still lacking in policy implementation to pay focus on other segment of society.

Another measure of successful policy implementation assumed in this study is e-government performance (supply side). E-government performance can be measured by number of ways. In

this study attempts have been made to measure e-government performance in term its development stage (section 6.1). By analyzing websites of various government agencies it was found that almost all central agencies has their own websites to disseminate information and to provide e-government services. Almost all websites were established after adopting e-government policy in 2000 (table 6.1). Average visitors of government websites were around 500 per day. Number of visitor to individual agency was varied from 1 to 10000 per day. More than 50% agencies have less than 100 visitors per day while only 6% agencies have more than 1000 visitor (table 6.2). It could be because of types of service seeker, nature of service, and availability of relevant, reliable and up-to-date information and so on. For example, visitor of Public Service Commission was counted highest i.e. 10000 per day which could be because of young people seeking job information and exam results. The study found that mostly young people use e-government services and their frequently used services are job related and other information collection and to downloads materials (table 5.3 and 5.4) (appendix 7).

Most of the websites provide static information and downloadable materials, feedback mechanism to their users and some of agencies provide transactional services too. Analyzing 114 websites of various agencies, it was found that there were 3036 static information, 4568 downloadable materials, 123 communications (e-mail, feedback and contact information) and 78 transactional services. UN e-government survey and ARC report 2010 confirm this result as the utilization of e-government in term of delivery of services by stages belongs to stage I and II (appendix 7).

In relation to objectives have been met it could be argued e-government activities are moderately success in achieving objectives set forth. Telephone and internet facilities are available in all districts; telephone and internet user are increasing in trend; information technology to some extent accessible to general people through cyber café and tele-centers; efforts have been paid to enhance IT education; IT educated manpower are increasing in number and quality; institutional and legal arrangements have been made; e-government policy has been revised; awareness about e-government is increasing day by day (chapter 4). However, there are lot of things need to do for building knowledge based society and establishing knowledge based industry which are fundamental objectives of e-government policy. Secretary of MoIC argued in interview that even though there is still shortcoming, the policy is moderately successful in developing e-government

in Nepal because we were in initial stage in 2000 and achieve some material results in this field. But, 75 % respondents believe that objectives of e-government policy have not been met yet (table 6.4). Low rating of respondents toward achieving goal could be because of they were concerned for services they need rather than infrastructures, human resources etc which are also important consideration for drawing conclusion regarding success of policy.

In relation to effectiveness of e-government implementation and overall development, it is quite disappointing. Only, 13% respondents believe that e-government was implemented most effectively while 36% against its effectiveness. Overall development of e-government is also least perceived by respondents. Only, 6 % users believe overall development of e-government is very good while 37 % believe it is poor (table 6.3). Overall impact of e-government is very good to 11% respondents while it is poor to 70% respondents (table 6.4). The survey responses indicate there is still lacking in e-government development and deployment to fulfill user requirements.

From the above discussion it is very difficult to decide whether e-government policy is successfully implementing and/or whether the objectives have been met. Some indicator provides better indication while other shows disappointing situation. The highest utilization percentage of e-government services by stage was 38% in 2005. Most of utilized services fall in stage I and II (table 4.2). Still a lot of things need to be done to utilize higher percentage in transactional and transformative services. However, it is logical to assume success, especially in case of starting from primary level, because achievement has also to be counted in term of web presence, information availability, variety of information, awareness, infrastructure, education, level of user acceptance and other point of view. So, it could be conclude from this study that e-government policy is moderately successful in Nepal.

7.2.2. Factors Affecting E-government Acceptance or Adoption

There could be number of reasons why citizen accept e-government services. Their knowledge, capacity, availability of services that fulfill their requirements, service quality, cost, efficiency, usefulness, security and privacy could be different concerns that inspire individual to decide for using e-government services (section 2.5, and 2.10.1.1). Four influential factors (independent variables) were assumed that affect citizen decision to adopt e-government such as ease of use, usefulness, quality of services and trust on e-government services. The discussion on this section

aims to explore influential factors which affect the citizen choice to adopt e-government. Similarly, attempt has also been paid to test the hypothesis in section 7.3.

A. Ease of Use and User Acceptance

Two items- user friendly and helpfulness- were taken for identifying user perception about ease of use. 15% respondents were highly dissatisfied in respect to user friendly and11% was highly dissatisfied with helpfulness. On the other hand 10% respondents perceive e-government services were most users friendly and 4% perceive very much helpfulness. Around 45% respondents were indifference in this regard (Figure 5.1 and 5.2). In sum respondents were less confident about user friendliness and helpfulness of e-government service in Nepal. It could be because of difficulty to use and navigate around websites and unable to get assistance when they need.

Empirical findings show that perceived ease of use has positive relationship with user acceptance of e-government. Cross tabulation analysis shows among respondents who were not satisfied with user friendliness and helpfulness have low level of acceptance than those who were mostly satisfied with these items (table 5.5). Correlation analysis also indicate similar picture i.e. as increased their perception toward user friendliness and helpfulness led to increase in their level of adoption. Correlation coefficient between adoption and user friendliness (0.305 at .01 levels) and usefulness (0.375 at 0.01 levels) shows medium level of association between acceptance and ease of use (appendix 4). Similarly, when taking total scale of items, ease of use of e-government services is positively correlated with user acceptance (0.314 at .01 levels) (table 5.9). The relationship is medium in strength.

B. Usefulness and User Acceptance

Content and timeliness, transparency and cost and time saving have taken for measuring usefulness of e-government services. If respondents believe that a particular system improve their job performance, they could accept such system (section 2.10.2.2). In relation to content and timeliness, 12% respondents express they never get precise and up-to-date information while 10% express they always get such information. Some 8% believe e-government improve transparency that they always able to express opinion to the government and officials through e-government services whereas 17% express they never able to express opinion. Similarly, 19% respondents

believe e-government always save their time and money and 6% believe it never save time and money. Around 40% users are indifference in their preference regarding usefulness of e-government services (Figure 5.3, 5.4 and 5.5). The study has found that in relation to cost and time saving feature respondents are optimistic whereas toward transparency they are not so much confident.

It was found that as their rating increased on usefulness leads higher intention to use e-government services. 33% users use e-government services among those who never got precise and up-to-date information whereas 80% use public service online among those who always got such information. 11% respondents use public service online who never believe in transparency in term of express opinion while 100% respondents use public service online who always able to express opinion through e-government. Similarly, 33% use public service online among those who never believe e-government save cost and time while 90% use public service online who always believe it save cost and time (table 5.6). Positive correlation coefficient significant at 0.01 levels between adoption and content and timeliness (0.341), transparency (0.415) and cost and time saving (0.422) shows that the higher the perceived usefulness the higher will be the level of adoption (appendix 4). Similarly, when taking total scale of items, usefulness of e-government services is positively correlated with user acceptance (0.447 at 0.01 levels) (table 5.9). The relationship is medium in strength (hence $r>0.3$).

C. Quality of E-government Services and User Acceptance

Quality of information in term of reliable, relevant and accurate information and access to information i.e. respondents were able get required information when they visit government websites were taken for measuring quality of e-government services. They were positive toward quality of e-government services. 14% users express they always get reliable, relevant and accurate information while 8% express they never get such information. But respondents were highly dissatisfied toward access to information. 28% respondents express their opinion as they never get required information when they visit e-government websites, on the other hands only 4% express they always get required information (figure 5.6 and 5.7).

Quality of e-government services is positively correlated with user acceptance. 33% users use public service online among those who never get qualitative information while 60 % users use

public service online who always get such information. 70% use public service online who never get required information, on the other hand only 36% use public service online who always get such information (table 5.7). Correlation analysis shows that there is no significance correlation coefficient between usage and quality of information and access to information. But the relationship is significant between quality of information and computer at home (0.448), internet at home (0.390), and online transaction (0.275); and between access to information and computer at home (0.343) and internet at home (0.294) at .01 levels. When combining total item in the scale the relationship between quality of e-government services and user acceptance (0.242 at 0.01levels) is positive and significant, but shows weak relation because coefficient is less than 0.30(table 5.9).

D. Trust on E-government Services and User Acceptance

Here the trust is used as trust in the internet and e-government system. Three items were taken for measuring level of user trust on e-government services as privacy, security and consequences of e-government services (section 2.10.2.4). Empirical findings show that there are equal number of respondents who satisfied and dissatisfied with privacy protection of e-government services. Some 8% respondents believe e-government never protect their privacy and 25% believe not very much protect privacy, on the other hand 21% believe it quite a lot protect their privacy and 12% believe always protect privacy. In relation to security of transaction, 8% believe it never secure their transactions and 27% believe not very much secure transactions, on the other hand, 13% believe quite a lot and 12% believe always secure their transactions when using it. Similarly, 81% expressed their opinion that there is no negative effect of using e-government services and only 19% believed there is a negative consequence which indicates there is overall higher confidence toward e-government services (figure 5.8, 5.9 and 5.10).

Users perception toward trust on e-government is found positively correlated with their level of acceptance. 25% users acquired computer and internet among those who never believe that e-government services protect their privacy and security of transaction, while 83% users had computer and internet access at home among those who believe e-government services always protect privacy and secure their transaction respectively. Similarly, percentage of users who use public service online is zero among those who never believe that e-government services protect

privacy and secure their transaction, while 50% users used public service online among those who believe that e-government services always protect their privacy and secure transaction (table 5.8).

However, correlation analysis does not produce similar results as cross tabulation provide us. User perception on privacy protection does not have significant relationship with all items in adoption. Security is positively correlated with computer and internet at home (0.252), but is not in significant level with other items. Consequences of e-government services only have significant positive correlation coefficient with all items in adoption such as computer at home (0.468), internet at home (0.584), online transaction (0.354), and usage (0.429) at 0.01 levels (appendix 4). Similarly, when taking total scale of items, trust on e-government services is positively correlated with user acceptance (0.229 at 0.05 levels), but coefficient is less than 0.3 which explains weak relationship between them (table 5.9).

There could be various factors as discussed earlier that affect user decision to adopt e-government. All four variables have been found having some short of effects on user acceptance. However, among four variables taken for measuring user perception about usefulness of e-government services is found most influential factors affecting user decision to adopt e-government. Second important factor that affects user decision to accept e-government is ease of use. Quality of e-government services and trust on e-government services are less concerning factors to users in adopting of e-government.

7.2.3. Actors and Their Role in the Policy Process

Worldwide search for excellence in service delivery especially Total Quality Management movement and NPM movement during 1980 focused on massive utilization of ICT create favorable environment for e-government. The concept of good governance, transparency and accountability create pressure on government for improving service delivery. E-government policy in Nepal is one of reform initiatives after 1990 when Nepal liberalized its economy and many reform initiatives were taken. Massive utilization of ICT on private sector also creates pressure for adopting e-government policy. E-government policy in Nepal cannot be assumed as crisis-ridden rather it appeared as usual policy for betterment. Political leader, high-level bureaucrats, private sector, middle level manager, e-champions were played their role in adopting e-government policy in Nepal (section 2.5 and 6.2.3). However, most of the respondents (58%)

believe high level bureaucracy is most important actors in adopting e-government policy in Nepal (table 6.5). It is because e-government policy contains mostly administrative and technical content.

In relation to implementation of e-government policy in Nepal, respondents from civil servant and policy maker/academician believe that higher level government official (40%) are most influential actors in implementing e-government policy followed by middle level officials (23.2%), e-champion (9.3%), front line personnel (7%) and private sector (7%). The reason behind their preference could be that high level official made administrative decision responsible for addressing force measures during implementation process. However, respondents believe that middle level officials have sufficient role of policy implementation (table 6.6).

Managing support and opposition is another concern for policymaker mainly comes from public or bureaucratic arena. Distribution of cost and benefits, technical complexities, administrative implication, long or short-term impact, and citizen participation required determine which of arena create support or opposition (section 2.4.2). E-government policy related to technical and administrative matter than political issues; distribution of cost mainly goes to the government and people can enjoy its benefits; negative impact was found negligible (figure 5.10) so support or opposition mainly comes from bureaucratic arena. However external pressure for adopting and reviewing e-government policy was perceived mainly from private sector and NGOs such as CAN, FNC etc (section 6.2).

7.2.4. Legal and Institutional Arrangement: how far is it conducive for the development and deployment of e-government?

E-government development and deployment cannot be assumed as sole responsibilities of a single agency. It is cross cutting issue hence no single organizational model for managing e-government is appropriate in all circumstances. However, centralized coordinating agencies and clear responsibility of implementing agencies are essential components of institutional arrangement (Hana et al., 2009). After adopting e-government policy in 2000, the government made necessary legal and institutional arrangement for implementing policy. Electronic Transaction Act 2006 is main legal framework for e-government. Good Governance (Operation and Management) Act 2008 and Regulations 2009 have also made some provisions relating to employ e-government

initiatives in Nepal. High Level Commission for Information Technology (HLCIT), Ministry of Science and Technology (MoST), National Information Technology Center (NITC), Ministry of Information and Communication (MoIC), Office of the Controller of Certifying Authority are main responsible agencies for the development and deployment of e-government in Nepal.

Empirical findings show that majority of respondents (61%) believe the present policies, statutes and regulations are not sufficient for the development and deployment of e-government (figure 6.1). eGMP suggest that the government should create laws on information promotion, e-government creation, information disclosure, promote software industry, promote online digital content industry, e-transaction, automation of trading, intellectual property rights, personal information protection, e-signature, ICT network usage. Similarly, when respondents were asked about the conduciveness of present legal and regulatory arrangements, 50% policymaker/academician and 72% civil servant answer negatively (figure 6.2). Even secretary of MoIC is not satisfied with present legal and regulatory arrangement as expressed in his view in interview. It could be because of activities carried out by responsible agencies after adopting e-government policy in Nepal. After six years of e-government policy, the major legal arrangement i.e. Electronic Transaction Act 2006 came in existence from the 'black box' of bureaucracy. E-government policy 2000 assures that every four year it will be revised; however, revised policy came into existence only in 2010. Similarly e-government master plan was adopted after six year of policy adoption (section 4.3 and 4.4). In summary, although efforts have been paid to establish legal and institutional arrangements, still these arrangements are insufficient and less conducive for e-government development and deployment.

7.2.5. Role of Leadership in E-government Policy Implementation

Heeks observed one of major reason of failure of e-government project is lack of leadership and the capabilities needed to leverage ICT for development strategies and to integrate ICT investments with organizational process, and skill changes (Heeks, 2003). Competent leader and empowered institutions are essential to overcome change resistance, manage technical, financial, and managerial resources, avoid duplication of efforts, coordinate e-government efforts of agencies (Hana et al. 2009). Two types of leaders were assumed for this study as; policymaker and high level officials and e-champions. Policymaker and high level official mainly involved in

strategic guidance and coordinating activities where as e-champion focused on actual implementation creating favorable environment, change management and awareness (section 2.10.3.2-4).

Empirical findings show that policymaker and managerial understanding about what e-government can do for improving service delivery, improving efficiency, transparency, accountability in public affair and their willingness to pay sincere effort for implementing e-government is highly influential factor for successful implementation. 55% policymaker/academicians and 32% civil servants believe that policymaker and managerial understanding and willingness is prerequisite for the successful implementation of e-government. Similarly, 54% policymaker/academicians and 54% civil servants express lack of their understanding and willingness is strong barriers to implementation (table 6.7). For example, the government carried out various activities like workshop for behavior change and to enhance their understanding and willingness toward e-government. As a result young parliamentarians have also shown their immense interest to put ICT in priority sector in the country (section 6.2.7).

In relation to role of e-champion in successful e-government implementation respondents express pessimistic view. Some 26% respondents believe their role is most important and 20% believe quite a lot important where as only 9% believe not very much important. Some 45% express their indifference view (figure 6.3). In summary, respondents believe that the role of e-champion is crucial for implementing e-government successfully with some exception.

7.2.6. Barriers and Influential Issues to E-government Implementation in Nepal

As discussed earlier, e-government development and deployment is not free from constraints and challenges, there are number of challenges associated with e-government implementation all over the world. Heeks (2003) observed 15% success rate in e-government project and failure of e-government create burden of direct and indirect cost to the government (section 1.2). Measuring barriers and its impact on policy implementation, numbers of items were placed before respondents for their response in term of barriers, prerequisites and influential issues in relation to e-government policy implementation. These three dimensions measure similar implication on e-government implementation.

Lack of policymaker and managerial understanding and willingness (54%), lack of support from politician (50%) and civil servant mind set (36%) are mostly perceived barriers by the policymaker/academicians. Lack of sufficient and efficient human resources (27%), and lack of leadership (18%), lack of technology (10%), and lack of collaboration and cooperation among departments (9%) are other barriers to e-government implementation according to policymaker and academicians. Similarly, to civil servant lack of policymaker and managerial understanding and willingness (54%) is most influential barrier. Furthermore, civil servants mind set (23%), lack of support from politician (19%), lack of leadership (12%), lack of collaboration and cooperation (10%), lack of sufficient and efficient human resources (9%), lack of financial resources (7%), and lack of technology (7%) are also perceived barriers by civil servants. Digital divide (3%) and lack of specified policy for e-government (3%) are least influential barriers to e-government implementation, according to civil servants. Both groups perceive policymaker and managerial understanding and willingness, civil servant mind set and lack of political support as most influential barriers (table 6.7). The reason behind this could be because of political instability in the country and bureaucratic culture which undermine the importance of e-government. Barriers could be grouped in relation to political resources, managerial resources, financial resources and technical resources.

Policymaker and managerial understanding and willingness, strategic planning for e-government and favorable political and legal environment are most important necessary prerequisites for successful e-government implementation in respondent's view. Similarly, developing internal leadership (e-champion), coordination and cooperation among departments, and infrastructure are other concerns for respondents (table 6.8).

Similarly, Civil servant mind set (54%), strategic plan (36%), inter departmental coordination (30%), support from political leader (30%) and personnel issues (30%) are mostly perceived issues by policymaker/academicians for the development of e-government in Nepal. Similarly, strategic plan (33%), support from political leader (26%), organizational culture (23%) and mind set of civil servants are highly perceived issues by the civil servants (table 6.9).

7.2.7. Competing Values and Objectives in E-government Implementation

Activities related to e-government development and deployment is subjected to internal and external focus; flexibility and control in relation to their dealing. Based on the work of Kim and Kim (2003) eleven issues regarding values and objectives of e-government development were selected for empirical analysis (section 2.9.2). The empirical data shows that the respondents express equal importance to all values mentioned because mean score falls within 3.28 to 3.79 out of 5 point scale (table 6.10).

However, they also reveal conflicts between competing values as the result of correlation coefficient suggests a number of potential conflicts. Internal operation has positive relationship with standardized software program (r=0.356 at 05 levels); citizen participation is positively associated with easy and convenient to use (r=0.331 at 0.05 levels). Communication and information sharing is positively correlated with mechanism for reliable, relevant and up-to-date information(r=.0607 at 0.01 levels) and internal leadership(r=.0439 at 0.01). Similarly, centralized structure has positive relationship with easy and convenient to use (r-0.327; at 0.01 levels) (section 6.3 and table 6.11). The empirical finding suggests that a proper balance between various dimensions of e-government implementation need to be created for effective implementation.

7.3. Testing of Hypothesis

This section has aimed to test the hypothesis as discussed in chapter two. Level of user acceptance or adoption of e-government and e-government performance has been taken for measuring successful e-government policy implementation. There could be number of factors which affect the level of user acceptance and e-government performance. Pre-assumptions have been assumed related to these influential factors.

First hypothesis was related to ascertain effect of ease of use in term user friendly and helpfulness of e-government services on level of user acceptance. The hypothesis was *perceived ease of use of e-government services has positive effect on user acceptance or adoption of e-government services.* This hypothesis is confirmed as we found that better perception on ease of use leads

higher usage of e-government. Ease of use is positively correlated with user acceptance which explains higher the perceived ease of use, the higher the level of adoption.

Second hypothesis was *the perceived usefulness of e-government services has positive impact on user acceptance or adoption of e-government services*. The hypothesis is accepted because the study found that user perception on usefulness in term of content and timeliness, transparency, and cost and time saving is positively correlated with user acceptance. All the items in usefulness have significant positive relationship with all items on user adoption which shows strong positive impact on user decision to adopt e-government.

Third hypothesis was related to effect of user perception toward quality of e-government services on their decision to adopt e-government. The hypothesis was *the perceived quality of e-government services has positive effect on user acceptance or adoption of e-government services.* This hypothesis is rejected as we found that the correlation coefficient shows weak relationship between quality and adoption, though it is positive (hence $r \leq 0.3$). The coefficients between items on quality of e-government services and actual usage of e-government are also not in significant level which indicates quality of e-government was not very much concern to users in relation to e-government adoption. The reason may be availability of e-government services in preliminary stage have greater concern than quality.

Fourth hypothesis deals with effect of trust on e-government services in term of privacy, security and negative consequences on user acceptance. The hypothesis was *the trust on e-government services has positive effect on user acceptance or adoption of e-government services.* This hypothesis has also been rejected on the ground that overall correlation coefficient between trust on e-government and adoption explains weak relationship i.e. $r < 0.3$. All items on trust are not equally correlated with items on adoption; only user perception about negative consequences of e-government services is positively correlated in significant level with all items and in total. Other items do not have significant relationship with overall level of adoption.

Fifth hypothesis was e*fficient and effective legal and institutional arrangement leads successful implementation of e-government policy* in this study. The study confirmed this hypothesis, as we found that various legal and institutional arrangements required for smooth policy

implementation. Even though Electronic Transaction Act is a mile stone for e-government in Nepal, still there is shortage of laws on various dimension e-government that undermine success of e-government implementation. Majority of respondents believe that the present legal and institutional arrangement is not sufficient for successful e-government implementation. Similarly, they also express present legal and institutional arrangement is not conducive to e-government policy implementation. Again, efficient organizations with clear role and responsibility and their coordinated effort are essential for mobilizing various resources toward the goal achievement. It was found that there is lacking in role clarity and coordination of activities. The study found that political and administrative apex body for coordinating e-government activities and cyber tribunal need to establish immediately. The study also found institutional capacity to investigate and prosecute cyber crime as influential factor for e-government implementation successfully.

Hypothesis six is related to develop critical mass that supports e-government implementation. The hypothesis was a *critical mass of e-government champion in an organization leads successful e-government policy implementation.* The study shows that most of the respondents (more than 60%) agreed with the concept of e-champion. Only 9% respondents believe that their role is not very much important; no one assume their role not at all important. Most of the respondents express their role except in some situation is important for successful policy implementation. The role of e-champion was found highly influential while formulating eGMP and supposed to even greater in implementing it (section 6.2.6). So we can conclude that this hypothesis is confirmed.

Seventh hypothesis was policymaker *and managerial understanding and willingness affect e-government initiation and successful implementation of e-government policy* in this study. Policymaker and managerial understanding and willingness have found highest concern of respondents. Respondents believed that policymaker and high level officials are not fully aware and sincere about e-government policy. ICT is not in priority because of lack their understanding and willingness. More than 50% respondents believe that their role is important for successful e-government policy implementation. Respondents also believe that their understanding and willingness is prerequisite for e-government implementation. Similarly, more than 50% respondents believe lack of their understanding and willingness become barriers to e-government implementation. So, this hypothesis has also been confirmed.

Eighth hypothesis is about barriers to e-government implementation: *there are some implementation barriers to e-government policy which undermine ability to implement policy successfully.* This study found that lack of policymaker and managerial understanding and willingness, lack of support from politician, civil servants mentality, digital divide, lack of internal leadership/e-champion, lack of collaboration and cooperation as some of the most pressing barriers to e-government implementation. Policymaker and managerial understanding and willingness, positive mind set of civil servant, strategic planning for e-government and favorable political and legal environment are most important necessary prerequisites for respondents. Similarly, developing internal leadership (e-champion), coordination and cooperation among departments, and infrastructure are other concern for respondents. The most important issues essential for effective e-government implementation are civil servant mind set, strategic plan, inter departmental coordination, support from political leader, organizational culture and personnel issues are mostly perceived issues. As Grindle and Thomas 91991) explain mobilizing political, managerial, financial and technical resources is crucial for successful implementation of policy. The problems related to these resources undermine ability to implement policy successfully. So this hypothesis has been confirmed.

7.4. E-government Implementation in Nepal: Compatibility with Theories and Conceptual Framework

Implementation theories and model, the concept of e-government, the concept of e-readiness, and the concept of e-champion, as mentioned in previous chapters, have been used for guiding this research. The chapter two has mainly focused with literature review and analytical framework essential for guiding the study. In this section effort has been paid to show how far theories and models are compatible with e-government policy implementation in Nepal. The concept of e-government is useful to understand the subject matter. It has helped me to understand what it is, why it is necessary and what approach we should follow for e-government development and deployment. It also has guided me to understand conflicting values and their impact on effective e-government implementation. Theories and model of policy implementation provide different ways of understanding implementation and analyzing policy process. It also helped me to describe actors and their role in policy implementation; support and opposition during implementation process (section 2.2 to 2.4). Similarly, the concept of e-readiness has provided me

valuable insight about how much opportunity available to explore e-government initiative in the country (section 2.6). The concept of e-government adoption is useful to understand why citizen accept e-government and what factor affect their decision to adopt e-government (section 2.7). The concept of e-champion is also important to analyze role of leader in the process of change and implementation process (section 2.8).

E-government can be understood in relation to interaction and relationship with government such as G2G, G2B, and G2C etc. Similarly, it can also be described with respect to its maturity of development as web presence, interaction, transaction and transformation (section 2.5). These dimensions of e-government are useful for discussion and analysis in this study. For example, discussion on user acceptance of e-government is based on relationship and interaction between government and citizen. Stage model has been used to describe e-government performance.

E-government cannot be implemented in vacuum. There should be some short of readiness to accelerate opportunity available with ICT for the development and deployment of e-government (section 2.6). The concept of e-readiness is used to describe countries ability in term of web presence, infrastructure and human capital for the development and deployment of e-government. Readiness could be assumed as a measure of successful e-government policy implementation.

Why and when citizen accept e-government services and factors affecting their decision to adopt e-government is an important concern for this study. The concept of adoption and previous research on adoption provide valuable insight to access user acceptance, and their measurement which is assumed one of criteria for measuring successful e-government implementation (section 2.7). Similarly, E-government Implementation Model presented in chapter two is useful in explaining e-government performance in relation to administrative and technological point of view and Competing Value Model is useful for explaining civil servants' preference toward values and objectives of e-government effectiveness.

Policy implementation may includes variety of actions such as establishing goal and objectives, mobilizing political, financial, administrative, technical resources, coordinating activities, managing support and opposition. There are three approaches in policy implementation: top down, bottom and mixed approach (section 2.2 and 2.3). These approaches mainly mixed

approach provide theoretical guideline for analyzing actors and their role in policy implementation, barriers and prerequisites associated with e-government implementation in Nepal.

The role of actors and their reaction and response, barriers and prerequisites, resources mobilization in the implementation process has been discussed on the basis of interactive model developed by Grindle and Thomas (1991). The characteristics of the policy may have an important influence on the nature of the reaction or response to change (section 2.4). We found that, when this linked to our case, the reaction and response in the form of support and opposition primarily comes from bureaucratic arena. The burden of costs directly goes to government treasury; benefit could be derived in long period of time. Unlike devolution policy its impact could be seen in long run. E-government bears technical and administrative matter rather than political guidance for implementation. So, the support and opposition has perceived primarily from bureaucratic arena in e-government implementation (section 6.2).

In the implementation arena of e-government policy in Nepal, it was found that there is not direct opposition from public and political area. To some extent bureaucratic arena create obstacles, but there were strong civil servants group such as e-champion who support e-government development and deployment in the country. It was also found there is not so much clash of interest of actors rather how, where and when to implement policy. However, there were other problems related to implementation of e-government such as lack of political support, lack of policymaker and managerial understanding and willingness, civil servant mind set etc (section 6.2).

Analytical framework presented in section 2.10 describes dependent and independent variable and their Operationalisation in relation to e-government policy implementation in Nepal. The framework explains how these variables could be linked to each other. Hypotheses posed in this section are basic guideline for analysis data and draw conclusion.

7.5. Policy Recommendation and Future Research

Policy Recommendation

Considering respondents views about importance of e-government and based on the discussion in the previous chapters regarding the problems and issues of e-government implementation and suggestions from respondents through open ended survey questionnaire and interview, the

following recommendations have been presented for improving e-government policy implementation.

- Lack of political support and commitment and lack of policymaker and managerial understanding and willingness have been perceived most influential barrier to e-government development and deployment by the respondents which undermine efforts of putting e-government in priority. It could be because of lack of knowledge in political leadership and status quo administrative culture. Though there are various activities carried out for behavior change and to enhance their understanding and willingness toward e-government, further and regular efforts should be paid to enhance their knowledge level about power of ICT and training for behavioral change.
- As we discussed it should not treat separate developmental issue rather it should be assimilate with other policy areas. Its strong relationship with poverty, employment, security, crime and other developmental issues should be established so as to develop and deploy e-government effectively.
- Civil servant traditional mind set is also highly perceived barriers to e-government implementation. They prefer paper based document even there is possibility of electronic transaction. It is related to organizational culture and other behavioral components. Their behavioral modification is must for successful policy implementation. Change management activities and massive training to civil servants needed to build their confidence and change their resistance into support. Similarly, a compulsion should be created wherever possibility of electronic transaction. A group of e-champion need to develop in each organization for change management, awareness and advocacy for e-government. It was observed that e-government is more management than technology. So emphasis should be on creating critical mass who believes on e-government.
- There are number of conflicting values and objectives associated with e-government. Respondents gave equal importance to these values. So while formulating policy, there is necessity of compromise and negotiation between these values and objectives according to requirement for optimum utilization of ICT.
- Digital divide is another most pressing barrier to e-government policy implementation. It could be narrowed down through massive establishment of public centers (tele-centers) in

rural areas with sufficient content which enhance use of e-government services and also helpful to fill the gap of digital divide. Furthermore intensive focus should be given on ICT education, recognizing ICT sector as industry, massive PPP initiation and developing citizen awareness toward e-government.

- As we found number of agencies were created for e-government development. There is still confusion about who is responsible for coordinating e-government activities. As discussed earlier, even donor were confused to whom they consult. It was also found that agencies were carrying out activities in isolation which can create serious problem in system integration. So, there is a requirement of political and administrative apex body so as to guide, direct, and avoid duplication of efforts. Separate unit for e-government in each ministry should be established.
- It was found in relation to e-government implementation, agencies were carrying out e-government activities in isolation. This creates duplication of efforts and resources. Isolated efforts create serious problem in system integration due to lack of standardization. So, standardized software program should be carried out to avoid duplication and make sure integration of system.
- Another important concern of the respondents found in this study is strategic orientation for e-government implementation. Long term vision and strategy is essential for making e-government to practical level. Similarly, ministry level should formulate and implement planning and strategy to make service delivery efficient with less cost and time by information technology.
- The government is not able to implement government gateway and digital signature even now. There is lack of efficiency in investigation and prosecution of cyber crime. Software piracy was found common in Nepal. So, focus should be given to pay on whole of e-government concept. According to UN e-government survey (2008:4) the '*whole-of-government'* concept is that in which public service agencies work across portfolio boundaries to achieve a shared goal and an integrated government response to particular issue as opposed to work solely within organization. It covers the design and delivery of a wide variety of policies, programmes and services across the organizational boundaries. It is a holistic approach to ICT-enabled public sector governance. A respondent suggest that '*e-Government should be developed in integrated system approach, not in fragmented and silos*.'

- Personnel issues were also a challenge to e-government implementation. There are hardly 100 IT personnel in the government sector; their career opportunity is limited and their voice is ignored in policy matter. So, a separate e-government service should be created like Administrative Service, Foreign Service etc with sufficient career development opportunity.
- Overall development of e-government, according to user, is poor. E-government is not able to fulfill user requirement in term of service delivery. It is found that mostly the use of computer in the government agencies limited to typing letters and data analysis. So, the focus should be given to develop application software that fulfills the need of citizen. A standardized software program should be launched with user involvement.
- Still people are not able to get electricity, telephone and internet facility around the country that are essential for ICT development. As we found e-readiness is low due to low level of infrastructure development, focus should be paid to improve infrastructure for e-government. Existing East-west super highway should be extended in all district head quarters. Mobile based e-government system (m-government) may be more effective as mobile are now available in each part of the country even in village.

Future Research

In this study effort has been paid to ascertain present status of e-government in Nepal. It has addressed how far e-government policy implemented successfully in term of level of user acceptance and performance. The attempts have been made to ascertain factors that could affect user decision to adopt e-government policy. It has also addressed how e-government policy formulated, actors and their role in policy adoption and implementation and problems encountered in implementation process. Similarly, attempts has also been paid on how could implementation make successful to achieve objectives of e-government policy.

However, the analysis in this study could not cover potential impact of e-government in term of organizational process improvement, organization behavior and change, its contribution on successful implementation of other policy, and its potential contribution on socio-economic development. These areas could be potential dimension of future research in e-government. Performance could also be measured in term of inputs, outputs, process and impact. Literatures on policy implementation and e-government have taken major base for data analysis. It could be

expanded to literature on organizational theory and behavior. Similarly, one of the limitations to this study is sample size. Due to small sample size, regression analysis could not apply for analyzing predictive power of each independent variable. So, increasing sample size in the study could another dimension to future research.

7.6. Conclusion

Successful e-government policy implementation is subject to many things. Number of activities, actors, regulatory arrangement etc is required to put policy implementation successfully. E-government can only be a powerful tool as discussed before to inform, interact, transact and network thus contributing leaner, transparent and cost effective government, if it is implemented successfully. Successful e-government implementation leads e-government as an important means to enhanced value of service to the citizen. Level of user acceptance and e-government performance are some of aspect of successful e-government policy implementation.

Users are found highly interested to use e-government services. Their decision to accept e-government is largely affected by consequences of e-government services, ability to facilitate communication with officials, cost and time saving, receive assistance when needed; receive precise and up-to-date information, able to receive relevant, reliable and accurate information when visiting websites.

In relation to e-government performance, it was found that most of the websites were established after the adoption of e-government policy. The contents are increasing; types of services are increasing and the numbers of visitor are also increasing. Efforts have been made to develop necessary legal and institutional mechanism for e-government development and deployment in the country. However, the pace for e-government development is slow; information does not meet the requirement of citizen; and efforts were made in isolation. Empirical finding shows that the present legal and institutional is not sufficient and conducive for effective implementation of e-government in Nepal. Lack of political support, lack of policymaker and managerial understanding and willingness and civil servant traditional mind set are found most influential barriers to e-government policy implementation.

Finally, though the e-government in Nepal is in preliminary stage and enormous efforts need to be paid for making e-government fully functional, integrated, and transformative, not outstanding but notable achievement has been realized. Mainly political instability in the country undermines ability to implement policy effectively. In conclusion e-government policy implementation is moderately successful to achieve its goal.

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APPENDICES

Appendix 1: Survey Questionnaire

Questionnaire for the user of e-government services (This questionnaire is only for the academic purpose. The answers you give us will be kept fully confidential. Please use √ sign and number for indicating your choice wherever applicable)

1. General Information of the Respondent:
    1. Age:
    2. Education:
    3. Organization:
    4. Position (if any):
    5. Address:
    6. Date of interview
    7. Email:
2. Do you have computer at home? Yes No
3. Do you have internet access at home? Yes No
4. If yes at what purpose you use computer and internet at home? Please check all that applicable to you.

	Information collection
	Online transaction (online application, registration and renewal, payment etc.)
	Entertainment
	Other (Please specify):

5. Do you use public service online? Yes No
6. As your knowledge what kind of e-government services are available in Nepal? Please check all that available on online.

	Payment of utility bill, tax, fee and fines
	Online application
	Licenses and renewals
	Request for government record
	Download forms
	Employment information and application
	Laws, regulations, codes and ordinances
	Communication with elected and appointed officials
	Others (Please specify

7. As your knowledge how many government agencies have websites?
    1. ------- agencies have websites
    2. I don't know
8. When you visit government websites, how often are you able to get information or services you are seeking?

    Always Most of the times Sometimes Hardly ever Never Don't know
9. When you visit government website, which type of Public Services have you accessed? (Health, Education, Transport, Taxes, Utilities bills, Licenses, Municipality, penalties, job and other Information, download forms etc. please specify)
    1. ----------
    2. ----------
    3. ----------.
10. Which type of public service have you frequently used?
    1. -------
    2. -------
    3. -------
11. Please rate the following on 0-5 point scale (0 being least and 5 being most) as you perceive relating to e-government services.

	User friendly (easy to use and find the way around and e-government website)
	Helpfulness (receive assistance when you needed)
	Enable to get precise and up-to-date information when needed
	Able to express your opinion to the government and communicate officials through e-government services
	E-government services save your time and money
	E-government services protect your privacy when using it
	Your transaction is secure when using e-government services
	E-government services provide accurate, reliable and relevant information

12. Please rate the following on 0- 5 point scale as you feel about satisfaction of e-government services (0 being least satisfied and 5 being most satisfied)

	With the content of information
	with the interface of e-government services
	with the speed of e-government services
	with the quality of e-government services
	with the security of e-government services

13. How do you rate the overall development and implementation of e-government in Nepal

Very good Good Average Poor

14. Do you think that there could be negative consequences from using e-government services?

Yes No

If yes, what could be such consequences----

15. Please kindly state your other Comments/ Suggestions if any?……

Questionnaire for Policymaker/academicians and Civil Servants (This questionnaire is only for the academic purpose. The answers you give us will be kept fully confidential. Please use √ sign and number for indicating your choice wherever applicable)

1. General Information of the Respondent:

    1. Age: 2. Education:
    3. Organization: 4. Position (if any):
    5. Address: 6. Date of interview
    7. Email:

2. What is the most important function of e-government? please rate on a scale of 0-5 (0 being not at all important, 5 being most important) **Please feel free to add and rate additional function of e-government**

	Improving and simplifying the delivery of services to citizens;
	Improving efficiency of government services;
	Increasing easy access to government information;
	Enhancing citizen participation in government decision-making process;
	Improving trust on government;
	Reducing layers of government decision making;
	Improving interdepartmental communication and coordination;
	Others (Please specify)

3. In your opinion what could be the potential outcome of e-government? (please give in order 1, 2, 3, etc. one for highest preference)

	Reduce number of staff
	Increase revenue
	Reduce administrative costs
	Reduce processing time for service
	Make business process more efficient

	Increase citizen contact with elected and appointed officials
	Build trust on government
	Improve interagency communication and coordination
	Others (please specify)

4. Do you think that the objectives of e-government policy have been met?

   Yes No Don't know/no comment

   If no, what could be done? ……

5. Who were the most influential actors for adopting e-government policy in Nepal? (please give in order as 1, 2, 3,etc., 1 for the highest preference)

	Political leader
	Higher-level government officials
	Donor community
	Private sector (CAN etc)
	Others (please specify)

6. Who are the most influential actors for implementing e-government policy? (please give in order as 1, 2, 3,etc., 1 for the highest preference)

	Political leader
	Higher level government officials
	Middle level government officials
	Front line personnel
	E-champion
	Private sectors
	Others (please specify)

7. E-champions not only the person or group of persons who have technical as well as managerial skill, but also have strong desire, commitment and initiation to develop and implement e-government application. Role of e-champion in an organization which comprised of knowledge management, change management, e-government marketing, e-government advocacy. Do you agree with this statement? Would you add or redefine this statement

   …….

8. How do you perceive the role of e-champion for developing and implementing e-government systems in Nepal? Please rate with 0-5 point scale as 0 being not at all important and 5 being most important.
9. What issues/factors are most influential for the development and deployment of e-government in Nepal? (Please give in order 1, 2, 3 etc. 1 for the highest preference)

	Interdepartmental Coordination
	Strategic/Formal plan
	Support from political leader
	IT Expertise (organizational and individual)
	Organizational Culture
	Finance
	Rapid change in technology
	Personnel Issues
	Internal Leadership (lack of e-champion)
	Mind set of civil servants
	Others (please specify)

10. What are the main obstacles/barriers to the successful in implementation of e-government policy in Nepal? (Please give in order 1, 2, 3 etc. 1 for highest preference)

	Lack of support from politician
	Lack of policymaker and managerial understanding unwillingness
	Lack of technology
	Lack of sufficient and efficient human resources
	Lack of leadership (e-champion)
	Civil servant mindset
	Digital divide
	Lack of financial resources
	Lack of collaboration and cooperation among departments
	Others (please specify)

11. How do you rate the overall impact of e-government policy in Nepal?

    Good Average Poor Don't know

12. Do you think that existing policies, statutes and regulations are sufficient to promote e-government in Nepal?

    Yes No Don't know/ no comment

    If no, what changes are required in the policies, statutes and regulations?

    ……

13. Do you think that present legal and institutional provisions are conducive for the successful implementation of e-government policy in Nepal?

    Yes No Don't know/ no comment

14. In your opinion, what is the necessary pre-requisite for the success of e-government in Nepal? (Please give in order 1, 2, 3 etc. 1 for the highest preference)

	Conducive political and legal environment
	Strong political will
	Strategic planning for e-government
	Policymaker and managerial understanding unwillingness
	Coordination and collaboration among departments
	Developing internal leadership (e-champion)
	Others (Please specify)

15. Please kindly state your other Comments/ Suggestions if any?……

Additional questionnaire to Civil Servants

1. Please rate the following values and objectives item toward e-government by a 5 scale from 1(not at all important) to 5(very important). Please feel free to other value item toward e-government and rate them.

	Should facilitate internal operation.
	Should encourage citizen involvement and participation in decision making process.
	Cost efficiency should be considered during e-government development
	Should facilitate effective communication and information sharing among agencies.
	Citizen access to government information should be considered during e-government development.
	A mechanism for reliable, relevant, and up-to-date information should be established.
	Development of internal leadership (e-champion) in the government agencies should be considered as part of e-government development.
	A standardized software program should be available for every agency in e-government.
	To promote public employee participation, e-government should be easy and convenient to use.
	A centralized e-government structure is necessary for the unified and fast establishment of e-government.
	Others (please specify)

2. Please rate your organization's e-government effectiveness, (0 being ineffective, 5 extremely effective.
3. Please rate the effectiveness of e-government implementation in your organization, (0 being ineffective, 5 extremely effective).
4. Please kindly state your other Comments/ Suggestions if any?

Appendix 2: Interview Guide for Key Respondents

1. In your views what could be the most important function of e-government?
2. In your opinion what could be the potential outcome of e-government?
3. Do you think that the objectives of e-government policy have been met?
4. Who were the most influential actors for adopting e-government policy in Nepal?
5. Who are the most influential actors for implementing e-government policy?
6. What is your opinion about critical mass or e-champion for e-government development?
5. How do you perceive the role of e-champion for developing and implementing e-government systems in Nepal?
6. What issues/factors are most influential for the development and deployment of e-government in Nepal?
7. What are the main obstacles/barriers to the successful in implementation of e-government policy in Nepal?
8. Do you think that existing policies, statutes and regulations are sufficient and conducive to promote e-government in Nepal?
9. In your opinion, what is the necessary pre-requisite for the success of e-government in Nepal?

Appendix 3: Name of Key Respondents

No	Name	Age	Address	Designation	Office (if any)
1	Mr. Ram Hari Aryal	51	Kathmandu	Secretary	MoST
2	Mr. Sushil Ghimire	52	Kathmandu	Secretary	MoIC
3	Mr. Manohar Bhattarai	50	Kathmandu	Vice Chairman	HLCIT
4	Mr. Anup Baskota	35	Kathmandu	Director	NITC

5	Mr. Rajan Khanal	42	Kathmandu	Joint Secretary	MoF
6	Mr. Arjun Pokharel	41	Kathmandu	Joint Secretary	MoGA
7	Mr. Tek Raj Niraula	46	Kathmandu	Under Secretary	MoLD
8	Mr. Babu Ram Bhandari	42	Kathmandu	Under Secretary	MoTA
9	Mr. Koshhari Niraula	40	Ilam	Chief District Officer	MoH
10	Mr. Rajesh Shakya	42	Kathmandu	Consultant	eGMP preparation
11	Mr. Albert, Eung Soo, Lim	52	Kathmandu	Advisor	NITC
12	Mr. Sandip Ojha	40	Dhangadhi	Assistant lecturer	Kailali Multiple Campus

Appendix 4: Correlation (Kendall tau b) between Items in Dependent and Items in Independent variable

	Computer at home	Internet at home	Purpose of Online transaction	Usage of public service online	Adoption
ease of use	.217	.331**	.270*	.325**	.325**
1. User friendly	.217	.363**	.254*	.299*	.305**
2. Helpfulness	.248	.312*	.322*	.382**	.375**
Usefulness	.320**	.383**	.441**	.382**	.445**
1. Content and timeliness	.245	.306*	.322*	.318*	.341**
2. Transparency	.260*	.318*	.390**	.430**	.415**
3. Cost and time saving	.367**	.408**	.448**	.302*	.422**
Quality of services	.413**	.362**	.263*	.171	.303**
1. Quality of information	.448**	.394**	.275*	.164	.316**
2. Access to information	.343**	.294*	.192	.160	.238*
Trust in e-government services	.221	.289*	.266*	.128	.246*
1. privacy protection	.167	.193	.225	.112	.194
2. Security of transaction	.252*	.252*	.204	.043	.186
3. negative consequences	.468**	.584**	.354*	.429**	.461**

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Appendix 5: The Composition of Different Government since 1991

Head of the government (Prime Minister)	Period	Type of government	Party involved	Reason for removal from the government
Girija Prasad Koirala	1991-1994	Majority	Nepali Congress	Declare mid-term election due to internal conflict
Manmohan Adhikari	1994-1995	Minority	CPN (UML)	no confidence vote passed
Sher Bahadur Deuba	1995-1997	Coalition led by NC	NC,RPP,NSP	Failed in vote of confidence
Lokendra Bahadur Chand	1997- 1997	Coalition led by RPP (Chand)	RPP (Chand), CPN (UML), NSP	Passed of vote of no confidence
Surya Bahadur Thapa	1997- 1998	Coalition led by RPP(Thapa)		resigned the post
Girija Prasad Koirala	1998- 1998	NC	Minority	CPN(UML) withdraw support
Girija Prasa Koirala	1998- 1998	Coalition led by NC	NC, CPN (ML)	NCP(ML) withdraw from the government
Girija Prasad Koirala	1998-1999	Coalition led by NC	NC, CPN(UML), NSP	Election declared
Krishna Prasad Bhattarai	1999-2000	Majority	Nepali Congress	Internal conflict compelled the PM to resign
Girija Prasad Koirala	2000- 2001	Majority	Nepali Congress	Resignation
Sher Bahadur Deuba	2001- 2002 Sep.	Majority	Nepali Congress	Dismissed by the King
Lokendra Bd. Chand	Sep 2002- June 2003	Appointed by the King	Individual Basis	Resignation
Surya Bd. Thapa	June 2003- June 2004	Appointed by the King	Individual Basis	Resignation
Sher Bahadur Deuba	June 2004- Jan. 2005	Appointed by the King	**Coalition** government	Dismissed by the King
Headed by His Majesty the King himself	Feb.1 2005- 25 April 2006			Jan Andolan II forced King to reinstate house of representative
Girija Prasad Koirala	28 May 2006 to 18 August	Coalition led by NC	**7 Party who participate in**	Constituent assembly election form new

	2008		**revolution form govt.**	government
Pushpa Kamal Dahal	18Aug. 2008-25 May 2009	Coalition led by UCPN (Maoist)	**UCPN(Maoist), CPN(UML), MJAF**	resignation
Madhav Kumar Nepal	25 May 2009-3Feb. 2011	Coalition led by CPN (UML)	**CPN(UML), NC MJAF(democratic), TMLP**	resignation
Jhala Nath Khanal	3Feb, 2011-	Coalition led by CPN (UML)	**CPN(UML), UCPN(Maoist), MJAF**	To date

(Source: Paudel, 2005; Wekipedia[9])

Appendix 6: List of Ministries and Their Department

Agencies	Website	Agencies	Website
Office of the Prime Minister and Council of Ministers	www.opmcm.gov.np	Ministry of Finance	www.mof.gov.np
Ministry of Home Affairs	www.moha.gov.np	Department of Inland Revenue	www.ird.gov.np
Department of Immigration	www.immi.gov.np	Department of Customs	www.customs.gov.np
Nepal Police	nepalpolice.gov.np	Office of the Finance Comptroller General	www.fcgo.gov.np
Metropolitan Police	metro.nepalpolice.gov.np	Department of Revenue Investigation	www.dri.gov.np
Nepal Police Academy	npa.nepalpolice.gov.np	Revenue administration Training Centre	www.ratc.gov.np
Nepal polic hospital	nph.nepalpolice.gov.np	Ministry of Foreign Affairs	www.mofa.gov.np
Nepal police school	www.nps.edu.np	Institute of foreign affairs	http://www.ifa.org.np
Traffic Police	traffic.nepalpolice.gov.np	Ministry of Forests and Soil Conservation	www.mofsc.gov.np
Department of Prison Management	www.dopm.gov.np	Department of Forest	www.dof.gov.np

[9] Available a t http://en.wikipedia.org/wiki/List_of_Prime_Ministers_of_Nepal accessed on 5 May, 2011

Nepal Armed Police	www.apf.gov.np	Department of Forest Research and Survey	www.dfrs.gov.np
Ministry of Tourism and Aviation	www.tourism.gov.np	Department of National Parks and Wildlife Conservation	www.dnpwc.gov.np
Civil Aviation Authority	www.caanepal.org.np	Department of Soil and Watershed Management	www.dscwm.gov.np
Ministry of Defense	www.mod.gov.np	Ministry of General Administration	www.moga.gov.np
Nepal Army	www.nepalarmy.mil.np	Civil Service Personnel Records	www.docpr.gov.np
Ministry of Education	www.moe.gov.np	Ministry of Health and Population	www.mohp.gov.np
Curriculum Development Centre	www.moescdc.gov.np	Department of Drug Administration	www.dda.gov.np
Department of Education	http://www.doe.gov.np	Nepal Health Research Council	www.nhrc.org.np
National Centre for Education Development	http://www.nced.gov.np	Nepal Medical Council	www.nmc.org.np
Office of controller of examinations	http://www.soce.gov.np	Ministry of Agriculture and Cooperatives	www.moac.gov.np
Non formal education centre	http://www.nfec.gov.np	Department of Agriculture,	doanepal.gov.np
School teachers records office	http://www.stro.gov.np	Department of Cooperatives	www.deoc.gov.np
Ministry of Commerce and Supplies	www.moics.gov.np	Department of Livestock Service,	www.dls.gov.np
Ministry of Information & Communication 2006	www.moic.gov.np	Agriculture information and communication centre	www.aicc.gov.np
Department of Information	www.doinepal.gov.np	Department of Food Technology and Quality Control	www.dftqc.gov.np
Department of Postal service	www.nepalpost.gov.np	Nepal Agriculture Research Council	www.narc.gov.np
General Post Office	www.gpo.gov.np	Ministry of Law and Justice	www.moljpa.gov.np
Department of Printing	www.dop.gov.np	Nepal Law commission	lawcommission.gov.np
Ministry of Labour & Transport Management	www.moltm.gov.np/np	Ministry of Physical Planning and Works	www.moppw.gov.np
Department of Foreign Employment	http://www.dofe.gov.np	Department of Urban Development and Building Construction	www.dudbc.gov.np

department of labor	http://www.dol.gov.np	Department of Road	www.dor.gov.np
Department of Transport Management	www.dotm.gov.np	Department of Water Supply and Sewerage	www.dwss.gov.np
Occupational health project	http://www.oshp.gov.np	Ministry of Local Development	www.mld.gov.np
Vocational and skill development training centre	www.training.gov.np	Departmeent of local infrastructure and agricultural roads	www.dolidar.gov.np
Ministry of Land, Reform and Management	www.molrm.gov.np	Ministry of Science and Technology	www.most.gov.np
Department of Survey	www.dos.gov.np	Ministry of Energy	www.moen.gov.np
Department of Land Reform and Management	landdepartment.gov.np	Department of Electricity development	www.doed.gov.np
Department of land information and activities	www.dolia.gov.np	Ministry of Women, Children and Social Welfare	www.mowcsw.gov.np
Land Management training centre	www.lmtc.gov.np	Ministry of Peace and Reconstruction	www.peace.gov.np
Ministry of Industry	www.moi.gov.np	Ministry of Environment	www.moenv.gov.np
Department of Cottage and Small Industries	http://www.dcsi.gov.np	Department of Hydrology and Metrology	www.dhm.gov.np
Department of Industry		Metrological forecasting division	www.mfd.gov.np
Department of Mines and Geology	www.dmgnepal.gov.np	Ministry of Irrigation	www.moir.gov.np
Department of Nepal Bureau of Standards and Metrology	www.nbsm.gov.np	Department of Irrigation	www.doi.gov.np
Office of the Company Registrar	www.cro.gov.np	Department of Water Induced Disaster Prevention	www.dwidp.gov.np
Office of Auditor General	www.oagnep.gov.np	Ministry of Youth and Sports	www.moys.gov.np
Public Service Commission	www.psc.gov.np	Supreme Court	supremecourt.gov.np
Commission for the Investigation Abuse of Authority	http://www.ciaa.gov.np	Election Commission	www.election.gov.np
National Planning Commission	www.npc.gov.np	High level commission for Information Technology	http://hlcit.gov.np
Central Bureau of Statistics	www.cbs.gov.np	National Information Technology centre	http://nitc.gov.np

Appendix 7: Result of Website Analysis of Ministries and Their Departments

Websites	Started	15 Oct. 2010	1st Jan. 2011	Average /day	2nd Feb. 2011	Average/ day	1	2	3	4
www.opmcm.gov.np	2006	116	15922	290.40	22620	209.31	3	3	3	
www.moha.gov.np	2008	37876	44430	85.11	47490	95.62	20	20		
www.immi.gov.np	2009			0		0	10	22	1	1
www.nepalpolice.gov.np	2010	44325	72558	366.66	91541	593.22	5		2	
metro.nepalpolice.gov.np	2010	4517	5309	10.28	6251	29.44	30		2	
npa.nepalpolice.gov.np	2007			0		0	25		2	
nph.nepalpolice.gov.np	2007			0		0	20		2	1
www.nps.edu.np	2010	35768	42356	85.56	47136	149.37	20		1	1
traffic.nepalpolice.gov.np	2010	26789	31147	56.60	35897	148.44	35	8	1	
www.dopm.gov.np	2004			0		0	20	2	2	1
www.apf.gov.np	2010	320	434	1.48	1106	21	30		1	
www.tourism.gov.np	2008	72569	81144	111.36	84860	116.12	40	62	2	1
www.caanepal.org.np	2010			0		0	35	34	2	2
www.mod.gov.np	2008			0		0	6		1	1
www.nepalarmy.mil.np	2010	275688	307677	415.44	4327	3907.78	45	3	1	
www.moe.gov.np				0		0	25	20	1	
www.moescdc.gov.np	2007	72733	76975	55.10	78963	62.12	15	5	1	
www.doe.gov.np				0		0	30	15	1	1
www.nced.gov.np	2010	16575	19920	43.44	21270	42.19	20	36	1	1
www.soce.gov.np	2006	2946486	2955109	111.98	2958706	112.41	25	13	1	1
www.nfec.gov.np	2005			0		0	10	13	1	
www.stro.gov.np	2006			0		0	8			
www.mof.gov.np	2003	258070	274194	209.40	281133	216.84	35	100	2	2
www.ird.gov.np	2010			0		0	40	222	2	6

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www.customs.gov.np	2009			0		0	15	20	2	1
www.fcgo.gov.np	2006	27153	30489	43.32	31672	36.97	24	47	1	
www.dri.gov.np	2004			0		0	11	3	1	
www.ratc.gov.np	2007			0		0	10	4	1	
www.mofa.gov.np	2010			0		0	200	10	1	
http://www.ifa.org.np	2007			0		0	40	32	1	
www.mofsc.gov.np	2007	3184	3698	6.67	7988	134.06	50		1	1
www.dof.gov.np	2010	16134	22060	76.96	24477	75.53	25	15	2	1
www.dfrs.gov.np	2005			0		0	20	11	1	
www.dnpwc.gov.np	2006			0		0	30	11	1	
www.dscwm.gov.np				0		0				
www.moga.gov.np	2000	38438	50140	151.97	57378	226.18	50	82	2	1
www.docpr.gov.np	2000	16456	20218	48.85	22940	85.06	10	13	3	6
www.mohp.gov.np	2009			0		0	15	43	2	
http://www.dda.gov.np				0		0	15	61	1	
www.nhrc.org.np	2008	102589	132113	383.42	138154	188.78	25	35	3	5
www.nmc.org.np	2010			0		0	15	20	1	1
www.moac.gov.np	2004			0		0	25	50	1	
www.doanepal.gov.np	2004			0		0	15	2	1	
www.dls.gov.np	2004			0		0	15		1	
www.aicc.gov.np	2004			0		0	35	122	1	
www.dftqc.gov.np	2004			0		0	10	16	1	
www.narc.gov.np				0		0	3	4	1	
www.moic.gov.np	2006			0		0	100	50	1	1
www.doinepal.gov.np				0		0	15	6	1	
www.nepalpost.gov.np	2009			0		0	35	33	2	1
www.gpo.gov.np	2006	465789	520707	713.22	529747	282.5	105	4	2	10
www.dop.gov.np				0		0	15	88	1	

www.moltm.gov.np				0		0	45	36	1	
www.dofe.gov.np	2009			0		0	15	31	1	
www.dol.gov.np	2009	755	1183	5.55	6223	157.5	18	11	1	
www.dotm.gov.np	2010	7047	19656	163.75	23798	129.44	35	15	2	2
www.oshp.gov.np	2008			0		0	11		2	1
www.training.gov.np	2009			0		0	15		1	1
www.molrm.gov.np	2006	7158	9730	33.40	10800	33.43	17	32	2	
http://www.dos.gov.np	2010			0		0	35	22	1	
landdepartment.gov.np				0		0	25	33	1	
www.lmtc.gov.np				0		0	11			
www.moljpa.gov.np	2009			0		0	36	26	2	
lawcommission.gov.np	2009	536775	641588	1361.20	721843	2508	12	829	1	
www.moppw.gov.np	2008			0		0	46	20	1	
www.dudbc.gov.np	2009			0		0	40	35	2	2
www.dor.gov.np	2009			0		0	36	109	2	
www.dwss.gov.np	2008			0		0	25	8	1	
www.mld.gov.np				0		0	24	7	2	1
www.dolidar.gov.np	2009			0		0	35	17	2	1
www.most.gov.np	2006			0		0	35	3	1	3
www.moen.gov.np	2009	7876	10563	34.89	11475	28.5	37	50	1	
www.doed.gov.np				0		0				
www.mowcsw.gov.np	2010	9798	12285	32.30	18634	198.41	25	12	1	
www.peace.gov.np	2010	25156	29592	57.61	35549	186.15	25	73	1	
www.moenv.gov.np	2010			0		0	15	21	1	1
www.dhm.gov.np	2010			0		0	27	2	1	
www.mfd.gov.np		212057	221223	119.04	224775	111	20	1	1	
www.moi.gov.np	2001			0		0	25	36	1	1
www.dcsi.gov.np	2004			0		0	45	50	1	

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www.doind.gov.np	2001			0		0	36	55	1	1
www.dmgnepal.gov.np	2004			0		0	35	2	1	
www.nbsm.gov.np				0		0	75	6	1	
www.cro.gov.np	2007			0		0	23	40	1	1
www.moir.gov.np	2009	986	5177	54.42	5458	8.781	23	11	1	
www.doi.gov.np	2009			0		0	48	6	1	1
www.dwidp.gov.np	2005			0		0	4	3		
www.moys.gov.np	2009	2756	3186	5.58	3881	21.72	13	8	1	1
www.oagnep.gov.np				0		0	17	24	1	
www.psc.gov.np	2007	3287152	4041086	9791.35	4368311	10225.78	46	1132	2	1
www.election.gov.np	2008			0		0	75	42	1	2
www.ciaa.gov.np	2007			0		0	46	87	1	3
supremecourt.gov.np	2010			0		0	200	140	2	4
http://hlcit.gov.np	2009			0		0	54	30	1	1
http://nitc.gov.np				0		0	16	25	1	
www.npc.gov.np	2008			0		0	65	81	2	2
www.cbs.gov.np	2008	386407	423219	478.08	434537	353.68	45	37	1	1
Total		8945498	10125088	481.39	10787339	568.35	3036	4568	123	78

Note: 1= static information, 2= downloadable material, 3= Communication (e-mail, feedback, etc) and 4= transaction services