TALLINN UNIVERSITY OF TECHNOLOGY
School of Information Technologies

Sharoj Pokharel 165535IVGM

# CHALLENGES TO THE E-GOVERNMENT SYSTEM OF NEPAL DUE TO THE TRANSITION TO FEDERALISM

Master's Thesis

| | |
|---|---|
| Supervisor: | Prof. Dirk Draheim |
| | PhD |
| | Ingrid Pappel |
| | PhD |

Tallinn 2018

TALLINNA TEHNIKAÜLIKOOL
Infotehnoloogia teaduskond

Sharoj Pokharel 165535IVGM

# FÖDERALISMI ÜLEMINEKUGA SEOTUD VÄLJAKUTSED NEPALI E-VALITSUSE SÜSTEEMILE.

Magistritröö

Juhendaja:    Prof. Dirk Draheim

PhD

Ingrid Pappel
PhD

Tallinn 2018

# Author's declaration of originality

I hereby certify that I am the sole author of this thesis. All the used materials, references to the literature and the work of others have been referred to. This thesis has not been presented for examination anywhere else.

Author: Sharoj Pokharel

04.05.2018

# Abstract

Nowadays, most developed countries are advocating for smart or proactive governance, but the implementation of e-governance in most developing countries is still lagging behind. This is so primarily because the implementation of e-government depends on country-specific factors such as economy, political stability, and development of infrastructure. In the case of Nepal, political instability has played a significant role in hindering the progress of e-governance. Although there has been a clear vision of e-governance since the development of an e-governance master plan in 2006, from 2008 to 2018, the government of Nepal has changed 11 times including its transformation from a multi-party parliamentary democracy to a federalist system in 2015. This thesis aims at identifying the effects of political transition in the field of e-governance in Nepal. Semi-structured expert interviews have been conducted, and thematic analysis of these interviews has been performed to identify the effects of democratic transition on the development of e-governance systems. The study shows that federalism does not obstruct the development of e-government, instead it provides an opportunity because local governments have autonomous power to identify their requirements and to develop and implement projects accordingly. However, this autonomy might be the cause of an increasing number of standalone systems. Additionally, the study reveals there are still all the challenges inherited from the overall development of e-government in the country. Furthermore, based on the findings of the analysis, the study makes some recommendations for the government of Nepal and offers a framework for change management in the context of Nepal.

This thesis is written in English and is 48 pages long, including 6 chapters, 5 figures and 7 tables.

# Annotatsioon

## Föderalismi üleminekuga seotud väljakutsed Nepali e-valitsus süsteemile.

Tänapäeval paljud riigid propageerivad nutikat või proaktiivset valitsemist, kuid e-valitsemise rakendamine enamikus arengumaades on ikka veel mahajäänud. See on eelkõige tingitud sellest, et e-valitsuse rakendamine sõltub riigipõhistest teguritest nagu majandus, poliitiline stabiilsus ja infrastruktuuri areng. Nepali puhul on poliitiline ebastabiilsus mänginud olulist rolli e-valitsuse arengu protsessi takistamisel. Alates e-valitsuse üldkava väljatöötamisest 2006. aastal oli selge nägemus e-valitsusele, kuid Nepali valitsus on muutunud 11 korda alates 2008. aastast kuni aastani 2018, sealhulgas mitmeparteilisest parlamentaarsest demokraatiast muutus föderalistlikuks süsteemiks 2015. aastal. Käesoleva magistritöö eesmärk on tuvastada poliitilise ülemineku mõju e-valitsemisele Nepali kontekstis, kuna riikide poliitilised muutused ja sotsiaalmajanduslikud reaalsused peavad ilmuma üheaegselt. Oli läbi viinud seminaristruktuuriga ekspertide intervjuud ning intervjuude temaatiline analüüs, et tuvastada demokraatliku ülemineku mõju e-valitsemise süsteemide arengule. Uuring näitab, et föderalism ei takista e-valitsuse arengut, selle asemel pakub see võimalust oma nõudeid välja selgitada ja projekte vastavalt välja töötada ja ellu viia, kuna kohalikel omavalitsustel on autonoomne võime. Autonoomia võib olla põhjustatud suureneva arvu eraldiseisvatest süsteemidest. Lisaks, uuring näitab, et riigis on ikka veel e-valitsuse arengutest pärinevaid väljakutseid. Analüüsi põhjal uuringus on tehtud soovitused Nepali valitsusele ja raamistik muutuste juhtimiseks Nepali kontekstis.

Lõputöö on kirjutatud inglise keeles ning sisaldab teksti 48 leheküljel, 6 peatükki, 5 joonist, 7 tabelit.

# List of abbreviations and terms

| | |
|---|---|
| CA | Constitutional Assembly |
| CAQDAS | Computer Aided Qualitative Data Analysis Software |
| EBPS | Electronic Building System |
| EGDI | E-governance Development Index |
| EGMP | E-Governance Master Plan |
| G2B | Government to Business |
| G2C | Government to Citizen |
| G2G | Government to Government |
| GEA | Government Enterprise Architect |
| GoN | Government of Nepal |
| HCI | Human Capital Index |
| HLCIT | Hight Level Commission for Information Technology |
| ICT | Information Communication Technology |
| ID | Identity |
| IRD | Inland Revenue Department |
| IT | Information Technology |
| KIPA | Korea Institute of Public Administration |
| LTD | Limited |
| MARS | Municipality Administration and Revenue System |
| MOFA | Ministry of Foreign Affairs |
| MOFALD | Ministry of Federal Affairs and Local Development |
| NDMC | National ID Card Management Centre |
| NEGIF | Nepal E-Governance Interoperability Framework |
| NITC | National Information Technology Centre |
| NTA | Nepal Telecom Authority |
| OCC | Office of Controller of Certification |
| OCR | Office of Company Registrar |
| OECD | Organisation for Economic Co-operation and Development |

| | |
|---|---|
| OSI | online services Index |
| PKI | Public Key Infrastructure |
| RONAS | Royal Nepal Academy of Science and Technology |
| SMEs | Small and Medium Size Enterprises |
| TII | Technical Infrastructure Index |
| UK | United Kingdom |
| UN | United Nation |
| UNDP | United Nation Development Program |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| VERMIS | Vital Event Registration Management Information System |
| VRS | Vehicle Registration System |

# Table of contents

# List of figures

# List of tables

# 1 Introduction

Nowadays, the world is advocating for the smart governance to establish good governance in a country, while most of the underdeveloped and developing countries are struggling to implement e-governance. Since development and implementation of country strategies (e-governance and/or smart governance) are directly related to country-specific factors such as the economy, political stability, and development of infrastructure. For the case of Nepal, political instability is a vital hindrance to the development of the country as well implementation of e-governance. On the last decade, Nepal has gone through the legislative reform with its new constitution 2015 which establish as the Federal Republic of Nepal from Democratic Monarchy. So, this research will try to explain and evaluate the e-governance system of Nepal and significant challenges to the e-government due to the transition to federalism.

## 1.1 General Background of Study

Accountability, transparency, responsivity, effectiveness, and efficiency are major characteristics of good governance among eight [1]. The use of information communication technology (ICT) for the governance can help to achieve these characteristics, which can be referred to as e-governance and use of e-governance mechanism in the government sector or public sector is perceived as e-government. The rate of adaption of e-government is increasing rapidly, as in 2003, only 45 and 33 countries had one stop platform and online transaction capabilities, but in 2016 the number increased to 90 and 148 respectively [2]. However, progress and development of e-government in between the countries poses a significant gap, for instance, according to UN e-government survey 2016, almost 70% countries (128) has low and middle online services index (OSI) [2]. The same kind of figure exists for other indexes as well, which suggest that the progress of development and implementation of e-government in most of the countries is not satisfactory as compared to the technology development in the world. Further, if we analyse that meticulously, we can figure it out that most of the third world countries are on the list of 128 countries. It is because,

development and implementation of not only e-governance but all so overall strategies depend on the state-specific factors such as political system and stability, economy, literacy, and infrastructure development. Furthermore, context and content determine the requirement of good governance of a country [3]. The context and content of country play a vital role in the development and implementation of e-governance as well.

*According to UNESCO e-governance means "E-governance is the public sector's use of information and communication technologies with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective. E-governance involves new styles of leadership, new ways of debating and deciding policy and investment, new ways of accessing education, new ways of listening to citizens and new ways of organizing and delivering information and services. E-governance is generally considered as a wider concept than e-government, since it can bring about a change in the way citizens relate to governments and to each other. E-governance can bring forth new concepts of citizenship, both in terms of citizen needs and responsibilities. Its objective is to engage, enable and empower the citizen."* [4, p. 3]

*In world bank definition: "E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions."* [4, p. 1]

There are numerous studies regarding the challenges in the implementation of e-government for many countries like Oman, Egypt, and Ukraine [5]–[9]. Most of the researcher identified political, administrative, infrastructure, demographic, social and economic factors of a country as the main obstacles to implementing e-governance. If we analyze these factors, we can identify that these factors vary by the country. So, there is no such one-best-way model for achieving good governance or effective governance; good governance means different things in different countries [3].

Furthermore, there are some studies available regarding the challenges in the implementation of e-governance, particularly in Nepal [10]–[14]. However, findings are similar to the above literature, but the context and content for Nepal are different than the countries mentioned above. Likewise, its diverse geography and political instability contribute more to restrict the progress of e-government development.

In 2006 Nepal emerged from a decade-long Maoist insurgency and a century-old Hindu monarchy to form a secular democratic republic, with the interim constitution. In 2008, the first CA election was conducted successfully, and in 2010 the deadline for CA was extended for one year and finally in 2012 it was dissolved after failing to produce a draft constitution. In 2013, they have successfully conducted the second CA election. Finally, in 2015 Nepal passed a landmark constitution which ensures Nepal as a secular democratic republic [15]. From 2008 to 2018, Nepal has been ruled by 11 prime ministers, which shows how unstable Nepali politics is [16].

According to the constitution of Nepal 2015, Nepal has three tiers of government, that is the Federation, the State, and the Local government. The Federation level contains seven provinces, which are divided based on previous districts. The local level includes 77 districts, six metropolitan cities, 11 sub-metropolitan cities, 276 municipalities, 460 rural municipalities and 6,743 number of wards [17]. Nepal has enormous challenges associated with diverse geography, cultural, language, and religion, to practice decentralization. Nepal needs and is in the phase of amending their current laws, regulation, Act, and frameworks based on the constitution as political changes and socio-economic realities of countries must move simultaneously. As the country is going to restructure all sector, this is the right time to implement e-government in the country. So, research needs to be done, to find out how to amend or how to use existing infrastructure, policies, rules, and regulation for the new government structure. Furthermore, it is important to identify the problems due to the transition into federalism not only in e-government but also all areas of the country. However, this research will focus on e-government sector and will try to find out the current status of e-government and challenges due to the transition to the federalism in Nepal.

## 1.2 Problem Statement

Nepal has population 29.3 million and an area of 147.181 square kilometres [18]. It is a landlocked country which lies between two Asian giants India and China. Nepal is characterized by highly diverse geography, steep terrain and lack of access to government services by people, especially in the rural and remote areas. E-Governance supposed to be an easy way to deliver government services to people throughout the country, and expect to overcome those complications [10], [11].

Development and implementation of e-government in Nepal started since 2000 as the national IT policy was developed and enforced. However, it got its form after the development of e-governance master plan(e-GMP) 2006 with the coordination of KIPA (Korea Institute of public administration). In this time frame since 2006 to now, Nepal has gone through a political reformation, Nepal became the Federal Republic of Nepal from Democratic Monarchy with the enforcement of Nepal constitution 2015. While Nepal is progressing in e-government implementation on the basis of EGMP, due to political instability, reluctance to adopt the new system by a government officials, lack of ICT education, and poor infrastructure, the progress is not expected as other countries [10]. This progress is hindered as transitioning democracies usually have many challenges like entrenching constitutionalism, state restructuring, instituting and promoting structures for the effective management of natural resources, sustainable development, and political stability, and safeguarding human rights and the rule of law, while dealing with the democratization [19], [20]. On the one hand, use of ICT can help the fragile state to stabilize by developing infrastructure, increasing public engagement and overall development of country providing transparency and market liberalization [21]. On the other hand, the progress of development and implementation of ICT on government sector highly depends on the political stability of the country. Hence, the major problem is to develop and implement e-government simultaneously with the democratic transition.

Recently Nepal has gone through the transition to the federalism, the main problems are, to develop e-governance in all three levels of the country and integration between different system. Additionally, how to use change management concept on existing e-government system or framework. So, the government can meet the principles of good governance for effective governance during the transition and afterward.

## 1.3 Objectives of the Study

As mention above, there are challenges in transitional democracy, and research needs to be done to find out what are main challenges in e-governance system due to the political instability and constitutional reform or transition democracy. So, the primary objective of the study is to identify the difficulties in e-government system of Nepal due to the democratic transition into federalism. For this research, the primary research questions are as follow.

- **RQ1**: What are the challenges for the e-government system of Nepal due to federalization?
  o What are the challenges in human resource and technical infrastructure development?
  o What are the challenges regarding the political situation?
  o What are the challenges to maintain trust towards government and financial matter (socio-economy)?
  o What are the legal challenges?
  o What are the challenges for secure migration in terms of cybersecurity?
- **RQ2**: How to maintain the value of good governance or effective governance after the transition?
- **RQ3**: Why change management in e-governance system of Nepal is required?

## 1.4 Significance of the Study

The primary objectives of e-government are to develop accountable, effective and efficient, transparent services delivery and information sharing process in government with more citizens' participation in the decision-making system of the government.

The main aim of federalism is to develop a decentralized system of power and development. So, citizen participation can increase in the decision-making process of government.

Hence, this study will try to provide an overview of the e-government status, and the challenges associated with the development of e-government in federal Nepal with the recommendation or possible solution. Additionally, this study will give some understanding for the researcher about the context and content dependent factor on e-

government. Also, the problem associated with the transition democracy and e-government will provide insight to tackle the problem of evolving e-governance.

## 1.5 Organization of Study

This study has six chapters. Which are as follows:

**Chapter 1:** Introduction, this chapters deals with the introduction of study which include general background, the central problem, objectives, significance and itself organization of the study.

**Chapter 2:** Review of Literature, deals with the general concept and status of different e-government, related acts and policies in Nepal. Furthermore, this chapter will review the pieces of literature about e-governance and federalism and explains the theory of good governance and change management in e-governance.

**Chapter 3:** Research Methodology, discuss the case study research method, and the activities which were carried out for the research.

**Chapter 4:** The case, gives an overview of the study area that is Nepal, constitutional changes associated with Nepal and current status of e-government in Nepal.

**Chapter 5:** Results and Discussion, deals with the case discussion, results of the research and possible solution for the case.

**Chapter6:** Conclusion, summarize and conclude the study with further research suggestion.

# 2 Review of Literature

E-government, federalism, good governance and change management are different terms and have different importance while talking about the development of the country. Their significance may or may not be identical to all nation since different countries have different conditions (political, geographical and social) and definition. To understand the correlation between them, analysis of previous work related to the domain and identification of research gap with the current time need to be figured out. With the context and content of Nepal, this chapter will try to provide a general overview and related work on these domains.

## 2.1 Context and Content Related to Nepal

All the previous research in e-government to some extent talked about the content and context. The success factor for e-government depends on context and content of particular country [7], [22]. For the case of Nepal, research suggests that context like political and administrative will, literacy rate, geography and demography, and legal framework are still crucial issues in implementing e-government in Nepal [11], [14]. The following section will provide a review of context (e-governance evolution) of Nepal and content of primary policies (IT Policy 2015, EGMP, and draft Umbrella Act).

### 2.1.1 E-governance evolution in Nepal

The first notable use of information technology in government sector in Nepal was the use of an IBM1401 computer for census 1971 conducted in 1971/1972 comparatively earlier than other developing countries [11], [23]. But, afterward, progress is not optimum concerning the development of ICT industries. However, with the policies for computer education in school, technical training for higher studies, and the establishment of IT park in the 9th periodic plan (1997-2002), and more importantly promulgation of IT Policy 2000, use of the computer in strategies in government was started [23].

Since 2000 Nepal government has initiated different initiatives in the field of e-government such as the establishment of National Information Technology Centre (NITC) in 2001, set-up High-Level Commission for Information Technology (HLCIT) in 2003, announced Electronics Transaction Act in 2004 and promulgated five-year (2007-2011) action plan for e-governance (E-GMP) in 2006. Following Table 1 represent a chronological initiative for the development of ICT in Nepal.

Table 1: A chronological initiative for the development of ICT in Nepal

| Year | Initiatives |
|------|-------------|
| 1913 | Telecommunication services started in Kathmandu, Nepal |
| 1972 | Introduction of an IBM1401 computer for census |
| 1974 | Establishment of Electronic Data Processing Centre |
| 1982 | First Private Overseas Investment in software development by establishing company for export, Data Systems International (p) LTD |
| 1985 | Distribution of Personal Computers |
| 1990 | Liberalization on imports of equipment |
| 1992 | Establishment of Computer Association of Nepal, National Broadcasting Act 1992, and National Communication Policy |
| 1993 | Introduction of the Internet in Nepal by RONAST and MOS |
| 1996 | Establishment of Ministry of Science and Technology |
| 1997 | Declaration of Telecommunication Act 1997 |
| 1998 | Establishment of Nepal Telecommunication Authority |
| 2000 | Promulgation of the first IT Policy, "IT Policy 2000." |
| 2001 | Establishment of NITC |

| | |
|---|---|
| 2003 | Establishment of IT Park in Banepa, Nepal |
| 2003 | Organization of HLCIT |
| 2004 | Introduction of Electronic Transaction Act and Telecommunication Policy 2004 |
| 2007 | Enactment of Electronics Transaction Act |
| 2008 | Formation of Office of Controller of Certification (OCC), ICT Development Project (2008-2014) |
| 2010 | Promulgation of revised "IT Policy 2010." |
| 2011 | 10 Year Mater Plan (2011-2020) by Nepal Telecom Authority |
| 2012 | Establishment of Department of Technology |
| 2013 | Initiation of ICT in Education Master Plan 2013-2017 |
| 2014 | Draft of IT Umbrella Act |
| 2015 | Introduction of National IT Roadmap, E-GMP 2, Broadband Policy 2015, IT Policy 2015, Promulgation of The Nepal constitution 2015 |

With these initiatives in government policies, Nepal is progressing to the implementation of e-government. However, overall progress is still not satisfactory, but for the last few years, there was a significant improvement in growth. As according to UN e-government survey Nepal's e-government index ranked 135th position in 2016 while they were in 164th position in 2014.

Moreover, based on these policies Nepal successfully implemented Public Service Recruitment System. Additionally, Inland Revenue Department, Office of Company Registrar, E-Procurement, Data Centre of the supreme court, and Driving license system also provides e-services to the citizen. Initiatives such as VERMIS (Vital Event Registration Management Information System), Land Reform Information Management System, government cloud, and National ID card are in final stage of running. Which shows progress, but which is not satisfactory as compared to others. Meanwhile, after

the declaration of the constitution of Nepal 2015, the context for Nepal has been changed, so there is a requirement of research to find out how federal constitution, change in context can affect the implementation of e-government.

## 2.1.2 Review of Main Policies

### 2.1.2.1  IT Policy 2015

With the vision "To transform Nepal into an information and knowledge-based society and economy" and the mission "to create a condition for the intensified development of ICT sector as a key driver for Nepal's sustainable development and poverty reduction." IT Policy 2015 replaced previous IT Policy 2010 with the vision "To place Nepal on the global map of information technology within five years."

To make information accessible, promote transparency, fairness, and accountability in government agencies while service delivery is one of the vital principles among others nine guiding principles. The aims of the policy are to cover entire population with internet access, provide 80 percent of citizen-facing government services online, and make 75 percent of the population digitally literate by 2020. Furthermore, enhancing overall national ICT readiness to stand top on the second quartile of international ICT development index and e-government is a vital goal of this policy.

The policy focused on the usage of IT for e-governance, and sectors such as agriculture, tourism, health, education, and business. Furthermore, development of human resource and telecommunication infrastructure are also priorities sector. Some of the fundamental objectives of the policy are.

- To transform Government service delivery regime by promoting transparency, efficiency, inclusiveness, and participation through effective utilization of information and communication technologies.
- To foster efficient, interoperable, secure, reliable and sustainable national ICT infrastructure in alignment with grass-root needs, and compliant with the regional and international standard.
- To create easily accessible, affordable and innovative public access points under a comprehensive E-community/ Village network initiative.

- To create a favourable environment for cooperation and partnership in ICT among public and private sectors, civil society, and between all stakeholders at local, national, regional and international levels.
- To facilitate the adoption of E-Commerce especially by SMEs in agriculture, tourism, and manufacturing as well as non-traditional exports to ensure productivity and growth.
- To support the development of mid-to-long term basic planning that provides policy direction and tasks for e-Government.

Following are the main strategies defined to achieve the vision, mission, and objective.

- Digital literacy will be encouraged as an essential requirement for employment and promotion in all sectors.
- Community based ICT training and sensitization program will be developed and promoted in conjunction with local government authorities, the private sector, and civil society.
- A comprehensive National ICT curriculum and qualification system will be developed covering a set of market driven competencies.
- Special tax instruments and incentives to promote the development of the local ICT production and services industry will be developed and implemented.
- Proper institutional and staffing arrangements will be made with a view to driving e-government initiatives, securing periodic update of GEA and providing crucial coordination support. It will also set ICT standards and implementation guidelines, with an emphasis on open standards and reducing total cost of ownership of IT implementations in government agencies.
- E-government initiative of the Government of Nepal will be conceptually premised around open government theme, embracing transparency, accountability and cooperation among the public sector, private sector and civil society. Along these lines, opening of government data will be promoted so that people and businesses can access and make use of this data, using multiple channels and technologies.

The most recent IT Policy has declared before the constitution, so this policy does not mention any roles, responsibility and even participation of provincial government. However, according to constitution state government need to mobilize resource and

means to implement national principle, policies, and obligation [17], Which shows the necessities of an amendment in polices.

### 2.1.2.2 e-Governance Master Plan

The first version of e-government master plan was developed in 2006 with the help of KIPA, which had vision "The value networking through citizen-cantered service, transparent service, networked government and knowledge-based society" and mission "Improve the quality of people's lives without any discrimination, transcending regional and racial difference, and realize socio-economic development by building a transparent government and providing value-added quality services through ICT"[24]. This version of the plan initially came up of with 33 projects in sectors comprising G2C, G2B, G2G, and infrastructure. Among them, eight priority projects were selected, which were building groupware systems for government, government portal, national identification, e-education, communication network, enterprise architecture, PKI and integrated data centre. Out of these eight priority projects, only integrated data centre (NITC) and official portal are visible outcomes while national identification system has developed but not implemented yet, and other projects are established in a paper such as e-education and enterprise but no progress in a field.

E-governance Master Plan 2 (2015-2019) has developed in 2015 to keep up with technological progress and changing time which results in increasing capacity and appetite for service delivery, a connection between government, business and citizen, and progressive infrastructure development. EGMP2 identified e-Agriculture, e-Education, e-Health, and e-Tourism as a most demanded and priority sectors in Nepal.

With the three dreams effectiveness, accessibility, and accountability focusing on the sustainability, capacity building, services delivery, and implementation. EGMP2 has the mission "Improve the quality of life of Nepalese citizen without any discrimination; balancing regional and ethnic differences and supporting federalism in Government activities; realize socio-economic development with a transparent government by providing value-added quality services through ICT in Government priority sectors and support the Right to Information initiatives of Government of Nepal."

Increasing efficiency of government bodies through the use of ICT, providing services to citizen and businesses, providing an accessible and appropriate mechanism of sharing

information between government bodies and reducing duplication of information and promoting local ICT industry are the goals and strategies for EGMP2 are listed below:

- Continuation of ongoing e-Government projects and systems to make them sustainable in the long run.
- A pilot project with Government of Nepal funding and local expertise
- Proliferate after the successful implementation of pilot projects, with external funding (if required).
- Improve local ICT capabilities to support and sustain e-Government drive.
- Focus on projects for G2B and G2C services with services delivery and revenue collection in perspective
- Promote innovation in providing new Government of Nepal services.

### 2.1.2.3 Draft IT Umbrella ACT

With the aim to cover related the ICT policies in Nepal draft IT Umbrella Act 2014 has been prepared and discussed in a workshop on 27 June 2014 with stakeholders. However, it does not cover the topics such as payment gateway provision and privacy, but it consists of following topics [25].

- The inclusion of Electronic Records as Evidence.
- Digital Signature Provisions
- E-Contract & e-Commerce Provisions
- Controller and Certification Authority Provisions
- Functions, Duties and Responsibilities of Clients of Digital Certificates.
- E-Government
- Domain Name Registration & Management
- Data Security and Data Centres Provisions
- Cyber Security Provisions
- IT Service Providers / Intermediary Provisions
- Cyber Crime Provisions
- IT Tribunal Provisions
- Miscellaneous

This ACT has also declared before the constitution, so topic and all the content does not address the new context of Nepal.

## 2.2 Good Governance Through E-governance

Governance does not interchangeably mean government. It has mainly three aspects government, citizen and others social organization. So, we can say that governance is the interaction between government, others social organization and citizen and their relationship with each other in the process of decision making. However, there is no single definition of governance, not only definition varies across different organizations but also varies within the organization. For instance, UNDP and world bank define governance as following respectively.

*"The exercise of economic, political and administrative authority to manage a country's affairs at all levels. It comprises the mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences."*[26, p. 3]

*According to world bank 1994 governance means "the manner in which power is exercised in the management of a country's economic and social resources", with "three distinct aspects: (i) the form of political regime; (ii) the process by which authority is exercised in the management of a country's economic and social resources for development; and (iii) the capacity of governments to design, formulate, and implement policies and discharge functions".*[27, p. 14], [28, p. 3]

*According to the world bank 2010 document governance means "the rule of rulers, typically within a given sets of rule."* [28, p. 3]

Still, with the distinct perspective, all the definition has those three aspects government, public or private organization and citizen. Furthermore, governance is not only the interaction between different sector but also it is about how the state process and manage the resource and regulatory power.

Effective governance is the aim of every governments in the world, but the questions are; how can we access the effectiveness of governance? Who are the responsible what are the characteristics of effective governance.? To address these question development

agencies defined the term good governance and its principle and characteristics to achieve effective governance. Basically, good governance is an effective and efficient management of resource and regulatory power. However, there is also different definition by different development agencies and scholars about the good governance. Some of the definition of good governance by development agencies and scholars are presented in the following Table 2.

Table 2: Definition of Good Governance

| Agencies | Definition |
|---|---|
| United Nation Development Program | "Good governance refers to governing systems which are capable, responsive, inclusive, and transparent. All countries, developed and developing, need to work continuously towards better governance. <br><br> Good, or democratic governance as we call it at UNDP, entails meaningful and inclusive political participation. Improving governance should include more people having more of a say in the decisions which shape their lives". [28, p. 6] |
| World bank | "good governance entails sound public sector management (efficiency, effectiveness and economy), accountability, exchange and free flow of information (transparency), and a legal framework for development (justice, respect for human rights and liberties)".[26, p. 4] |
| Surendra Munshi | "good governance signifies a participative manner of governing that functions in a responsible, accountable and transparent manner based on the principles of efficiency, legitimacy and consensus for the purpose of promoting the rights of individual citizens and the public interest, thus indicating the exercise of political will for ensuring the material welfare of society and sustainable development with social justice".[26, p. 4] |
| Organization for | "In its work on public governance, the OECD focuses in |

| | |
|---|---|
| Economic Cooperation and Development (OECD) | particular on the principal elements of good governance, namely:<br><br>Accountability: the government is able and willing to show the extent to which its actions and decisions are consistent with clearly-defined and agreed-upon objectives.<br><br>Transparency: government actions, decisions and decision-making processes are open to an appropriate level of scrutiny by other parts of government, civil society and, in some instances, outside institutions and governments.<br><br>Efficiency and effectiveness: government strives to produce quality public outputs, including services delivered to citizens, at the best cost, and ensures that outputs meet the original intentions of policymakers.<br><br>Responsiveness: the government has the capacity and flexibility to respond rapidly to societal changes, takes into account the expectations of civil society in identifying the general public interest, and is willing to critically re-examine the role of government.<br><br>Forward vision: the government is able to anticipate future problems and issues based on current data and trends and develop policies that take into account future costs and anticipated changes (e.g. demographic, economic, environmental, etc.).<br><br>Rule of law: government enforces equally transparent laws, regulations and codes."[28, p. 8] |

With different definition and a different number of characteristics for good governance, there are some common characteristics highlighted by those definitions which are accountability, effectiveness, efficiency, participation, responsiveness, and the rule of law.

16

## 2.2.1 Working principle of good governance

UNDP (1997) defined five working principles of good governance as legitimacy and voice, direction, performance, accountability, and fairness [29], [30]. Whereas OECD identified accountability, transparency, efficiency and effectiveness, responsiveness, forward vision and the rule of law as the fundamental principle of good governance. Furthermore, Council of Europe (2008) enshrined 12 principles for good governance [31]. Yu Keping (2018) identified the six characteristics or principle of good governance which are presented in the following table [32].

Table 3: Working Principle of Good Governance

| S.N. | Principle | Definition / Meaning (Related text) |
|---|---|---|
| 1 | Legitimacy | "The state or quality that social order and authority are voluntarily recognized and obeyed". Administrators and administrative bodies need to obtain maximum consent and approval of their decision and activities. |
| 2 | Transparency | "All citizens are entitled to the information on state policies that are related to their own interest including legislative activities, policy-making, legal provisions, policy enforcement, the administrative budget, public expenditure and other relevant political information." |
| 3 | Accountability | Administrators, administrative bodies and all decision-makers must fulfil the functions and obligation of their position and take responsibility for their decision. |
| 4 | Rule of law | "Law is the supreme principle in public political administration that should be observed by all government officials and citizens, who should be all equal before the law." |

| 5 | Responsiveness | "Public administrators and administrative bodies must respond to the demands of citizens in a timely and responsible manner, and that it is forbidden to make delays without cause or leave any issue unresolved without response." |
|---|---|---|
| 6 | Effectiveness | Use of maximum resource and flexible administrative activities at low cost with national regulatory structure. |

Good governance is not only the active and productive cooperation between state and citizen but also it divides the legitimate power between state and civil society [32]. Most of the studies about e-governance suggest that the use of ICT in the governance process helps the state to achieve good governance [33]–[35]. The main principle of good governance such as accountability, transparency, responsiveness, and effectiveness and efficiency can be achieved through e-government.

The goal of e-government can be classified into individual, societal, organizational and political and based on these classification strategies to achieve can be defined as increase accessibility of government service to individuals, better utilization of society's resource, empowering organizational members, and enhancing governmental accountability respectively [22]. Those strategies mentioned by Nour are closely related to the principle of good governance.

However, the content and context of the state affect the way of achieving good governance. Good governance depends on the country-specific factor such as fiscal rules, political systems, and cultural, and it is different with different countries [3]. So, e-governance helps to achieve good governance but the good governance and e-governance both depends on country-specific content and context.

Most researchers concluded that e-government helps to enhance good governance, as well as context and content dependent of e-government implementation but research needs to be done to find how transitional democracy affect to achieve good governance

through e-government as it is directly related to the central principle of good governance rule of law.

## 2.3 E-governance and federalism Review

Federalism is a constitutional political system which creates separation of the executive, legislative, and judicial branches of government at national, provincial or state and local level. It is a type of constitution in which there are three levels of government: national, provincial and local. Based on these branches, vertical division of executive power, horizontal separation of subnational legislature and judicial federalism are the three dimension of federalism [36], [37].

The main goals of e-government system are to strengthen good governance and make government responsive to a citizen by increasing public participation, creating a better business environment and improving productivity and efficiency of government agencies [36], [38]. To achieve these goals e-government need to integrate vertical and horizontal branches of government. Furthermore, e-government technologies and policies need to develop interoperability between horizontal and vertical branches of government. Consequently, with this approach, the roles and responsibilities of branches (national, provincial and local) of government becomes unclear. So, the main challenges due to e-government are to manage interdependence of government branches and use of ICT [39].

Nowadays, the information communication technologies and globalization help to erode national border on the business sector, likewise these technologies are boosting the concept of globalization framework "borderless world". However, other than this sector, national boundaries still exist. As conventional federalism talks about the power separation between different level of government, and a border differentiates these different levels of government, the globalization frameworks make it less distinct. With these points, Roger Gibbins (2000) argued that "territorial foundations and jurisdictional preoccupation of the federal state are vulnerable to the transformative impact of ICT". Additionally, he suggested not to rush to embrace new technological paradigm and impact of ICT depend on the level of the government which exercises political leadership [40]. Whereas Paul T. Jaeger (2002) identified e-government as a sector with the great potential to produce many benefits for both citizen and government, however,

e-government strategies should reflect the fundamental constitutional principle such as federalism and separation of power [36].

A comparative study of e-government and federalism in Italy (a country progressively moving towards the federalism) and Canada (federalist jurisdiction) by Ubaldi and Roy (2010) identified the requirement of better alignment in e-government, territorial development effort, and federalist arrangements. Furthermore, they suggested that the political leadership play a vital role while developing the e-government across jurisdictional boundaries [41].

On the one hand, e-government seems to be a centralized system. On the other hand, federalism tends to make more decentralization use of power and resources. Thus, research needs to be done in the more specific way to find out the correlation between these domains. Furthermore, a particular study of how the transition to federalism affect e-government strategies and vice versa with consideration of the context and content of Nepal will also help Nepal government to enhance good governance during the democratic transition and afterward.

## 2.4 E-government and Change Management

Change management is the evolving process of modification on organization's direction, structure and capabilities to provide services to their internal and external stakeholder. Additionally, it is the ever-present organizational feature on both operational and strategic level [42]. Change is the inevitable process in the organization, as well as in strategic level; an organization needs to make its strategies to address the requirement of evolution. So, managerial skills come in front to cope with change management. As mention in Todnem's work, Gratez suggested that "Against a backdrop of increasing globalization, deregulation, the rapid pace of technological innovation, a growing knowledge workforce, and shifting social and demographic trends, few would dispute that the primary task for management today is the leadership of organizational change" [42, p. 1]. Thus, change management required managerial skill from the leadership of the organization.

Change is unpredictable; however, the pace of change has never been higher than current business environment and these changes are triggered by an external and

internal factor, which can give some visualization behind the difference [42]. It is the primary responsibility of the management team to identify the external and internal factor which are an inheritance to change of organization. Furthermore, the external factor can be technological innovation and globalization. Whereas, internal elements can be a social and demographic trend within the organization, nevertheless the control of an administrator can address these issues. For the case of government, dynamically changing the economic and political environment, rules and regulations themselves have to be continually improved [43]. Also, a large number of interdependent public services, as well as complexity of interpreting change in governmental rules and regulation, makes change management more complex.

## 2.4.1 Change Management Models

Despite, the unpredictability of the change, and it variability with different organizations, there are some change management models, which help to find a way to manage change, as mention by Bosilj in [44, p. 14]; "There is no one right way, but there are a number of frameworks within you can find a way that is right for your change today." Lewin's change model (1951) identifies unfreezing, effective change and refreezing as the three stages of change [44]. Furthermore, following table present the different change management model suggested by a different scholar [45].

Table 4: Different Change Management Models

| S.N. | Scholar | Attribute/ principle/ stages |
|------|---------|------------------------------|
| 1 | James Prochaska and Carlo DiClemente (1970) The stage of change: | The stage of change: Pre-contemplation, contemplation, preparation/ determination, action/ will power, maintenance and relapse |
| 2 | Mickinsey 7S model: | 7S model: Shared vision (vision and mission of the organization) Strategy (plan of organization) The structure (organizational structure) System (process and procedures of the organization while providing services) |

| | | Staffs (people and their duties within the organization) |
|---|---|---|
| | | Style (culture and management style of organization) |
| | | Skills (ability and competence of organization and staffs) |
| 3 | Kotter's Eight step change model | 8 steps to change: Increase urgency of change, build a team for the change, construction the vision, communicate, empower, create short terms goals, be persistent, make the change permanent. |
| 4 | Prosci AKDAR model | AKDAR: Awareness for a need of change A desire to participate and support to change Knowledge of how to change Ability to implement change on a day-to-day basis Reinforcement the change to keep the change in place |

Seniro (2002) categorizes change into three types which are: change characterized by the rate of occurrence, change characterized by how it comes, and change characterized by scale [42]. [45] also classified change management as reactive (responding in a macro environment), proactive (obtain defined goal), continuous basis (scheduled) and ad hoc (program by program). As shown in Table 4, there are the different stages and steps on different models of change management but phase 1 (preparing for change), phase 2 (managing and implementing the change), and phase 3 (reinforcement of the change) are there on all the models. Moreover, the image below describes the more specific change management process by [46, p. 172].
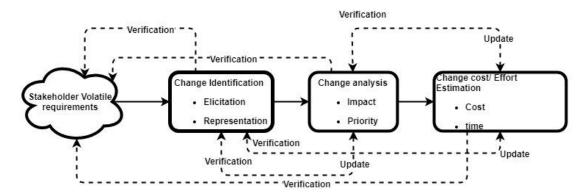
Figure 1: Change Management Process Source [46]

As change has a different meaning in various organization, government, and project, Stojanovic (2007) mentioned, change management in government system is more complicated due to a large number of interdependent services within government. Furthermore, it is much more complicated for the e-government system as they required not only technical change but also policies and regulations. However, scholars such as Jayatilleke and lai (2018), Janja Nograsek (2011), Sameer Sachedeva (2008), Dimitri Apostolou and Ljiljana Stojanovic (2007) did research primarily on the change management for the e-government. Ljiljana (2007) identified ontology-based change management which enables the detection of inconsistency in the description of e-government and suggestion for public administration to solve the problem. Whereas, Janja Nograsek identified technology as the central component and leadership as the governing component of e-government change management.



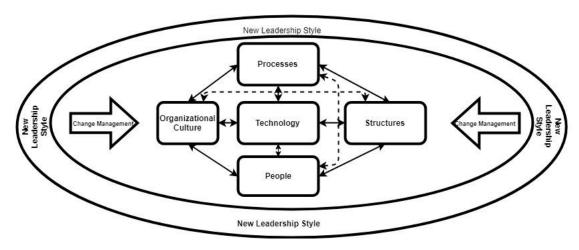Figure 2: Change Management Model of E-government Implementation source: [44]

Available research tried to find the change management model for e-government system, as e-government systems are the self-evolving systems but these studies are insufficient for the case of political and constitutional transformation. These studies are more focused on organizational change and technical change associated with e-

government system but not concentrated on contexts like political and legal change, as a transition process is directly related to e-government process and countries' rule and regulation and vice-versa. Research need to be done to identify change management model for managing constitutional or political change or democratic transition in e-government system. Additionally, context and content matter as change is not same for different organizations and countries.

# 3 Research methodology

At the beginning stage of the study, several pieces of literature were reviewed. The literature review identified that the requirement of research on democratic transition and its effects on implementation of e-government. Furthermore, literature review pointed out the development and implementation of e-government is directly dependent on context and content. So, the study focuses on particular context and content of Nepal; a case study research methodology was chosen. As a case study is "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident"[47, p. 13]. Furthermore, Yin suggested that a case study research is suitable when the focus of the study is to answer a 'how' and 'why' question; when an investigator has no control over actual behaviour and context; and the phenomenon under study or boundaries are not clear with the context. For this study, using the case study methodology justifies the purpose because the study is limited to context and content of Nepal. Additionally, the researcher has no control over the behaviour of stakeholders, and main motivation of study is to find out 'how' democratic transition affects the implementation of e-government by identifying 'What' challenges associated with democratic transition and e-government. This chapter is all about research design, the source of data collection, data analysis tool and technique for the case study research method and as well it encompasses the limitation of the study.

## 3.1 Research Design

A case study is the most common research strategy, which does not only increases knowledge about individuals, groups, and organizations and political, social and related phenomenon but also delivers the phenomenal changes in the field such as psychology, political science, social works, business and community planning [48]. According to Yin a case study research can be the single case and multiple cases. A single case study is common for doing case studies for holistic design as well as embedded units of analysis and which is justifiable for the cases such as case represents a critical test of an existing theory, cases are rare or unique, and cases serves a revelatory purpose [47].

A case study is not only suitable for exploratory but also applicable for descriptive, explanatory and improving purpose of studies [47]–[49]. The exploratory purpose of studies defined as " finding out what is happening, seeking new insights, and generating ideas and hypothesis for new research" [48, p. 13]. While descriptive study tries to portrait current situation or phenomenon, explanatory search for the explanation of situation or problem and improving a certain aspect of the studied phenomenon.

This research uses a single case (holistic) design as a case study with an exploratory purpose. Since, the unit of this research is a country's (Nepal) e-governance system, and democratic transition is not a frequent phenomenon in a country, then this shows the relevance of using single case design. Furthermore, the purpose of this study is to find out the consequence of democratic transition (transition to federalism) in e-governance system, which is all about the identifying the present status and trying to find out a new understanding of these two domains federalism and e-governance. These purposes justify the exploratory nature of this study.

## 3.2 Source of Data Collection

The unique feature of case study research is the use of different data sources, which enhances the validity of data [47], [49]. The potential data source can be but not limited to documentation, interviews, archival records, direct observation, and participant observation. For this study document and interviews were used as data sources.

The primary data were collected from interview whereas secondary data were also studied and mostly acquired from different reports, published and unpublished documents, information from individuals, expert organizations related to domains of this study and information from various related websites.

A total of eight semi-structured interviews were conducted with different stakeholder from the different level of government (see Table 5), but based on the request of interviewees, their personal details are not disclosed. Semi-structured interviews are a standard way of collecting data and which works well for exploratory research as it allows improvisation of different ideas and issues during the conversation [48], [50]. Furthermore, Informal discussion with employees of government organization was also conducted to understand their understanding about e-governance as well as challenges

associated with a democratic transition. The list of interview questions is provided in Appendix 1.

Table 5: Classification of Interviewees by Level of Government

| S.N. | Level | | | Numbers | Goal of Interviews |
|---|---|---|---|---|---|
| 1 | Local Level | | | 2 | To identify status in local level<br><br>To identify the perspective of local government toward |
| 2 | Regional Level | | | 2 | To identify perspective form regional level (which is like province) |
| 3 | National Level | Government | Strategies Level | 2 | Perspective from strategies level |
| | | | Services Level | 1 | Identify the perspective from successful e-service |
| | | Academic | | 1 | Perspective form scholar and advisor to the government |

## 3.3 Data Analysis Tools and Technique

Grounded theory and basic qualitative analysis or analytic induction (coding text fragments, which can be a transcript of unstructured interviews or focus group discussion, field notes, document, diaries and life stories) are primary methods for the qualitative data analysis [51]. However, both technique needs coding and categorizing. "

27

A code is a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" [52, p. 3]. The data analysis process starts with coding and then after sorting, synthesizing and theorizing are the other steps. Coding and categorizing is all about developing the themes and theory form the codes and category. Saldana suggested two cycles of coding and categorizing these are a 1st cycle and 2nd cycle coding. Furthermore, he suggested 31 coding method or technique out of which, descriptive and structural coding techniques were used for 1st cycle coding, and pattern coding was used for 2nd cycle coding on this thesis.

A descriptive code is a word or short phrase which summarize the basic topics of a passage of qualitative data and applicable for all qualitative studies additionally more useful for a beginner of the qualitative researcher and studies with a wide variety of data [52].

According to Saldana, structural codes are the content-based or conceptual phrase representing a topic of inquiry to a segment of data. Additionally. It is useful for all qualitative research and more particularly for those employing multiple participants, standardized or semi-standardized data gathering protocols, and hypothesis testing.

Pattern code develops the category (meta-code) with similarly coded data. Pattern coding is the way of grouping those codes into a smaller number of sets, and themes [52]. Furthermore, it is appropriate for 2nd cycle coding to develop significant themes from the data.

There are separate ways of doing coding and categorizing like manual and electronic coding. Manual coding is done manually by printing the data and using distinct colour for different codes. Whereas electronic coding uses specific computer software designed for data analysis purpose, specifically computer-aided qualitative data analysis software (CAQDAS) such as Nvivo, Atlas, and RQDA. For this study RQDA was used because it is free, open source, easier to use and based on R which is known for quantitative analysis.

## 3.4 Limitation of Study

Despite being more often used research methodologies, some limitations are still there in case study methodology. Yin pointed out three arguments against the case study. First, lack of rigor, as "too many times, the case study investigator has been sloppy and has allowed equivocal or bias views to influence the direction of the findings and conclusion" [47, p. 9]. The second concern with case study is lack of generalization since they use particular context. The third criticism of case study is they took too long and resulted in massive, unreadable documents. [47, p. 10]

Another limitation mainly researching developing countries is accessibility, reliability, and verifiability of data.[14] Sometimes it is difficult to find the data in developing state and also hard to access that information due to the bureaucratic process. Including these methodological and contextual limitations, the current study also has limitation some of which are:

- This study was more focused in strategic level from the perspective of services delivery; technical and end-user aspects could result in a different conclusion.

- The study was for overall e-government system of Nepal. So, services level or sector levels such as education, health, and transportation study could generate different outputs.

- The interview was conducted in a local language; there might be a slight deviation in translation while making a transcript.

# 4 The Case

This chapter will present the general background information about Nepal, constitutional changes that have occurred after new constitution, and status of e-government in Nepal. In fact, this is the case for this study.

## 4.1 Background Information About Nepal

Nepal is a landlocked country located in between two growing economy giants India and China. It is a multi-ethnic, multilingual, multi-religious, and multi-cultural country. According to census 2011, there are 123 languages and 125 caste and ethnic group residing in Nepali society, among them Nepali is the official language. However new constitution has provided the right to choose their official language within the state. Nepal has a wide variety of topography which makes different weather and climate. Nepal can be divided into three regions: Mountain, Hilly, and Tarai (plane land) region. According to census 6.7, 43.0, and 50.3 percentage of total population is living in region respectively. Mountain region contains various mountains including Mount Everest with other eight highest picks in the world. Furthermore, forest covers approximately 39.6 percent of total area (Government of Nepal, Secretariat, & Statistics, 2016). Brief information about Nepal is presented in following table data is arranged from different source mostly from [18].

Table 6: Nepal at a glance

| Population | 29.3 Million |
|---|---|
| Area | 147,181 square Kilometre |
| Average Life Expectancy at birth (2011) | |
| Total | 66.6 years |
| Male | 65.5 years |
| Female | 67.9 years |
| GDP at the basic price (constant) in a | 729.53 USD |

| | |
|---|---|
| million (2016/017) | |
| Electricity Coverage [53] | 84.9 % |
| Fixed Broadband (wired) subscription [54] | 8.33% |
| Fixed Broadband (wireless) subscription [54] | 1.13% |
| Mobile Broadband subscription [54] | 17.17% |
| Tele-density (2016) by population | 127.67 % |
| Literacy rate average | 65.9% |
| Male | 75.1% |
| Female | 57.4% |

## 4.2 Constitutional Changes in Nepal

In 2015 Nepal promulgate landmark constitution, "The constitution of Nepal 2015", which establish Nepal as the secular republic of Nepal. That was a guideline of 2nd mass movement 2062 B.S. (2006) (known as Jana Aandolan), but Nepali political leaders were unable to declare the constitution from the 1st constitutional assembly in 2012. However, the 2nd constitutional assembly elected in 2013 passed landmark constitution 2015. Before 2006, Nepal has a democratic constitution with the King as head of state (that is a multiparty parliamentary democracy) [55]. In between, interim constitution 2007 was functional from 2007 to 2015.

The constitution of Nepal 2015 defines Nepal as "an independent, indivisible, sovereign, secular, inclusive, democratic, socialism oriented, Federal democratic state." The constitution further provides the rights of the citizens, some of which are right to freedom, right to equality, right to communication, right to information, right to privacy, and right to social security. It has provision for the three level of government namely

federation (National), the state and the local level. Similarly, it divides the country into seven different province and local level as district, municipalities and village bodies. The level of government after and before the constitution is presented in Figure 3 and Figure 4 respectively.
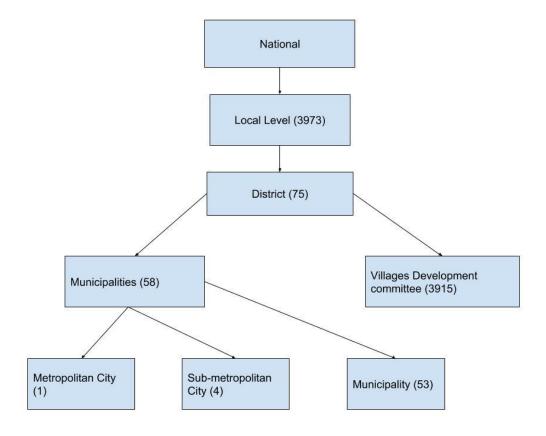


Figure 3: Level of Government based on the previous constitution

As shown in the figure, before the new constitution, Nepal had 2 level of government. National and local level, local governments were further divided into three levels, district, municipality, and villages.
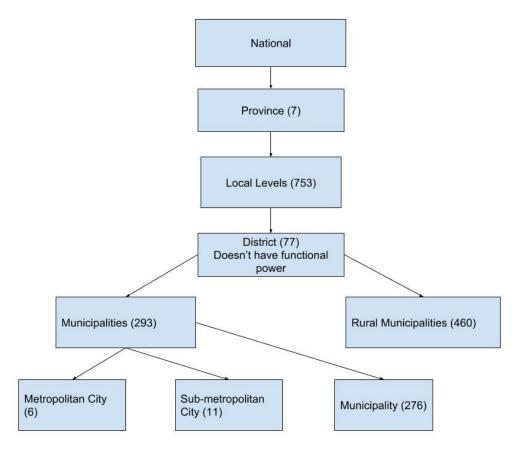
Figure 4: Level of Government based on the new constitution

On both, (before/after) structure, the local level government are further divided into ward level. The above figures 3 and 4 shows a clear picture of the restructuring of government architecture that has occurred after prolongation of the constitution. The new constitution has provided different power for the various levels of government. More importantly all the three level of governments have special autonomous power as well; however, district assemblies only have limited power.

Constitution provides twenty-two exclusive powers to the local level government, and fifteen other powers are shared with the centre level government and the provincial government. Furthermore, thirty seven powers are provided to ward level by ministry of local development [56]. According to Schedule-8 of the new constitution, local bodies will have powers to deploy town police, own cooperative institutions, operate FM radio. Additionally, they have authority to collect local taxes including wealth tax, house rent tax, land and building registration fees, motor vehicle tax, service charges, tourism fees, advertisement tax, business tax, land revenue tax and others. Additionally, local units can create a plan, implement projects and monitor within local levels, while ward level

can issue the recommendation for citizenship card, certify different vital events such as birth date, marriage, and death.

The use of ICT in national development is mention in constitution 2015 section 51(f) point no five(5) which states "to ensure easy and simple access of the general public to information technology by developing and expanding information technology to the tune of national needs, and make optimum utilization of information technology in the national development."[17], [57] So, more or less, the necessity of use of ICT in government is mention in the constitution.

## 4.3 Status of E-government in Nepal

UN E-governance survey 2016 indicate that Nepal is ranked 135th among 196 countries with EGDI (E-governance development index) 0.3458. According to that survey, Nepal has 0.3986, 0.1675, and 0.4714 in OSI (online services index), TII (Technical infrastructure index), and HCI (human capital index) respectively. Nepal is in 6th position in South Asia leading Pakistan (159th) and Afghanistan (171st) but lagging India (107th), Maldives (117th), Bangladesh (124th) and Bhutan (133rd). Sri Lank is the south Asian leader in 79th position with 0.6522 EGDI, while UK is the world leader with 0.9193 EGDI. The standing of Nepal is not satisfactory with comparison to other countries but has considerable progress in the implementation of e-governance. For instance, in 2014 Nepal was in 165th position in EGDI [58], which shows that there is some level of e-governance exist in Nepal and there is notable progress. Some of the major e-government initiatives in Nepal are:

- Inland Revenue Department provides e-services to all taxpayers.
- Office of Company Registrar (OCR) for registration of companies and is interconnected to IRD.
- Passport System by MOFA.
- e-Procurement system
- VERMIS, EBPS, MARS by MOFALD
- Data Centre by Supreme Court
- Record Keeping by Election Commission
- Public Service Recruitment System,
- VRS and Licence System

- Land Reform Information Management System.
- National ID.

There are so many systems which are operated independently. For example, there is no connection between tax system and National Identity Card. Interoperability framework is not operational, which can help to reduce the number of independent systems. The fascinating concept of Government Enterprise Architecture guideline or system exists in the theory but not in implementation. The positive thing is that all the local bodies have their websites; however, how much and how frequently information is updated is another side of the coin.

### 4.3.1 VERSSMIS

VERSSMIS (Vital Event Registration and Social Security Management Information System) is the system which is used in all levels of government. The primary function of VERSSMIS is to register vital events such as birth date, marriage, divorce and death and details of social security such as name and amount. Current coverage of VERSSMIS is presented below.

- Online vital events registration unit: 1369
- Population coverage:31.28%
- Office Coverage: 16%
- Area coverage: 13%
- All Social Protection Beneficiaries   has been digitized

### 4.3.2 NID

National Identity Card is another essential e-services. The national ID is a multi-applicable biometric smart card, which contains all the information of citizen and a unique identification number (that is ID). The development phase of this system is almost completed. However, NIDMC (national ID card management centre) is unable to decide distribution date.

# 5 Results and Discussions

As discussed in chapter three the primary data collection method for this study is expert interviews. A total eight interviews were conducted with experts from different levels of government. Furthermore, various coding and categorizing techniques were performed to analyse those outcomes of conversations. The thematic analysis for this study is inductive, as this study does not have pre-hypothesis and codes were generated from the transcript of interviews as well as carrying out an iterative process of analysis. In inductive research "the researcher first observes with an open mind, identifies patterns in the observations, sets up tentative hypotheses, and finally relates them to existing theory or develops a new theory"[48, p. 16]. This chapter will present the category or theme generated from the inductive approach to answer the primary research question of this study by different coding techniques as mentions in chapter three. The major categories that emerged from the data analysis were opportunity and necessity, challenges in implementation, influencing factor and a requirement for change (the pictorial view is in Appendix 2 – Thematic Map of Code and Category).

**Opportunity and Necessity:** Most of the interviewees think that the progress of development and implementation of e-government is not satisfactory. However, some of them think improvement is good enough from the perspective of availability of resource and context of the country. One of the interviewees mentioned that "Currently Nepal has a slow pace of e-governance implementation- though we have some shareable instances of e-governance implementation in Nepal, none of them are delivered on time, those implemented are also lacking smooth operation". Another important aspect of progress is the gap between the urban area and rural area. It is obvious that due to the availability of resource, development and adaptation e-services are significantly increasing in urban areas. However, those e-services are unable to cover their services in rural area. Interviewees think that ignorance, lack of coordination and cooperation among the government, and political instability as the main reason behind the unsatisfactory progress. The argument "The main problem with Nepal's slow-paced e-governance implementation is lack of cooperation and coordination among government agencies, and ignorance of e-GMP with NEGIF" from one interviewee emphasized the problem of lack of coordination and governmental support on e-governance implementation. As coordination and cooperation among the inline agencies of

government and support from the government are main requirements for successful development of e-government. Furthermore, most of the previous research has also argued that there is unsatisfactory progress in the implementation of e-governance in Nepal due to similar causes [10], [14].

All the interviewees have strong feeling that federalism will provide opportunities for e-government to flourish within the country. One of the persuasive argument from an interviewee is "federalism if well implemented concerning e-governance can be an excellent tool- for citizen-centric, efficient and transparent service delivery". However, participants pointed out that an adverse effect of federalism in e-governance is the possibilities of increasing number of stand-alone systems, since the autonomy of local units gives the right to identify their requirement, plan and implement projects as per requirements. On the other side, the independent power of local government will benefit the implementation of e-governance as there will be fewer stakeholders involved in the decision-making process and local bodies can identify their requirement for the smaller, defined and target area, and which helps to create demand-based customs application rather than supply-based application. However, while developing demand-based e-services, local bodies should not forget the norms or objective of e-governance, the 'once only principle' of e-governance which means citizens or business needs to provide same information only once, and an administrative body should reuse them considering the data protection rule [59]. Furthermore, reviewed literature suggests that while interrelating or interconnecting different e-services, those strategies or systems need to reflect the constitutional principle such as federalism and separation of power. This argument provides the support for most of the interviewees' thought, that due to possibilities of increasing number of independent systems, uniformity between those autonomous systems is essential to overcome data silos. Some of the interviewees argued that there should be one central level governing system to oversee local level systems and other respondents established the needfulness for proper implementation of interoperability framework. This is also supported by the studied literature, that is in federalism the communication between horizontal and vertical branches of government is necessary [36], [38]. So, federalism in e-governance not only provide opportunity but also shows the necessity of interoperable systems for the context of Nepal.

**Challenges in Implementation:** There are always challenges associated with the development and implementation of new systems in all countries, but nature and

number of challenges can vary according to the context and content of the country. This is also applicable for the case of e-government implementation, studied literature suggest that the context and content play a vital role. Reviewed literature identified history, culture, technical staff, infrastructure, citizen, and government officials are the distinguishing factor in developed and developing countries [8]. However, reviewed literature exposed that the challenges associated with developing countries are quite similar, which are political, administrative, infrastructure, demographic, social and economic factors. All the interviewees think that the coverage and development of infrastructure is the central issue in Nepal due to diverse geography. Infrastructure such as internet and electricity are the essential things to develop e-governance, and most of the rural areas of Nepal do not have access to these, causing difficulties to implement e-government at ward level. Argument from one of the interviewees shows the problem of infrastructure coverage, in his exact word "Since the internet is not uniformly distributed in the country, bias can be noticed in service delivery; as in central capital state is exercising more e-governance processes and far west states deprived of steady connections". Furthermore, budget, the government will, and leadership are fundamental influencing factors for infrastructure development. Another significant challenge is a human resource in the field of information communication. Despite there are several educational institute, college, and university, there is still lack of skilled human resource and lack of digital knowledge on the available human resource; this is due to the fact that most of young citizen are migrate outside the country for education and work. For instance, 39307 number of no objection certificates were issued by Ministry of Education for nine months in 2015/2016 [60]. Retention of human resource is a key influencing factor, particularly in the field of ICT, private companies provide more facilities than government, which makes government sector an unpopular sector for work. One of the interviewees disagree that there is an issue regarding the human resource in Nepal, but the same interviewee pointed out that training is essential not only for IT personnel but also for all the government officials.

Others primary challenges for the development of e-government in Nepal are literacy, political instability, political and governmental determination [12], [14], [23]. For instance, the average literacy rate in Nepal is 65.9%,[18] moreover among those literate population it is difficult to identify how many are digitally literate. Digital literacy or knowledge of ICT is a main influencing factor, which is present not only in demand side (that is citizens) but also in service provider side (that is government employees). Localization of IT systems

and services is another problem, "computer systems are not always in local language" was the argument mention by one of the interviewees. This problem will become more complicated as the new constitution mention Nepali as the formal language but also provide a right for provincial government to use another language as a secondary because Nepal is a multilingual country. The main challenges associated with the transition to federalism is the possibilities of growing number of standalone systems. Additionally, maintaining uniformity and developing the interoperable system is another important aspect afterward.

**Influencing factor:** There are not always straightforward reasons behind the occurrence of certain events, but there are some hidden things which impact performance. This study has identified influencing factor in the domain of federalism and e-governance in the context of Nepal. The most influential factors identified are political instability, budget, leadership, security, and legal framework. Political instability boosts the challenges associated with the implementation of e-government as it causes frequent changes in project team, leadership and eventually make changes in priorities. Political instability not only directly impact government and political will, but also influence the development of infrastructure and so on. Budget is another influencing factor as some interviewees think there is not sufficient budget to develop and implement. On the other hand, some believe that due to increasing interest of international donor agencies in e-governance sector make a budget as a secondary thing. However, the budget is also closely associated with the leadership, as a leader are responsible for making strategies, implementation of that strategies and allocation of budget for the implementation of those strategies, as most of the projects fail due to poor project implementation capability because leaders are the responsible for the utilization of resources. The statement "We have never seen any political parties serious about introducing e-governance practice in the country. The problem is with the leadership and tends to continue with the federal states" by one interviewee makes it clear that there is a lack of political interest and leadership for the context of Nepal. The lack of legal framework and policies regarding security issue are not the primary challenges currently but they also influence the implementation. These are not current challenges because there is no such example available where projects fail solely due to the security issue, it will eventually impact on the responsiveness of the system and as literature showed that responsiveness is one of the main principles of good governance. For the context of Nepal, cybersecurity issue has more influence as there is no proper cybersecurity acts

available and digital signature implementation is not satisfactory; even some government web page does not have primary HTTPS security, which might cause a severe problem in future as the system becomes more complex as well as more informative.

The importance of leadership, legal framework, human resource and political will was identified by [61] as challenges for e-government and are the findings of this research; which is also valid for the present context. Even, the E-governance master plan mentions the requirement of a proper legal framework for implementation of e-governance [25], but again the execution part is weak and still lagging. Rule of Law is the most important principle of good governance and developing legal framework for e-governance system can be one conceivable way to achieving that principle of good governance. Further, Social factor such as resistance to change and generation gap also contribute to the different challenges. These social factors again interrelated with other factors such as digital literacy and retention of human resource. Majority of the government officials, as well as political leaders and employee, do not have the digital knowledge, which contributes to phobic nature for e-governance. However, one of the interviewees states that:

> *"Cost is not an obstacle towards e-governance implementation in Nepal, neither are any socio-economic factors. It is government's priority that needs to foster e-governance."*

**Requirement for Change:** These challenging and influencing factors demand changes in the process and systems, furthermore the main influential factors identified in this study are unsatisfactory progress, lack of legal framework and lack of change management systems. Reviewed documents act, and policies (for instance, EGMP and IT policy) showed that the necessity of amendment as they were developed and implemented before the promulgation of the new constitution, and these documents do not include the norms of federalism. In addition, unsatisfactory progress in the development of e-government also demand the changes in existing policies, procedure, and infrastructure. E-government itself is an evolving process due to the innovation of ICT sector and rapid development of ICT sector. So, changes need to be managed to cope with the evolving nature of e-governance as well. All the interviewees mentioned that the changes are inevitable, and change management is a continuous process.

Additionally, some of them think there is lack of change management framework, available policies, and guidelines are more procedures oriented rather than result oriented, so it is essential to amend or manage change for which process re-engineering can be done. Reviewed literature also suggests that the change management is a continuous process and requires managerial skill from the leadership. But factors such as the lack of leadership skills and political/governmental priority makes change management more complex and point out the requirement of some change management process or framework.

Table 7 below presents the different sectors and above discussed different challenges and influencing factors. Areas such as human resource, infrastructure, political and administration, socio-economy, legal and security are taking into account in this study. We asked sectors wise interview questions after the generalized question to dig deeper into finding causes and influencing factors. As discussed above most the interviewees do not see challenges due to federalism in e-governance. However, they pointed out the difficulties and influencing factor for overall e-governance system which will also hider the progress after the transition. The most important sectors are human resource and infrastructure development, which has direct influence on e-government development, also interviewees pointed out human resource and infrastructure development as most challenges sectors. Digital literacy, retention of human resource, and lack of skilled human resource are the leading contributing factor in human resource sector. While leadership, budget, and difficult geographical terrain are the crucial challenges to develop infrastructure. Due to complex geographical terrain, the development process may need more budget and to allocate budget. To allocate budget, government need to possess the will, but in Nepal, this is lacking, which causes difficulties in infrastructure development. So, there is a vast difference in the infrastructure coverage in urban areas and rural areas. Available infrastructure and speed of internet are the main influencing factors in infrastructure development sector; these factors indirectly affect implementation process. For instance, due to the slow internet, most of the e-service takes longer time to process in the respective browser, which is not user-friendly and affect eventually on the acceptance rate of e-services.

Political and administrative situation, legal, and socio-economic sectors are other sectors which have more influence on the development of e-government. The main challenges associated with political and administrative sector are lack of willpower in

political system as well as in organizational leader and unstable government. Despite having different rules and regulations but there is still lack of legal framework for e-governance in Nepal, and another aspect is the implementation of available policies and guidelines are also not satisfactory. The requirement of a legal structure is not only mentioned in EGMP but also all the interviewees think it is significant. There are no challenges in the process of the amendment but again to perform this process, the priority of government will play vital role. As discussed above lack of implementation of digital signature and lack of security policies are the main difficulties in the security sector.

Table 7: Sectors with identified influencing factors and/ or challenges

| Sectors | Influencing factors and/or challenges |
| --- | --- |
| Human Resource | Lack of skilled human resource, retentions of human resource (prominent level ICT), lack of IT Knowledge in the majority of government officials |
| Infrastructure coverage | Budget, leadership, necessary infrastructures such as internet and electricity, difficult geographical terrain, poor available infrastructure (old or not updated), internet connectivity and bandwidth |
| Political and administrative situation | Lack of leadership skills, political instability, political will, the priority of a government |
| Socio-economy | Budget, reluctant to change, a generation gap, literacy rate, localization, |
| Legal | Lack of legal framework, the requirement of amendment of most of |

| | the act, policies and guideline, implementation of the interoperability framework |
|---|---|
| Security | A digital signature, lack of cybersecurity policy |

## 5.1 Recommendation

Based on the finding of this study, we came up with some recommendations. First, all the policies, guideline and even the EGMP needs to be amendment so that they will include the norms of federalism. For the uniformity in development of e-governance at the local level, we recommend that the government should provide guidelines for local bodies. Secondly, the proper implementation of Nepal e-governance interoperability framework needs to be started as soon as possible, as there are already a number of standalone systems available for instance Nation ID and VERSSMIS. Most of the information such as name, birth date, address and data of family used in VERSSMIS system can be useful to NID, but there is no any interlink between these systems. Furthermore, the constitution itself, mentioned about the necessity of an interoperability between systems in section 51(f) point 7, " government needs to develop an integrated national identity management information system and manage all kinds of information and data of the citizens in an integrated manner and linking such system with the services and facilities provided by the State and with national development plans" [17], [57]. Also, according to the reviewed literature, effectiveness and responsiveness is the fundamental principles of good governance, so to achieve norms of good governance, interoperability framework aid importance in a system.

The third suggestion is that, security issues does not seem to be important in the early phase, but this issue is significant in the digital world since there are hundreds of cybersecurity incidents happening per day around the world. It is better to consider security issue from the start of development of e-service and system. We recommended developing cybersecurity policy to tackle cybercrime as well as to use a proper

mechanism to prevent that, as the consequence might cause greater loss than investment in security.

The fourth recommendation is that a change management framework for the e-governance system of Nepal needs to be developed and implemented. This is to tackle increasing globalization, the growing knowledge of employees, and pace of technological innovation. In addition to that, based on the reviewed literature we suggested a change management framework for Nepal using Lewin's model of change, which is discussed below.

**Change Management Framework:**

The results indicated that change management in e-government as a continuous process, as e-government system needs to cope with technical advancement. Based on results of this study and reviewed literature, we propose a continuous change management framework based on Lewin's model of change (Figure 5: Proposed Change Management Framework). Lewin's model of change has three steps, which are: unfreeze, transition and refreeze [44], [45].

Unfreeze: The unfreeze stage represents the reluctance to change stage as many people tend to be comfortable in the unchanging environment. So, the goal of unfreeze stage is to create awareness about the change and resistance factor.

Transition: In this stage, change becomes real. Due the adaptability of people, this step takes longer time. The transition is the step where people are unclear, uncertain and struggle with the new reality. For this step education, communication and support are critical for an employee.

Refreeze: On this stage, the organization once again becomes stable. It is the significant step to ensure that people do not revert to the previous stage. Positive rewards and personal acknowledgment are the necessary technique to reinforce the changes.

The study showed that currently, Nepal governance system is at unfreeze stage as there is the necessity of change, but people are reluctant. So, different training and awareness programme needs to be initiated by the government for the employees, so that they can understand why e-governance is essential and how e-government will help them to perform their works. For next step, continuous capacity and leadership development

training is required to motivate employee and political leaders to cope with the technological development and changes. As technology is evolving, there is a possibility of advancement of the system such as an addition of some feature and introduction of another subsystem, which may cause difficulties for employees to adapt those changes. So, continuous capacity development is required. Furthermore, acknowledgment from the government will boost employee willpower, which eventually helps to establish those changes within the systems.

Figure 5 shows the proposed change management framework for overall e-government system of Nepal, which has three major blocks; unfreeze, transition and refreeze. Each block has different activities, and the government needs to take initiative to perform these activities, so leadership skill is an essential thing in change management.

As shown in the figure, change management is a continuous iterative process; three stages will iterate continuously. For instance, if government identified one requirement for change then they will need to implement that change, and finally they establish that change but again they will need to define new conditions for another change. The government needs to perform major activities but also need to take initiation for subsequent actions to achieve those stages. For instance, in the 1st stage, the government have to identify the requirement for changes, and after identification, they need to informed stakeholders about changes and motivate to adopt those changes.

In the second stage, those identified changes will be implemented. Continuous monitoring is required at this stage because adjustments are performed, and these changes have a different effect on different stakeholders. Furthermore, to boost the effort of employees, government needs to provide training at this stage, so that employees can acquire knowledge about changes.

In the third stage, the government will establish changes, which means the changes are successfully managed because of the support from the stakeholders. so, acknowledgment does not only boost stakeholders moral but also motivates for another process as well. Capacity development training can be the one way to encourage stakeholders (public and private organization, employee, and citizen). After establishing the changes, the government needs to identify others change requirements, as e-governance system is an evolving process and development of ICT demands changes

not only in the system but also in the process. This framework focused more on training because the result of this study outlined digital literacy as a significant challenge not only from the perspective services users but also from the perspective of the services providers. Additionally, change management requires leadership skills, but for the case of Nepal most of the political leaders themselves are not so digitally sound; thus, the government has to trained them during the different stage of change management process.
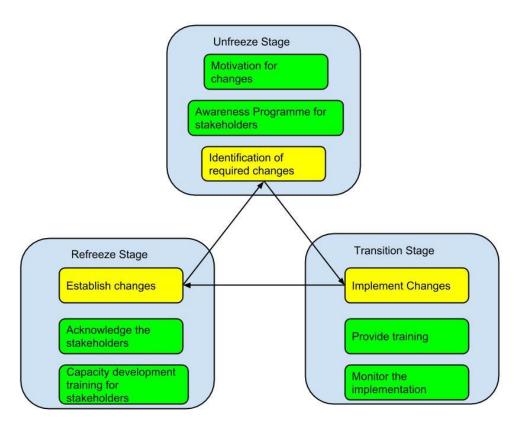


Figure 5: Proposed Change Management Framework

# 6 Conclusion

The primary objective of this study was to find out the effect of democratic transition or constitutional changes in e-government system of Nepal. On the one hand, democratic transition is not a natural phenomenon nowadays, because most of the countries faced these kinds of transformation before the 21st century. On the other hand, e-government started becoming contemporary concepts after the end of 20th century, which makes it clear that there is a lack of proper study and also contributes to the difficulties in finding existing literature. However, this study was carried out in the context of Nepal to answer the central question: "What are the challenges for the e-government system of Nepal due to federalization?" (RQ1) Additionally, this study was supposed to provide evidence for questions such as: "How to maintain the value of good governance or effective governance after the transition?" (RQ2) and "Why change management in e-governance system of Nepal is required?" (RQ3). To identify the causes and answer those questions expert interviews were carried out and thematic analysis was done. Based on the findings, results, and discussion, we came up with three conclusions (Conclusion 1, Conclusion 2, and Conclusion 3) for the research question RQ1, RQ2, and RQ3 respectively, which are:

Conclusion 1: Transition into the federalism does not obstruct the implementation of e-government rather federalism will provide opportunities for e-government to flourish at the local level. However, it potentially results in more stand-alone systems, in addition, there are challenges and influencing factors inherited from the overall development and implementation of e-government system in context and content of Nepal. Which are:

- Infrastructure coverage
- Human resource
- Literacy rate
- Localization
- Political will and instability
- Priority of Government
- Leadership
- Budget
- Security

- Retention of human resource
- Resistance to change
- Lack of legal framework

Conclusion 2: Uniformity in potential stand-alone system and coordination with different local bodies are the critical issues after the transition. The interoperability framework and change management framework are essential to overcome those issues and help to maintain the effectiveness of government.

Conclusion 3: Generally, change is inevitable. Due to the unsatisfactory progress, changes in legislative structure, lack of legal framework, the requirement of an amendment in various rules and regulation, and most importantly absence of change management strategies, it is evident that change management framework is required to tackle those inherited challenges, influencing factors and maintaining the value of good governance after the transition.

RQ1 is further divided into the sub-questions to identify the sectoral challenges such as technical, human resource, legal, and security sectors. The lack of skilled human resource, retention of human resource, budget, infrastructure development and absence legal framework were the main findings for those sectors. For more details of results see Table 7.

Based on the limitation of this study discussed in chapter three, we realize technical and end-user perspectives as potential areas for the future research. Furthermore, this study was focused on the holistic view of e-government. So, project level. service level, or sectoral level studies can be done to dig deeper in these domains. For instance, research questions such as; "what are the challenges due to federalism in e-health systems?" and "Challenges associated with the implementation of interoperability framework in Nepal" can be potential research question. This will not only contribute in the country but also provides insights of these two domains e-governance and federalism in the scholar world.

# References

[1]     Sheng Yap Kioe, "What is Good Governance?" United Nations Economic and Social Commission for Asia and the Pacific.

[2]     United Nation, "UN E-Government Survey 2016," 2016.

[3]     M. Andrews, "Good government means different things in different countries," *Governance*, vol. 23, no. 1, pp. 7–35, 2010.

[4]     S. C. J. Palvia and S. S. Sharma, "E-Government and e-governance: definitions/domain framework and status around the world," *Found. e-Government*, pp. 1–12, 2007.

[5]     M. A. Sarrayrih and B. Sriram, "Major challenges in developing a successful e-government: A review on the Sultanate of Oman," *J. King Saud Univ. - Comput. Inf. Sci.*, vol. 27, no. 2, pp. 230–235, 2015.

[6]     D. Dada, "The failure of e-government in developing countries: a lterature review," *Electron. J. Inf. Syst. Dev. Ctries.*, vol. 26, no. 7, pp. 1–10, 2006.

[7]     T. Schuppan, "E-Government in developing countries: Experiences from sub-Saharan Africa," *Gov. Inf. Q.*, vol. 26, no. 1, pp. 118–127, Jan. 2009.

[8]     Y. N. Chen, H. M. Chen, W. Huang, and R. K. H. Ching, "E-Government Strategies in Developed and Developing Countries: An Implementation Framework and Case Study," *J. Glob. Inf. Manag.*, vol. 14, no. 1, pp. 23–46, 2006.

[9]     M. Nesterenko, "Master Thesis Implementation of E-Government services Analysis of factors in case of Ukraine," 2014.

[10]    G. P. Adhikari, "Evaluation of e-Governance Projects of Nepal," *Proc. 6th Int. Conf. Theory Pract. Electron. Gov.*, pp. 472–473, 2012.

[11]    G. P. Adhikari, "Key issues in implementing e-governance in Nepal," in *Proceedings of the 1st international conference on Theory and practice of electronic governance - ICEGOV '07*, 2007, p. 243.

[12]    P. Kharel and S. Shakya, "e-Government Implementation in Nepal : A Challenges," *Int. J. Adv. Res. Comput. Sci. Softw. Eng.*, vol. 2, no. 1, p. Online, 2012.

[13]    D. B. Dhami and I. Futó, "Implementation Challenges of e-Governance in Nepal and Possible Steps," in *8th International COnference on Applied Informatics , EGR, Hungary*, 2010, vol. 1, pp. 433–445.

[14]    S. Shakya, "the Challenges of E-Governance Implementation in Nepal," Tallinn University of Technology, 2017.

[15]    "Nepal profile - Timeline - BBC News," 2017. [Online]. Available:

http://www.bbc.com/news/world-south-asia-12499391. [Accessed: 17-Feb-2018].

[16]    P. Neupane, "List of Prime Ministers of Nepal Till Now With Detail Information." [Online]. Available: http://www.imnepal.com/prime-ministers-of-nepal/. [Accessed: 22-Feb-2018].

[17]    GoN, "The Constitution of Nepal, 2072," vol. 2015, no. September, pp. 1–226, 2015.

[18]    Government of Nepal, N. P. C. Secretariat, and C. B. of Statistics, "Statistical Pocket Book 2016," 2016.

[19]    N. Silwal, T. C. Bruneau, and A. Chatterjee, "FEDERALISM IN NEPAL: DIVERGENT PERCEPTION AND CONVERGENT REQUIREMENT FOR DEMOCRATIC CONSOLIDATION," 2013.

[20]    Femi Falana, "Challenges of democratic transition in Africa | Pambazuka News," 2008. [Online]. Available: https://www.pambazuka.org/governance/challenges-democratic-transition-africa. [Accessed: 15-Feb-2018].

[21]    MARK JAMISON, "ICT essentials for rebuilding fragile states," 25-Oct-2016. [Online]. Available: https://blogs.worldbank.org/ic4d/ict-essentials-rebuilding-fragile-states?CID=ECR_TT_worldbank_EN_EXT. [Accessed: 16-Feb-2018].

[22]    M. A. Nour, A. A. AbdelRahman, and A. Fadlalla, "A context-based integrative framework for e-government initiatives," *Gov. Inf. Q.*, vol. 25, no. 3, pp. 448–461, Jul. 2008.

[23]    A. Paudel and B. Kafle, "Promoting E-Governance at Local Level," 2016.

[24]    Government of Nepal and KIPA, "E-Governance Master Plan Consulting Report," 2006.

[25]    Government of Nepal, "E-Governance Master Plan (eGMP)," 2015.

[26]    United Nations, "Definition of basic concepts and terminologies in governance and public administration," in *Committee of Experts on Public Administration Fifth Session*, 2006, p. 15.

[27]    World Bank, *Governance: The World Bank's Experience*. 1994.

[28]    R. M. Gisselquist, "Good Governance as a Concept, and Why this Matters for Development Policy," *WIDER Work. Pap. No. 2012/30*, 2012.

[29]    J. Graham, B. Amos, and T. Plumptre, "Principles for Good Governance in the 21st Century," 2003.

[30]    Mohammad Abdul Salam and Md. Zohurul Islam, "E-Government Service Delivery: An Assessment of District E-Service Centres in Bangladesh," *JU J. Inf. Technol.*, vol. 2, no. February, 2013.

[31] Council of Europe, "12 Principles of Good Governance and European Label of Governance Excellence (ELoGE)," 2008. [Online]. Available: https://www.coe.int/en/web/good-governance/12-principles-and-eloge. [Accessed: 13-Mar-2018].

[32] Y. Keping, "Governance and Good Governance: A New Framework for Political Analysis," *Fudan J. Humanit. Soc. Sci.*, vol. 11, no. 1, pp. 1–8, Mar. 2018.

[33] R. Heeks, "Understanding e-Governance for Development," *i-Government Work. Pap. Ser.*, vol. 20, no. 2, pp. 1–27, 2001.

[34] N. S. Kalsi and R. Kiran, "A strategic framework for good governance through e-governance optimization," *Program*, vol. 49, no. 2, pp. 170–204, Apr. 2015.

[35] V. Madzova, K. Sajnoski, and L. Davcev, "E-Government as an efficient tool towards good governance (trends and comparative analysis throughout worldwide regions and within West Balkan countries)," *Balk. Soc. Sci. Rev.*, vol. 1, pp. 157–174, 2013.

[36] P. T. Jaeger, "Constitutional principles and E-government: An opinion about possible effects of federalism and the separation of powers on E-government policies," *Gov. Inf. Q.*, vol. 19, no. 4, pp. 357–368, 2002.

[37] M. A. Cameron and T. G. Falleti, "Federalism and the Subnational Separation of Powers," *Publius J. Fed.*, vol. 35, no. 2, pp. 245–271, Jan. 2005.

[38] G. Yanqing, "E-government: Definition, goals, benefits and risks," *2010 Int. Conf. Manag. Serv. Sci. MASS 2010*, pp. 9–12, 2010.

[39] D. G. Lenihan, "E-Government , Federalism and Democracy : The New Governance," *Gov. An Int. J. Policy Adm.*, vol. 9, no. October, 2002.

[40] R. Gibbins, "Société québécoise de science politique Federalism in a Digital," *Can. J. Polit. Sci. / Rev. Can. Sci. Polit.*, vol. 33, no. 4, pp. 667–689, 2000.

[41] B.-C. Ubaldi and J. Roy, "E-government and Federalism in Italy and Canada—A Comparative Assessment," Springer, New York, NY, 2010, pp. 183–199.

[42] R. Todnem By, "Organisational change management: A critical review," *J. Chang. Manag.*, vol. 5, no. 4, pp. 369–380, Dec. 2005.

[43] L. Stojanovic, "Ontology-based change management in an egovernment application scenario," *Semant. Web Serv. Concepts, Technol. Appl.*, pp. 339–364, 2007.

[44] J. Nograsek, "Change Management as a Critical Success Factor in e-Government Implementation," *Bus. Syst. Res.*, vol. 2, no. 2, pp. 13–24, 2011.

[45] S. Sachdeva, "Change Management for e-Governance," 2008.

[46] S. Jayatilleke and R. Lai, "A systematic review of requirements change management," *Inf. Softw. Technol.*, vol. 93, pp. 163–185, Jan. 2018.

[47]    R. K. Yin, *Case Study Reserach - Design and Methods*. 2013.

[48]    P. Runeson, M. Host, A. Rainer, and B. Regnell, *Case Study Research in Software Engineering in Software*. A John Wiley and Sons, INC., 2012.

[49]    P. Baxter and S. Jack, "The Qualitative Report Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers," *Qual. Rep.*, vol. 13, no. 2, pp. 12–1, 2008.

[50]    K. McBride, "Government as a Platform: Exploiting Open Government Data to Drive Public Service Co-Creation," no. June, 2017.

[51]    B. Alan, *Social research methods*. 2012.

[52]    J. Saldaña, *The coding manual for qualitative researchers*. Sage Publicatin LTD, 2016.

[53]    The World Bank, "Access to electricity (% of population) | Data." [Online]. Available: https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=NP. [Accessed: 17-Apr-2018].

[54]    NTA, "Nepal Telecommunications Authority MIS Report," 2074.

[55]    K. N. Rankin, A. J. Nightingale, P. Hamal, and T. S. Sigdel, "Roads of change: political transition and state formation in Nepal's agrarian districts," *J. Peasant Stud.*, vol. 45, no. 2, pp. 280–299, Feb. 2018.

[56]    A. Dahal, "My Republica - Power to the local units," 2017. [Online]. Available: http://www.myrepublica.com/news/16655/. [Accessed: 17-Apr-2018].

[57]    DOIT, "Integrated IT Service Center || Department Of Information Technology," 2017. [Online]. Available: https://doit.gov.np/en/spage/integrated-it-service-center. [Accessed: 30-Apr-2018].

[58]    UNITED NATIONS, "E-GOVERNMENT SURVEY 2014 E-GOVERNMENT FOR THE FUTURE WE WANT," 2014.

[59]    M. A. Wimmer, "Once-Only Principle Reducing Administrative Burden for Citizens and Businesses," in *Tallinn e-Governance Conference 2017 and SCOOP4C stakeholder workshop Tallinn*, 2017.

[60]    M. of E. G. of Nepal, "Education in Figures 2016 At a Glance," 2016.

[61]    G. Sharma, X. Bao, and L. Peng, "Public Participation and Ethical Issues on E-governance : A Study Perspective in Nepal," *Electron. J. e-Government*, vol. 12, no. 1, pp. 82–96, 2014.

# Appendix 1 – Interview Questions

1. Explain the current status and progress rate of e-governance in Nepal? (नेपालमा विद्युतिय शासनको बर्तमान अवस्था र प्रगतिको बारेमा तपाईको धारणा ब्यक्त गर्नुहोस |)

2. What are the main on-going and successfully implemented e-governance projects in Nepal? (हाल नेपालमा चलीरहेका र सफलतापूर्ण कार्यान्वयन भएका विद्युतिय शासनका परियोजना कुन कुन छन् ?)

3. Are you satisfied with the progress of e-governance implementation in Nepal? (नेपालमा विद्युतिय शासन कार्यान्वयनको प्रगतिबाट तपाई सन्तुष्ट हुनुहुन्छ ?)

4. What do you think about the main reason behind why you think it is satisfying or not? (हजुरको विचारमा विद्युतिय शासन कार्यान्वयन सन्तोसजनक हुनु वा नहुनुको पछाडीका कारण के हुन ?)

5. What about federalism? Do you think, federalism is affecting the implementation plan of e-governance? (संघीयताको बारेमा हजुरको राय के छ?हजुरको विचारमा विद्युतिय शासन कार्यान्वयनमा संघीयताको प्रभाव कस्तो रहेको छ?)

6. What are the main challenges to implementing e-governance due to federalism? (संघीयताले विद्युतिय शासन कार्यान्वयनमा देखिएका प्रमुख चुनौती के के हुन?)

7. What are the problems to implement e-governance on the federal state in terms of existing national infrastructure such as electricity and the internet? (रास्ट्रिय पूर्वाधार जस्तै बिद्युत , इन्टरनेट आदिका दृष्टिकोणले नेपालका संघीय राज्यमा विद्युतिय शासन कार्यान्वयनका प्रमुख समस्या के हुन सक्छन?

8. What do you think, what are the problems in terms of technical aspect     such as computer literacy and human resource to develop and provide e-services? What do you think are the public mitigating factors related to the usage and acceptance of e-governance such as computer literacy and human resource considering the its technical nature? तपाईको बिचारमा विद्युतिय शासन सेवा प्रदानमा कम्पुटर शिक्षा, दक्ष जनसक्ति जस्ता प्राबिधिक कारणले पर्न सक्ने समस्या के के हुन् ? विद्युतिय शासन सेवाको प्राबिधिक प्रकृतिले जनस्तरमा यसको  प्रयोग र स्वीकार्यतामा कस्तो प्रभाब पर्ला ?)

9. What do you think about the security (cybersecurity and information security) of the current e-governance system in Nepal, is this secure enough? And what are the main problems in terms of security to implement e-governance on the federal state? (सुरक्षाको दृष्टिकोणले नेपालको बर्तमान विद्युतिय शासन प्रणालि कस्तो छ? संघिय ब्यबस्थामा रुपान्तरण गर्दा आउन सक्ने सुरक्षाका चुनौती तथा समस्या के के हुन सक्छन ?)

10. What about the cost to make decentralized e-governance system? what are the main obstacles to the implementation of e-governance in terms of socio-economic factors? (बिकेन्द्रिकृत विद्युतिय शासन प्रणाली बनाउन कति खर्च लाग्ला ? विद्युतिय शासनको कार्यान्वयनमा आउन सक्ने मुख्य सामाजिक-आर्थिक चुनौती के के हुन् ?)

11. Do you think there are any legal problems existing with the current e-governance system? Explain what can be the legal problem to implement e-governance in federal state of Nepal? (के बर्तमान विद्युतिय शासन प्रणालीमा कुनै कानुनी समस्या छन ? संघिय संरचनामा विद्युतिय शासनको कार्यन्वयनमा हुन् सक्ने कानुनि समस्याका बारेमा तपाईको बिचार ब्यक्त गर्नुहोस।)

12. Political desire or will is a key factor to implementing e-governance. Do you think there are any hindrances or problems associated with the political leadership and political parties towards the implementation of e-governance in the different federal state? (विद्युतिय शासनको कार्यन्वयनको मुख्य आधार राजनैतिक चाहाना र इच्छाशक्ति हो। विद्युतिय शासनको कार्यन्वयन प्रति राजनैतिक नेतृत्व र दलहरुको दृष्टिकोण कस्तो देख्नुहुन्छ ?)

13. Do we have proper e-governance change management strategies developed and to be implemented according to federal constitution? (के संघिय ब्यबस्था अनुरुप विद्युतिय शासनको को रुपान्तरित कार्यन्वयनको लागि उपयुक्त रणनीति तर्जुमा भएका छन् ?)

14. Do you think any amendment is necessary for EGMP (e-governance master plan)? What can these changes be if any and what can be the challenges making these changes? (EGMP (e-governance master plan) मा कुनै संसोधन गर्न आवश्यक छ ? यदि छ भने, के के हुन् र उक्त संसोधन संग आउने चुनौती के के हुनसक्छन?)

15. Lastly, say something about e-governance progress, federalism, and challenges for e-governance system due federalism. (अन्त्यमा, E-Governance को प्रगति, संघीयता र यसका चुनौतीहरुको बारेमा केहि विचार राख्नुहोस ।)

# Appendix 2 – Thematic Map of Code and Category